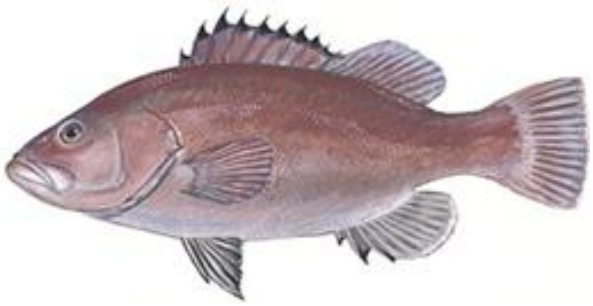
Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

DRAFT (2nd BB)

Rebuilding strategy, annual catch limits, and management measures for snowy grouper



Environmental Assessment Regulatory Impact Review Regulatory Flexibility Act Analysis

May 30, 2014

Definitions, Abbreviations, and Acronyms Used in the Document

ABC acceptable biological catch

ACL annual catch limits

AM accountability measures

ACT annual catch target

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

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

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

B_{CURR} the current stock biomass

CPUE catch per unit effort

DEIS draft environmental impact statement

EA environmental assessment

EEZ exclusive economic zone

EFH essential fish habitat

F a measure of the instantaneous rate of fishing mortality

$F_{30\%SPR}$ fishing mortality that will produce a static SPR = 30%

F_{CURR} the current instantaneous rate of fishing mortality

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

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

FEIS final environmental impact statement

FMP fishery management plan

FMU fishery management unit

M natural mortality rate

MARMAP Marine Resources Monitoring Assessment and Prediction Program

MFMT maximum fishing mortality threshold

MMPA Marine Mammal Protection Act

MRFSS Marine Recreational Fisheries Statistics Survey

MRIP Marine Recreational Information Program

MSFCMA Magnuson-Stevens Fishery Conservation and Management Act

MSST minimum stock size threshold

MSY maximum sustainable yield

NEPA National Environmental Policy Act

NMFS National Marine Fisheries Service

NOAA National Oceanic and Atmospheric Administration

OFL overfishing limit

OY optimum yield

RIR regulatory impact review

SAFMC South Atlantic Fishery Management Council

SEDAR Southeast Data, Assessment, and Review

SEFSC Southeast Fisheries Science Center

SERO Southeast Regional Office

SIA social impact assessment

SPR spawning potential ratio

SSC Scientific and Statistical Committee

Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Documents:	Environmental Assessment Regulatory Impact Review
Proposed actions:	This amendment would adjust the rebuilding strategy, acceptable biological catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery.
Lead agency:	Regulatory Amendment 20 – South Atlantic Fishery Management Council EA/RIR – National Marine Fisheries Service (NMFS)
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Summary

Needs to be updated; IPT is recommending the changes to Purpose & Need.

What Actions Are Being Proposed?

Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) proposes to adjust the rebuilding strategy, acceptable biological Catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery.

Who is Proposing the Action?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the action. The South Atlantic Council develops the regulatory amendment and submits it to the National Marine Fisheries Service (NMFS) who publishes a rule to implement the regulatory amendment on behalf of the Secretary of Commerce. NMFS is an agency in the National Oceanic and Atmospheric Administration within the Department of Commerce.

Purpose for Action

The *purpose* of this amendment~~for the of this proposed action~~ is to adjust the rebuilding strategy, acceptable biological catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery. These adjustments address the recent stock assessment results based on data through 2012.

Need for Action

The *need* for the amendment is to~~proposed action is to~~ prevent overfishing and continue rebuilding the stock while minimizing, to the extent practicable, adverse social and economic effects.

Why are the South Atlantic Council and NMFS Considering Action?

In 2004, the snowy grouper stock was assessed through Southeast Data Assessment and Review (SEDAR) process as a benchmark assessment (SEDAR 2004), which indicated that it was overfished and undergoing overfishing. In 2008, Amendment 15A to the Snapper Grouper Fishery Management Plan (Amendment 15A) defined a rebuilding schedule as the maximum recommended period to rebuild if T_{MIN} > 10 years. The maximum recommended period equaled T_{MIN} + one generation time = 34 years for snowy grouper, where 2006 was Year 1. Amendment 15A also defined a rebuilding strategy for snowy grouper that maintained a modified/constant fishing mortality rate throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009 would remain in effect beyond 2009 until modified = 102,960 pounds whole weight (ww).

In 2013, the snowy grouper stock was assessed through SEDAR as a standard assessment (SEDAR 2013), and the snowy grouper stock was determined to be overfished, but not undergoing overfishing.

SEDAR 2013 also recommended revised stock status criteria for snowy grouper. Therefore, Regulatory Amendment 20 to the Snapper Grouper FMP (Regulatory Amendment 20) would adjust the rebuilding schedule, update the ABC, ACL, MSY, MSST, OY, and revise management measures for the snowy grouper as per the latest stock assessment.

Summary of Effects

Needs to be updated

Action 1. Adjust the Rebuilding Strategy for Snowy Grouper

Biological Effects

Economic Effects

Social Effects

Administrative Effects

*Alternatives for Action 1 (preferred alternatives in **bold**)*

Alternative 1 (No Action). The current rebuilding strategy is specified as maintaining a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009, of 102,960 pounds whole weight (lb ww) remains in effect beyond 2009 until modified. The current acceptable biological catch (ABC) is 102,960 ~~pounds~~ lb ww consistent with this rebuilding strategy.

Alternative 2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{Rebuild}$ and ABC projections will change with each assessment. **Specify a probability of success of 50% or what the SSC recommends based on the ABC control rule (Council to specify).** ABC would change each year until 2019~~xx~~; the ABC for 2019~~xx~~ would remain in effect until modified.

Preferred Alternative 3. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F= 75\%F_{MSY}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $75\%F_{MSY}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

Alternative 4. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{current}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{current}$ and ABC projections will change with each assessment. ABC would change each year until 2019~~xx~~; the ABC for 2019~~xx~~ would remain in effect until modified.

Action 2. Adjust Annual Catch Limits for Snowy Grouper

Biological Effects

Economic Effects

Social Effects

Administrative Effects

Alternatives for Action 2
*(preferred alternatives in **bold**)*

Alternative 1 (No Action). The current acceptable biological catch (ABC) = 102,960 pounds whole weight (lb ww) or 87,254 pounds gutted weight (lb gw). The total annual catch limit (ACL) (=ABC), commercial ACL, and recreational ACL are shown below:

whole weight		Calculated Values		Implemented Values (SG Am 15B)		
ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Com ACL (95%)	Rec ACL (5%)	
102,960	102,960	97,812	5,148			
gutted weight						
ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Com ACL (95%)	Rec ACL (5%)	Rec # Fish
87,254	87,254	82,891	4,363	82,900	4,400	523

Alternative 2. Specify that ACL=ABC=OY.
The ACL, commercial ACL, and recreational ACL are shown below.

Whole Weight					
Year	ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Estimated Rec #Fish
2015	164,136	164,136	155,929	8,207	1,221
2016	178,791	178,791	169,851	8,940	1,319
2017	192,469	192,469	182,846	9,623	1,417
2018	205,170	205,170	194,912	10,259	1,466
2019	218,848	218,848	207,906	10,942	1,563
Gutted Weight					
Year	ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Estimated Rec #Fish
2015	139,098	139,098	132,143	6,955	1,221
2016	151,518	151,518	143,942	7,576	1,319
2017	163,109	163,109	154,954	8,155	1,417
2018	173,873	173,873	165,179	8,694	1,466
2019	185,464	185,464	176,191	9,273	1,563

Alternative 3. Update the ABC from the recent SEDAR assessment. Set ACL=X%ABC=OY. The ABC, ACL, commercial ACL, and recreational ACL are shown below.

Sub-alternative 3a. Set ACL=95%ABC=OY
Sub-alternative 3b. Set ACL=90%ABC=OY
Sub-alternative 3c. Set ACL=85%ABC=OY

Action 3. Split the Commercial Fishing Year into 2 Fishing Seasons for Snowy Grouper

Biological Effects

Economic Effects

Social Effects

Administrative Effects

Alternatives for Action 3
*(preferred alternatives in **bold**)*

Alternative 1 (No Action). The current commercial snowy grouper fishing yearseason is the calendar year with no split of the commercial ACL into separate seasons.

Alternative 2. Split the commercial snowy grouper fishing season with an equal split of the ACL between January through April and May through December with the following trip limits for each of the seasons.

Revised Alternative 2. Split the commercial snowy grouper ACL into two quotas: 50% to the period January 1 through April 30 and 50% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. The following trip limit would apply to each season:

Sub-alternative 2a. 100 pounds whole gutted weight (lb gw).

Sub-alternative 2b. 150 lb gw.pounds whole gutted weight (lb gw).

Sub-alternative 2c. 200 lb gw.pounds whole gutted weight (lb gw).

New Alternative 3. Split the commercial snowy grouper ACL into two quotas: 40% to the period January 1 through April 30 and 60% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. Maintain the current 100 lb gw trip limit for the January 1 through April 30 season and establish the following trip limit for the May through December season:

Sub-alternative 3a. 100 lb gw.
Sub-alternative 3b. 150 lb gw.
Sub-alternative 3c. 200 lb gw.
Sub-alternative 3d. 250 lb gw.
Sub-alternative 3e. 300 lb gw.

Action 4. Modify the Commercial Trip Limit for Snowy Grouper

Biological Effects

Economic Effects

Social Effects

Administrative Effects

Alternatives for Action 4
(preferred alternatives in bold)

Alternative 1 (No Action). The current commercial snowy grouper trip limit is 100 pounds ~~whole~~ gutted weight (lb ~~ww~~ gw).

Alternative 2. ~~Establish a~~ Modify the commercial snowy grouper trip limit from January 1 until the ACL is met or projected to be met:

Sub-alternative 2a. 300 ~~pounds whole gutted weight (~~lb ~~ww~~ gw~~)~~.

Sub-alternative 2b. 200 lb gw.~~pounds whole gutted weight (lb ww gw)~~.

Sub-alternative 2c. 150 lb gw.~~pounds whole gutted weight (lb ww gw)~~.

Alternative 3. ~~Establish a~~ Modify the commercial snowy grouper trip limit of 150 ~~pounds gutted weight (~~lb ~~ww~~ gw~~)~~ from January through April and a different trip limit from May through the end of the year:

Sub-alternative 3a. 50 lb gw~~pounds whole gutted weight (lb ww gw).~~

Sub-alternative 3b. 100 lb gw~~100 pounds whole gutted weight (lb ww gw).~~

Alternative 4. ~~Establish a~~ Modify the commercial snowy grouper trip limit of 100 ~~pounds whole weight (~~lb ~~ww~~ gw~~)~~ January through April for all areas; for May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida as shown below; and 100 ~~pounds whole gutted weight (~~lb ~~ww~~ gw~~)~~ May through August for the rest of the area. From September through the end of the year, or until the ACL is met or projected to be met, the trip limit would be set at 100 ~~pounds whole gutted weight (~~lb ~~ww~~ gw~~)~~.

Sub-alternative 4a. 200 lb gw~~pounds whole gutted weight (lb ww gw)~~.

Sub-alternative 4b. 250 lb gw~~pounds whole gutted weight (lb ww gw).~~

Sub-alternative 4c. 300 lb gw~~pounds whole gutted weight (lb ww gw)~~.

Revised Alternative 4. Maintain the current commercial snowy grouper trip limit of 100 lb gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Volusia/Brevard County line north when the trip limit will be as follows:

Sub-alternative 4a. 200 lb gw.

Sub-alternative 4b. 250 lb gw.

Sub-alternative 4c. 300 lb gw

Action 5. Modify the Recreational Bag Limit for Snowy Grouper

Biological Effects

Economic Effects

Social Effects

Administrative Effects

Alternatives for Action 5
*(preferred alternatives in **bold**)*

Alternative 1. (No Action.) The current recreational grouper bag and possession limit is ~~management measures are~~ as follows:

- Grouper and tilefish, combined--3. Within the 3-fish aggregate bag limit: No more than one fish may be gag or black grouper, combined; no more than one fish per vessel may be a snowy grouper; no more than one fish may be a golden tilefish; and no goliath grouper or Nassau grouper may be retained.
- ~~Part of Aggregate Grouper Bag Limit of 3/person/day of: gag, black grouper, snowy grouper, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, golden tilefish, sand tile, coney, graysby, red hind and rock hind with a limit of 1 snowy grouper per vessel per day.~~

- ~~Sale of recreationally caught fish prohibited.~~

Alternative 2. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/vessel/day May through August and no retention during the rest of the year.

Alternative 3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year ~~and based on 2012 recreational harvest. However, if future catches were similar to 2013 recreational harvest (Table9) recreational landings would be below the expected recreational ACL~~.

Alternative 4. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May with no retention during the remainder of the year.

Alternative 5. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during June with no retention during the remainder of the year.

Chapter 1. Introduction

1.1 What Actions Are Being Proposed?

Regulatory Amendment 20 to the Snapper Grouper FMP proposes to adjust the rebuilding strategy, acceptable biological Catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery.

1.2 Who is Proposing the Actions?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the action. The South Atlantic Council develops the regulatory amendment and submits it to the National Marine Fisheries Service (NMFS) who publishes a rule to implement the regulatory amendment on behalf of the Secretary of Commerce. NMFS is an agency in the National Oceanic and Atmospheric Administration within the Department of Commerce.

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks
- Consists of 13 voting members: 8 appointed by the Secretary of Commerce, 1 representative from each of the 4 South Atlantic states, the Southeast Regional Administrator of NMFS; and 4 non-voting members
- Responsible for developing fishery management plans and amendments under the Magnuson-Stevens Act; and recommends actions to NMFS for implementation
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West with the exception of Mackerel which is from New York to Florida, and Dolphin Wahoo, which is from Maine to Florida

1.3 Where is the Project Located?

Management of the federal snapper grouper fishery located off the southeastern United States (South Atlantic) in the 3-200 nautical miles U.S. Exclusive Economic Zone (EEZ) is conducted under the Snapper Grouper FMP (SAFMC 1983) (**Figure 1.3.1**). Species included in Regulatory Amendment 20 are among the 59 species managed by the South Atlantic Council under the Snapper Grouper FMP.

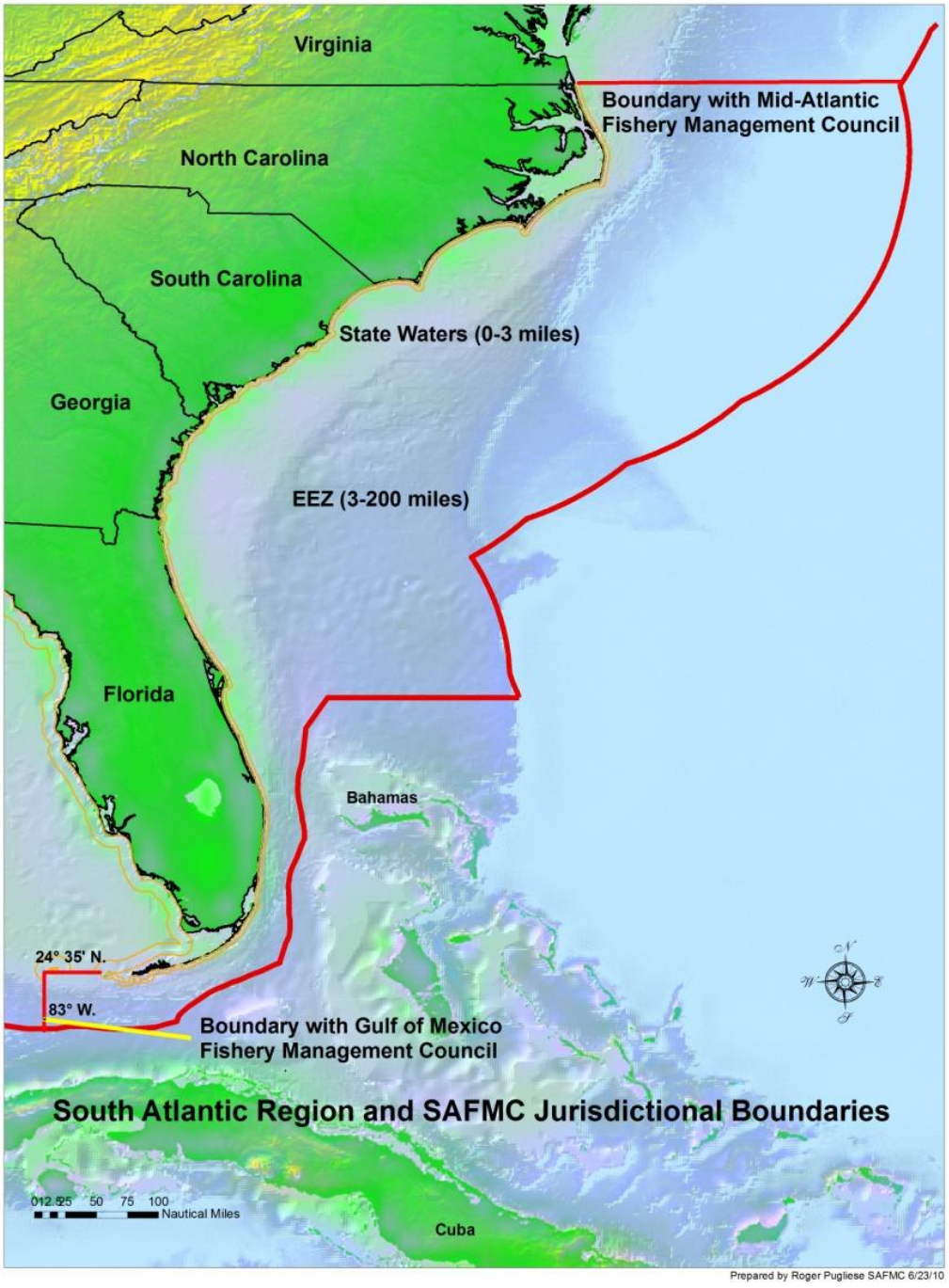

Figure 1.3.1. Jurisdictional boundaries of the South Atlantic Council.

1.4 Purpose and Need

Purpose for Action

The *purpose* of this amendment ~~for the of this proposed action~~ is to adjust the rebuilding strategy, acceptable biological catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery. These adjustments address the recent stock assessment results based on data through 2012.

Need for Action

The *need* for the ~~proposed action~~amendment is to prevent overfishing and continue rebuilding the stock while minimizing, to the extent practicable, adverse social and economic effects.

The IPT recommends the changes shown above.

1.5 What is the History of Management for the species considered in this amendment?

Snapper grouper regulations in the South Atlantic were first implemented in 1983. See **Appendix D** of this document for a detailed history of management for the snapper grouper fishery.

1.6 How is overfishing determined?

The 2009 National Standard 1 Guidelines provide a definition of overfishing that allows overfishing to be determined in two ways, by a fishing mortality rate or by a level of catch:

§ 600.310 (e)(2)(i)(B)

"Overfishing (to overfish) occurs whenever a stock or stock complex is subjected to a level of fishing mortality or annual total catch that jeopardizes the capacity of a stock or stock complex to produce maximum sustainable yield (MSY) on a continuing basis."

The National Standard 1 Guidelines provide more detail about these two methods, and require that FMPs describe which method will be used to determine an overfishing status:

§ 600.310 (e)(2)(ii)(A)

Status Determination Criteria to determine overfishing status. Each fishery management plan (FMP) must describe which of the following two methods will be used for each stock or stock complex to determine an overfishing status.

(1) Fishing mortality rate exceeds maximum fishing mortality threshold (MFMT). Exceeding the MFMT for a period of 1 year or more constitutes overfishing. The MFMT or reasonable proxy may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential.

(2) Catch exceeds the overfishing limit (OFL). Should the annual catch exceed the annual OFL for 1 year or more, the stock or stock complex is considered subject to overfishing.

The OFL is defined as an annual level of catch that corresponds directly to the MFMT, and is the best estimate of the catch level above which overfishing is occurring. Biomass is below SSB_{MSY}. The stock is considered to be overfished according to the current overfished definition ($1\text{-}M*SSB_{MSY}$).

Each of the two methods for determining overfishing has benefits and drawbacks with MFMT being a better estimate of overfishing status in a year in which a stock is assessed and OFL a better estimate of overfishing status in years when a current estimate of fishing mortality is not available. Therefore, the Council proposes the use of both the MFMT and OFL as metrics to determine the overfishing status of snowy grouper.

For snowy grouper, overfishing will be determined on an annual basis by the MFMT and OFL methods. The estimate of F_{MSY} (MFMT) for snowy grouper from SEDAR 36 is 0.14, while the corresponding OFL values increase as the stock rebuilds. If either the MFMT (during an assessment year) or the OFL method (during a non-assessment year) is exceeded, the stock will be considered to be undergoing overfishing.

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1. Adjust the Rebuilding Strategy for Snowy Grouper

Alternative 1 (No Action). The current rebuilding strategy is specified as maintaining a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009, of 102,960 pounds whole weight (lb ww) remains in effect beyond 2009 until modified. The current acceptable biological catch (ABC) is 102,960 ~~pounds~~ lb ww consistent with this rebuilding strategy.

Alternative 2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{Rebuild}$ and ABC projections will change with each assessment. **Specify a probability of success of 50% or what the SSC recommends based on the ABC control rule (Council to specify).** ABC would change each year until 2019~~xx~~; the ABC for 2019~~xx~~ would remain in effect until modified.

Preferred Alternative 3. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F= 75\%F_{MSY}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $75\%F_{MSY}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

Alternative 4. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{current}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{current}$ and ABC projections will change with each assessment. ABC would change each year until 2019~~xx~~; the ABC for 2019~~xx~~ would remain in effect until modified.

The IPT recommends the changes shown above for Action 1.

The Snapper Grouper AP chose Preferred Alternative 3, as modified, as their preferred alternative.

2.1.1 Comparison of Alternatives

The rebuilding strategy under **Alternative 1 (No Action)** was specified in Amendment 15A to the Snapper Grouper FMP (SAFMC 2008) prior to the P* approach and establishment of the acceptable biological catch (ABC) control rule. Based on the results of SEDAR 4 (2004), which indicated snowy grouper was overfished and undergoing overfishing, Amendment 15A specified a 34 year rebuilding schedule and a rebuilding strategy for snowy grouper that maintains a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. **Alternatives 2-4** would establish a rebuilding strategy based on the results of the most recent stock assessment, which indicates the stock remains overfished, is rebuilding, and is no longer experiencing overfishing. **Alternative 1 (No Action)** would constrain harvest to a lower level than **Alternatives 2-4** and be expected to be more beneficial to the snowy grouper stock. However, the 2013 stock assessment update indicates snowy grouper is no longer undergoing overfishing, and the SSC has increased the ABC; therefore, there is not a biological need to

constrain harvest at the level specified by **Alternative 1 (No Action)**. **Alternative 2** with a 50% probability of successfully rebuilding snowy grouper by 2019, would set the rebuilding strategy to the yield at $F_{Rebuild}$, which would allow for a higher ABC than the yield at 75%F_{MSY} recommended by the South Atlantic Council's SSC. **Alternative 2** with a 70% probability of successfully rebuilding snowy grouper by 2019, would allow for a lower ABC than the yield at 75%F_{MSY} recommended by the South Atlantic Council's SSC. **Preferred Alternative 3** is based on the yield at 75%F_{MSY} recommended by the SSC and would be expected to have greater biological effects than **Alternative 2**. Therefore, **Preferred Alternative 3** would be using best available science to adjust the rebuilding strategy for snowy grouper. **Alternative 4**, which would allow for a more conservative level of harvest than recommended by the South Atlantic Council's SSC would be expected to have intermediate biological effects compared with **Alternative 2** with a 50% probability of rebuilding success and **Preferred Alternative 3**, but less than **Alternative 2** with a 70% probability of rebuilding success and **Alternative 1 (No Action)**.

Under **Alternative 1 (No Action)**, the snowy grouper rebuilding strategy would not be updated based on the results of the most recent stock assessment. This creates short-term and long-term indirect adverse effects for commercial and recreational fishermen when a stock assessment indicates higher catch levels are possible. While the long-term health of the stock may improve with a rebuilding strategy that allows for a lower than necessary ABC, fishermen would not benefit with increased health of a stock unless the ABC also increases, potentially resulting in a higher ACL. A stock assessment that indicates a lower ABC is necessary, would have indirect short-term benefits through potentially higher harvests. But this also would result in long-term adverse effects for fishermen as they could potentially exceed the ACL (if landings data collection efforts are not successful in accurately predicting an appropriate closure date) and result in damage to the long-term health of the stock and lower future catch rates. The ranking of the different alternatives below is based on the expectation of long-term economic benefits resulting from better stock health and future catch rates. Long-term indirect economic benefits from healthier stocks trump most short-term harvest rate increases. **Alternative 2** with a 50% probability of rebuilding success is expected to yield the highest long-term economic benefits compared to the next best **Preferred Alternative 3**, then **Alternative 4,** the **Alternative 2** with a 70% probability of rebuilding success, and then **Alternative 1 (No Action)**.

Because the recent assessment update determined that snowy grouper are no longer undergoing overfishing, **Alternative 1 (No Action)** would be expected to result in minimal or no benefits to fishermen by not taking advantage of possible flexibility in the rebuilding plan and associated ABCs. Overall, the most benefits to fishermen and communities would come from a rebuilding strategy that allows increased harvest and access to the resource for fishermen than the current ABC and ACL, but would not cause long-term negative biological effects to the stock that could result in negative effects on fishermen in the future. **Alternatives 2-4** would result in higher ABCs than under **Alternative 1 (No Action)** and increase access to the resource, which would be expected to reduce and minimize short-term negative effects on fishermen. **Alternative 2** with a 50% chance of rebuilding success would be expected to have the least short-term negative effects on fishermen, followed by **Preferred Alternative 3** and **Alternative 4**.

Alternatives that specify the lowest ABC would have the largest administrative effects due to the potential for ACLs to be met and accountability measures (AMs) to be triggered. Administrative effects would be expected to be ranked lower to higher in the following order: 50% probability of success under

Alternative 2, Preferred Alternative 3, Alternative 4, 70% probability of success under **Alternative 2,** and **Alternative 1 (No Action)**. All the rebuilding strategy alternatives considered would require continued monitoring of commercial and recreational landings in addition to continued enforcement of current harvest restrictions for snowy grouper including the 1-fish per vessel bag limit, and the 100 pound gutted weight (lb gw) trip limit. Overall, administrative impacts under all the rebuilding strategy alternatives are not likely to be significant.

2.2 Action 2. Adjust Annual Catch Limits for Snowy Grouper

Alternative 1. (No Action.) The current acceptable biological catch (ABC) = 102,960 pounds whole weight (lb ww) or 87,254 pounds gutted weight (lb gw). The total annual catch limit (ACL) (=ABC), commercial ACL, and recreational ACL are shown below:

whole weight		Calculated Values		Implemented Values (SG Am 15B)		
ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Com ACL (95%)	Rec ACL (5%)	
102,960	102,960	97,812	5,148			
gutted weight						
ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Com ACL (95%)	Rec ACL (5%)	Rec # Fish
87,254	87,254	82,891	4,363	82,900	4,400	523

Discussion

ACL is equal to ABC right now but Amendment 17B did not specifically set ACL=ABC. It set the commercial ACL equal to the commercial quota from Amendment 15B and the recreational ACL equal to the recreational allocation from Amendment 15B. It indicated the TAC was equal to the yield at Foy. By default it set ACL = ABC but there is no alternative that states ACL = ABC in Amendment 17B, and ACL was an unknown entity in Amendment 15B.

The IPT recommends the changes shown above for Action 2.

Alternative 2. Specify that ACL=ABC=OY.

The ACL, commercial ACL, and recreational ACL are shown below.

Whole Weight					
Year	ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Estimated Rec #Fish
2015	164,136	164,136	155,929	8,207	1,221
2016	178,791	178,791	169,851	8,940	1,319
2017	192,469	192,469	182,846	9,623	1,417
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Gutted Weight					
Year	ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Estimated Rec #Fish
2015	139,098	139,098	132,143	6,955	1,221
2016	151,518	151,518	143,942	7,576	1,319
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2018	173,873	173,873	165,179	8,694	1,466
2019	185,464	185,464	176,191	9,273	1,563

The Snapper Grouper AP chose Alternative 2 as their preferred alternative.

Discussion

The ABC generated from SEDAR 36 is in pounds, however, the recreational ACL is in numbers of fish. Therefore, the recreational ACL in pounds had to be converted to numbers of fish. This was done by first determining snowy grouper average weight by year. As the stock rebuilds the average weight is expected to change each year. SEDAR 36 provides the annual projected removals both by numbers and weight when fishing mortality is fixed at $75\%F_{MSY}$ (Table 22 of SEDAR 36 final report). This fishing mortality rate was chosen because $75\%F_{MSY}$ is the optimum yield management benchmark for the stock, and the yield generated from $75\%F_{MSY}$ was used to determine the new proposed ABC numbers. For each year the projection weights are divided by the projection numbers to determine the annual average weight.

Table 2.1 shows the results of this calculation. The annual average weights are divided into the recreational ACL in pounds whole weight to convert the ACL from pounds to numbers of fish. For example, the 2015 recreational ACL of 8,207 pounds whole weight is divided by the average weight of 6.72 to get a recreational ACL of 1,221 fish.

Table 2.1. Annual average weight of South Atlantic snowy grouper generated from SEDAR 36 projection results when fishing mortality is fixed at $75\%F_{MSY}$. Numbers and weight projections came from the median values of the stochastic projections, and the numbers are provided in Table 22 of the SEDAR 36 final report.

Year	Numbers	Weight (ww lbs)	Average Weight
2015	25,000	168,000	6.72
2016	27,000	183,000	6.78
2017	29,000	197,000	6.79
2018	30,000	210,000	7.00
2019	32,000	224,000	7.00

Alternative 3. Update the ABC from the recent SEDAR assessment. Set ACL=X%ABC=OY. The ABC, ACL, commercial ACL, and recreational ACL are shown below.

Sub-alternative 3a. Set ACL=95%ABC=OY

Sub-alternative 3b. Set ACL=90%ABC=OY

Sub-alternative 3c. Set ACL=85%ABC=OY

Year	ABC ww	ACL ww	ACL gw	Com ACL gw (95%)	Rec ACL gw (5%)	Estimated Rec #Fish
Sub-Alt 3a, ACL = 95%ABC						
2015	164,136	155,929	132,143	125,536	6,607	1,160
2016	178,791	169,851	143,942	136,745	7,197	1,253
2017	192,469	182,846	154,954	147,206	7,748	1,346
2018	205,170	194,912	165,179	156,920	8,259	1,392
2019	218,848	207,906	176,191	167,382	8,810	1,485
Sub-Alt 3b, ACL = 90%ABC						
2015	164,136	147,722	125,188	118,929	6,259	1,099
2016	178,791	160,912	136,366	129,548	6,818	1,187
2017	192,469	173,222	146,798	139,458	7,340	1,275
2018	205,170	184,653	156,486	148,661	7,824	1,319
2019	218,848	196,963	166,918	158,572	8,346	1,407
Sub-Alt 3b, ACL = 85%ABC						
2015	164,136	139,516	118,234	112,322	5,912	1,038
2016	178,791	151,972	128,790	122,351	6,440	1,121
2017	192,469	163,599	138,643	131,711	6,932	1,204
2018	205,170	174,395	147,792	140,402	7,390	1,246
2019	218,848	186,021	157,645	149,763	7,882	1,329

2.2.1 Comparison of Alternatives

While the ACL under **Alternative 1 (No Action)** is lower than those proposed under **Alternatives 2** and **3** (including its sub-alternatives), it does not reflect the recommendations of the latest stock assessment for snowy grouper, and specifying an ACL at a lower level may not be needed to maintain harvest of snowy grouper at sustainable levels. **Alternative 3**, which would specify a buffer between the ABC and ACL would be expected to have higher biological benefits when compared with **Alternative 2**, which would set ACL equal to the ABC and OY. **Sub-alternative 3c** has the largest buffer between the ABC and the ACL and would be expected to yield the largest biological benefits of all the sub-alternatives under **Alternative 3**. Furthermore, scientific and management uncertainties are included in the SSC's ABC control rule, which is factored into the ABC (and therefore ACL) values generated under **Alternatives 2** and **3** (including its sub-alternatives).

In general, the higher the ACL, the greater the short-term economic benefits to commercial and recreational fishermen. Long-term economic benefits can also be realized if the ACL options are expected to achieve long-term biological health of the resource. However, the chances of long-term health are improved (assuming the sectors are held to their ACLs) if a buffer exists between the ABC and the ACL. Therefore, since **Alternative 3** incorporates information from the newest stock assessment and incorporates a buffer, it is expected to achieve the greatest long-term health of the stock and therefore the greatest long-term economic benefits with **Sub-alterative 3c** offering the largest buffer and therefore the largest economics benefits. **Alternative 2** incorporates new information from the new stock assessment and has a higher ACL, and is therefore expected to produce greater long-term economic benefits than **Alternative 1 (No Action)** but because of a lack of a buffer between the ABC and ACL, **Alternative 3, Sub-alternative 3c** would likely yield the greatest economic benefits.

In general, the higher the ACL, the greater the short-term social benefits that would be expected to accrue, assuming long-term recovery and rebuilding goals are met. Adhering to stock recovery and rebuilding goals is assumed to result in net long-term positive social and economic benefits. Additionally, adjustments in an ACL based on updated information from a stock assessment would be the most beneficial in the long term to fishermen and communities because catch limits would be based on the current conditions. Because the resulting ACL would be the same, the expected effects on fishermen under **Alternative 1 (No Action)** and **Alternative 2** would be identical, and would likely be minimal. The lower ACLs in **Sub-alternatives 3a-3c** under **Alternative 3** could have negative short-term effects on fishermen if the AMs were triggered when a lower ACL is met. **Sub-alternative 3c** would be expected to result in the least benefits to fishermen and communities. However, setting the ACL at a percentage of the ABC under **Sub-alternatives 3a-3c** would still result in a higher ACL than under **Alternative 1 (No Action)**, and allow more access to the resource for fishermen than under the status quo ACL.

Administrative impacts of this action are likely to be minimal. **Alternative 1 (No Action)** may result in slightly higher indirect administrative impacts because the lower ACLs are more likely to cause AMs to be triggered in-season, which would require development of outreach materials and internal agency documents to close the commercial sector and assess whether or not the recreational ACL has been exceeded. **Alternatives 2** and **3** (including its sub-alternatives) would not result in significant administrative cost or time burdens other than notifying fishery participants of the change in the sector ACLs and continued monitoring of the sector ACLs.

2.3 Action 3. Split the Commercial Fishing Year into 2 Fishing Seasons for Snowy Grouper

(Note: The Accountability Measures (AMs) are being addressed in the Generic Accountability Measure/Dolphin Allocation Amendment.)

Alternative 1 (No Action). The current commercial snowy grouper fishing year~~season~~ is the calendar year with no split of the commercial ACL into separate seasons.

Alternative 2. Split the commercial snowy grouper fishing season with an equal split of the ACL between January through April and May through December with the following trip limits for each of the seasons.

Revised Alternative 2. Split the commercial snowy grouper ACL into two quotas: 50% to the period January 1 through April 30 and 50% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. The following trip limit would apply to each season:

Sub-alternative 2a. 100 pounds ~~whole~~ gutted weight (lb gw).

Sub-alternative 2b. 150 lb gw.~~pounds whole gutted weight (lb gw)~~.

Sub-alternative 2c. 200 lb gw.~~pounds whole gutted weight (lb gw)~~.

Year	whole weight			Com Quota	Com Quota
	ABC	ACL	Com ACL (95%)	Jan-April	May-Dec
2015	164,136	164,136	155,929	77,965	77,965
2016	178,791	178,791	169,851	84,926	84,926
2017	192,469	192,469	182,846	91,423	91,423
2018	205,170	205,170	194,912	97,456	97,456
2019	218,848	218,848	207,906	103,953	103,953

The Snapper Grouper AP chose Alternative 2, Sub-alternative 2c as modified, as their preferred alternative.

New Alternative 3. Split the commercial snowy grouper ACL into two quotas: 40% to the period January 1 through April 30 and 60% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. Maintain the current 100 pound gutted weight (lb gw) trip limit for the January 1 through April 30 season and establish the following trip limit for the May through December season:

Sub-alternative 3a. 100 lb gw.
Sub-alternative 3b. 150 lb gw.
Sub-alternative 3c. 200 lb gw.
Sub-alternative 3d. 250 lb gw.
Sub-alternative 3e. 300 lb gw.

IPT recommends the changes to Alternatives 1 & 2 and insertion of the table for Alternative 2.

Note: The analyses have been conducted for the increase in ACL for 2015. If the ACL increases each year, then the benefits would increase each year. New Alternative 3 was added as requested by the Snapper Grouper Committee Chair; preliminary analyses have been added and, if included, the economic, social, and administrative impacts will be added.

2.3.1 Comparison of Alternatives

By dividing the commercial ACL into two six-month fishing quotas (**Alternative 2**), fishermen would theoretically be given the opportunity to fish for snowy grouper at the beginning of the year and during the summer. The divided commercial quota is intended to provide fishermen in the northern and southern areas of the South Atlantic a chance to fish for snowy grouper when weather conditions are favorable in their respective areas. However, since the ACL is likely to be increased under **Action 2**, a closure during season 1 is not expected for most of the ACLs being considered. Without an in-season closure during season 1 for most of the scenarios examine, a split season has little to no effect on extending the fishing season. The biological effects of **Alternatives 1 (No Action)** and the trip limit sub-alternatives under **Alternative 2** would be expected to be neutral because ACLs and AMs are in place to cap harvest, and take action if ACLs are exceeded. Alternatives with larger trip limits (**Sub-alternative 2c**) could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. Larger trip limits could also result in earlier closures of snowy grouper, which can lead to an increased level of regulatory discards. Similarly smaller trip limits could increase bycatch if a trip is not ended and fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

A split in the ACL (**Alternative 2**) could to provide long-term economic benefits because it would help spread harvest throughout a greater portion of the year and maintain market demand. However, as no closure is expected in season 1 for the most of the scenarios examined under **Action 3**, the effect of splitting the commercial into ACL into two seasonal quotas under **Action 2** would not be much different from leaving the fishing season intact (**Alternative 1 No Action**).

Snowy grouper is an important commercial species for deepwater catch combinations and at specific times of the year when other species are closed. The effects on the commercial fleet due to changing the

snowy grouper commercial fishing year into split seasons would depend on the ACL set in **Actions 1** and **2,** and the rate of catch, which would depend on the trip limit specified in **Action 4**.

Under current conditions and fishing patterns, no closure is expected in Season 1 for most of the scenarios examined under **Action 3** (**Table 4.3.2**). If participation, market conditions, and fishing behavior stay the same, the effect of splitting the commercial into ACL into two seasonal quotas under **Alternative 2** would not be much different from leaving the fishing season intact (**Alternative 1 (No Action)**). However, fishermen may shift effort to or from a certain species (including targets on multi-species trips) based on economic, regulatory, biological, or environmental changes in the fishery. Although split seasons for snowy grouper may not immediately produce any effects on the fleet and associated businesses and communities, there could be positive and negative effects on commercial fishermen in different areas of the South Atlantic if conditions change in the future, as discussed below.

For fishermen in the more northern range of the South Atlantic region, the early months of the fishing year may not be feasible times to travel to snowy grouper fishing grounds (see **Table 4.3.1** in **Section 4.3.1**), and these fishermen may only have access to a lower portion of the commercial ACL in later months. Maintaining the commercial ACL for the whole fishing year under **Alternative 1 (No Action)** would limit benefits for these fishermen from increased trip limits and any increased in the ACL due to restricted access to snowy grouper due to environmental conditions.

A split season under **Alternative 2** could likely be beneficial to commercial fishermen harvesting snowy grouper in North Carolina, South Carolina, and Georgia. Because the current fishing year starts in January 1 (**Alternative 1 (No Action)**), fishermen in North Carolina, South Carolina, and Georgia could have less access to snowy grouper in the early months due to weather, or could risk unsafe conditions to fish, if an increased trip limit results in additional participation in snowy grouper harvest. A split season under **Alternative 2** would likely increase access to the ACL for North Carolina, South Carolina, and Georgia.

Currently, there is no split season for the commercial sector for snowy grouper (**Alternative 1, No Action**). **Alternative 1** (**No Action)** would have fewer administrative impacts than **Alternative 2** because only one quota would need to be monitored. **Alternative 2** and its sub-alternatives would add to the administrative burden in the form of cost, time, or law enforcement efforts. However, even if the commercial ACLs are met during each of the fishing seasons under **Sub-Alternatives 2a**, **2b,** and **2c**, the administrative resources required to implement in-season closures would not be much different from what is currently in place under **Alternative 1 (No Action)**. The administrative effects could be greater for alternatives with higher trip limits because there is a greater chance that the ACL would be met and action would be needed to close the commercial sector.

2.4 Action 4. Modify the Commercial Trip Limit for Snowy Grouper

(Note: The Accountability Measures (AMs) are being addressed in the Generic Accountability Measure/Dolphin Allocation Amendment.)

Alternative 1 (No Action). The current commercial snowy grouper trip limit is 100 pounds ~~whole~~ gutted weight (lb ~~ww~~ gw).

Alternative 2. ~~Establish a~~Modify the commercial snowy grouper trip limit from January 1 until the ACL is met or projected to be met:

Sub-alternative 2a. 300 ~~pounds gutted weight (~~lb gw~~)~~.

Sub-alternative 2b. 200 ~~pounds gutted weight (~~lb gw~~)~~.

Sub-alternative 2c. 150 ~~pounds gutted weight (~~lb gw~~)~~.

Alternative 3. ~~Establish a~~Modify the commercial snowy grouper trip limit of 150 ~~pounds whole gutted weight (~~lb ~~w g~~w~~)~~ from January through April and a different trip limit from May through the end of the year:

Sub-alternative 3a. 50 ~~pounds whole gutted (~~lb gw~~)~~.

Sub-alternative 3b. 100 ~~pounds whole gutted~~= ~~(~~=lb~~w~~ gw).

Alternative 4. ~~Establish a~~Modify the commercial snowy grouper trip limit of 100 ~~pounds whole weight (~~lb gw~~ww)~~ January through April for all areas; for May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida as shown below; and 100 ~~pounds gutted weight (~~lb gw~~)~~ May through August for the rest of the area. From September through the end of the year, or until the ACL is met or projected to be met, the trip limit would be set at 100 ~~pounds gutted weight (~~lb gw~~)~~.

Sub-alternative 4a. 200 ~~pounds gutted weight (~~lb gw~~)~~.

Sub-alternative 4b. 250 ~~pounds gutted weight (~~lb gw~~)~~.

Sub-alternative 4c. 300 ~~pounds gutted weight (~~lb gw~~)~~.

The IPT recommends the changes shown above in Alternatives 1-4 in Action 4.

The IPT recommends that Alternative 4 in Action 4 not be analyzed by the IPT, and that it be sent to the, "Considered, but rejected appendix". The rationale is: catch data cannot be broken down by the geographical areas as depicted in the text of this alternative; and major assumptions including a high level of uncertainty would be involved in the data analysis for this alternative. Furthermore, Alternative 2 in Action 3 has sub-alternatives that appear to better capture the Council's intent.

The Snapper Grouper AP recommends that this action be moved to the considered but rejected appendix.

Note: Revised Alternative 4 was added as requested by the Snapper Grouper Committee Chair; preliminary analyses have been added and, if included, the economic, social, and administrative impacts will be added.

Revised Alternative 4. Maintain the current commercial snowy grouper trip limit of 100 lb gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Volusia/Brevard County line north when the trip limit will be as follows:

Sub-alternative 4a. 200 pounds gutted weight (lb gw).
Sub-alternative 4b. 250 pounds gutted weight (lb gw).
Sub-alternative 4c. 300 pounds gutted weight (lb gw).

2.3.1 Comparison of Alternatives

The biological effects of **Alternatives 1 (No Action), Alternative 2-4** and associated sub-alternatives would be expected to be neutral because ACLs and AMs are in place to cap harvest, and take action if ACLs are exceeded. Alternatives with larger trip limits (**Sub-alternative 2c**) could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. Larger trip limits could also result in earlier closures of snowy grouper, which can lead to an increased level of regulatory discards. Similarly smaller trip limits could increase bycatch if a trip is not ended and fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

The costs and benefits to fishermen when considering changes in the commercial trip limit depend on if a longer season with a consistent supply of snowy grouper is more important than maximizing efficiency on fishing trips, even if the season is shorter in length. An additional consideration is the possibility that participation in the snowy grouper portion of the snapper grouper fishery may increase if the commercial trip limit is increased, because more fishermen would want to take advantage of the higher trip limit. Additional participation could increase competition, affect market supply and market prices, and contribute to a faster rate of harvest that closes snowy grouper harvest earlier than in recent years.

In general, commercial trip limits may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded. However, trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away, which could affect business decisions and fishing behavior for commercial fishermen. The costs and benefits to fishermen when considering changes in the commercial trip limit depend on if a longer season with a consistent supply of snowy grouper is more important than maximizing efficiency on fishing trips, even if the season is shorter in length. An additional consideration is the possibility that participation in the snowy grouper portion of the snapper grouper fishery may increase if the commercial trip limit is increased, because more fishermen would want to take advantage of the higher trip limit. Additional participation could increase competition, affect market supply and market prices, and contribute to a faster rate of harvest that closes snowy grouper harvest earlier than in recent years. Another consideration in the South Atlantic is the time to travel to fishing grounds to catch snowy grouper varies among the different states (**Table 4.3.1** in **Section 4.3**). Each alternative under this action affects the different states in different ways, and will be analyzed by state below.

Because there is already a trip limit in place, there would be no difference in the administrative impacts of **Alternative 1 (No Action)** and **Alternative 2** and its sub-alternatives. The administrative and law enforcement recourses currently used to implement and enforce the 100 lb gw commercial trip limit

would be the same as those needed to implement and enforce the 300, 200, and 150 lb gw trip limits under **Sub-alternatives 2a, 2b,** and **2c,** respectively. **Alternative 3** would add to the administrative burden since it would include monitoring different trip limits during different times of the year. Therefore, administrative effects under **Sub-alternatives 3a** and **3b** would be slightly higher than under **Alternative 1 (No Action)** and **Alternative 2** (and its sub-alternatives). In addition, the administrative effects could be greater for alternatives with higher trip limits because there is a greater chance that the ACL would be met and action would be needed to close the commercial sector.

2.5 Action 5. Modify the Recreational Bag Limit for Snowy Grouper

(Note: The Accountability Measures (AMs) are being addressed in the Generic Accountability Measure/Dolphin Allocation Amendment.)

Alternative 1. (No Action.) The current recreational grouper bag and possession limit is as ~~management measures are as~~ follows:

- Grouper and tilefish, combined--3. Within the 3-fish aggregate bag limit: No more than one fish may be gag or black grouper, combined; no more than one fish per vessel may be a snowy grouper; no more than one fish may be a golden tilefish; and no goliath grouper or Nassau grouper may be retained.
- ~~Part of Aggregate Grouper Bag Limit of 3/person/day of: gag, black grouper, snowy grouper, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, golden tilefish, sand tile, coney, graysby, red hind and rock hind with a limit of 1 snowy grouper per vessel per day.~~

- ~~Sale of recreationally caught fish prohibited.~~

Alternative 2. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/vessel/day May through August and no retention during the rest of the year.

Alternative 3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year ~~and based on 2012 recreational harvest. However, if future catches were similar to 2013 recreational harvest (Table9) recreational landings would be below the expected recreational ACL~~.

The IPT recommends deleting text after, "….during the remainder of the year" in Alternative 3. Text for Alternative 3 in Action 5 would read, "Alternative 3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year".

Alternative 4. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May with no retention during the remainder of the year.

Alternative 5. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during June with no retention during the remainder of the year.

The IPT recommends using the most recent two years of data (2012 and 2013), for data analysis (recreational data sets and commercial logbook) due to regulatory changes. Analysis of data from any other time period would need to be stated explicitly in the amendment.

The IPT requests clarification whether Alternatives 2-4 would continue to include snowy grouper in the current grouper aggregate bag limit.

The Snapper Grouper AP chose Alternative 4 as their preferred alternative.

2.5.1 Comparison of Alternatives

Alternative 1 (No Action) would provide the least biological benefit since the recreational ACL has been exceeded by 400% in the recent years under the status quo. However, the ACL in 2013 was exceeded because recreational fishermen continued to land snowy grouper after the recreational sector had been closed. **Alternatives 2-5** would retain snowy grouper within the grouper aggregate but restrict the number of months each year that the species could be landed. **Alternatives 4** and **5** would be expected to have higher biological benefits than **Alternatives 2** and **3**, since they would allow the recreational harvest of snowy grouper for just one month versus two months under **Alternative 3** and four months under **Alternative 2**. However, the biological effects of **Alternatives 1-5** would be similar if a recreational closure does not slow the rate of fishing. The spawning season for snowy grouper in the Carolinas is from April through September with no obvious peak period (Wyanski et al. 2000, 2013). In the Florida Keys, Moore and Labinsky (1984) reported snowy grouper in spawning condition from April through July. Wyanski et al. (2000) also suggested that snowy grouper may form spawning aggregations after they captured 1,160 specimens (some of which were assessed macroscopically as spawning) from four trawl collections of squid in June 1978. Most species of fish in general, do not reach their maximum reproductive potential very early in the spawning season (Reference). Therefore, **Alternative 4**, which would allow for recreational harvest of snowy grouper in May could be expected to have the highest biological benefit of all the alternatives in **Action 5**.

Based simply on the amount of time allowed for retention of snowy grouper, it is likely that **Alternatives 4** and **5** would provide the highest long-run economic benefits because those have the least amount of risk associated with exceeding the ACL due to a one-month season only. **Alternative 1 (No Action)** would be the least preferred of the five alternatives because it has the longest amount of time when retention is allowed and is therefore likely most harmful to the biological health of the stock and unlikely, assuming current harvest trends, to result in higher future landings. However, recreational landings make up a small part of the overall landings of snowy grouper, and SEDAR 36 (2013) indicates overfishing has been ended, and the stock is rebuilding despite recreational overages.

In general, the social effects of modifying the snowy grouper bag limit or specifying when snowy grouper can be recreationally landed would be associated with the biological costs of each alternative (see **Section 4.5.1**), but also considering the times of year recreational anglers are targeting snowy grouper and how a designated recreational fishing season would affect current recreational fishing opportunities. Although recreational landings make up only a small portion of the overall landings of snowy grouper, there has been an overage of almost or over 400% in recent years for recreational ACL. The lack of in-season closure and a continual overage of the recreational sector could result in negative effects on the snowy grouper stock, particularly in combination with other factors that could affect the stock. However, despite the recent overages in the recreational sector, SEDAR 36 (2013) indicates that overfishing is no longer occurring and the snowy grouper stock isrebuilding.

The restrictive existing bag limit (**Alternative 1 (No Action)** could be limiting recreational opportunities. **Alternative 1 (No Action)**, **Alternative 2**, and **Alternative 3** would be expected to result in negative effects on resource users if negative biological effects on the stock occur due to continued overages of the recreational ACL. Allowing a one-fish bag limit for only one month under **Alternative 4** and **5** would minimize negative effects on fishermen due to any resulting biological costs of recreational overages, but would further restrict recreational access to snowy grouper.

The administrative effects between **Alternative 1 (No Action)** and **Alternatives 2** through **5** would not be considered to very different from one another. Bag limits are already monitored and enforced under **Alternative 1 (No Action)**. **Alternatives 2** through **5** would not add to the administrative burden in the form of cost, time, or law enforcement efforts, except for incorporating changes to the bag limits and time of year they would apply, which are considered routine.

Chapter 3. Affected Environment

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

Affected Environment

- **Habitat environment (Section 3.1)**

  Examples include coral reefs and sea grass beds

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

  Examples include populations of groupers, corals, and turtles

- **Socio-economic environment (Section 3.3)**

  Examples include fishing communities and economic descriptions of the fisheries

- **Administrative environment (Section 3.4)**

  Examples include the fishery management process and enforcement activities

3.1 Habitat Environment

3.1.1 Inshore/Estuarine Habitat

Many snapper grouper species utilize both pelagic and benthic habitats during several stages of their life histories; larval stages of these species live in the water column and feed on plankton. Most juveniles and adults are demersal (bottom dwellers) and associate with hard structures on the continental shelf that have moderate to high relief (e.g., coral reef systems and artificial reef structures, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings). Juvenile stages of some snapper grouper species also utilize inshore seagrass beds, mangrove estuaries, lagoons, oyster reefs, and embayment systems. In many species, various combinations of these habitats may be utilized during daytime feeding migrations or seasonal shifts in cross-shelf distributions. Additional information on the habitat utilized by species in the Snapper Grouper Complex is included in Volume II of the Fishery Ecosystem Plan (FEP; SAFMC 2009b) and incorporated here by reference. The FEP can be found at: http://www.safmc.net/ecosystem-management/fishery-ecosystem-plan-1.

3.1.2 Offshore Habitat

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

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

Rock outcroppings occur throughout the continental shelf from Cape Hatteras, North Carolina to Key West, Florida (MacIntyre and Milliman 1970; Miller and Richards 1979; Parker et al. 1983), which are principally composed of limestone and carbonate sandstone (Newton et al. 1971), and exhibit vertical relief ranging from less than 0.5 to over 10 meters (33 ft). Ledge systems formed by rock outcrops and piles of irregularly sized boulders are also common. Parker et al. (1983) estimated that 24% (9,443 km^2) of the area between the 27 and 101 meter (89 and 331 ft) depth contours from Cape Hatteras, North Carolina to Cape Canaveral, Florida is reef habitat. Although the bottom communities found in water depths between 100 and 300 meters (328 and 984 ft) from Cape Hatteras, North Carolina to Key West, Florida is relatively small compared to the whole shelf, this area, based upon landing information of fishers, constitutes prime reef fish habitat and probably significantly contributes to the total amount of reef habitat in this region.

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

The distribution of coral and live hard bottom habitat as presented in the Southeast Marine Assessment and Prediction Program (SEAMAP) bottom mapping project is a proxy for the distribution of the species within the snapper grouper complex. The method used to determine hard bottom habitat relied on the identification of reef obligate species including members of the snapper grouper complex. The Florida Fish and Wildlife Research Institute (FWRI), using the best available information on the distribution of hard bottom habitat in the South Atlantic region, prepared ArcView maps for the four-state project. These maps, which consolidate known distribution of coral, hard/live bottom, and artificial reefs as hard bottom, are available on the South Atlantic Fishery Management Council's (South Atlantic Council) online map services provided by the newly developed SAFMC Habitat and Ecosystem Atlas:

http://ocean.floridamarine.org/safmc_atlas/. An introduction to the system is found at: http://www.safmc.net/ecosystem-management/mapping-and-gis-data.

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

3.1.3 Essential Fish Habitat

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

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

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

3.1.4 Habitat Areas of Particular Concern

Areas which meet the criteria for Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for species in the snapper grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; near shore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper

(e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the Oculina Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; South Atlantic Council-designated Artificial Reef Special Management Zones (SMZs); and deep-water MPAs.

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

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

Refer to **Appendix I** for detailed information on EFH and EFH-HAPCs for all Council managed species.

3.2 Biological and Ecological Environment

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

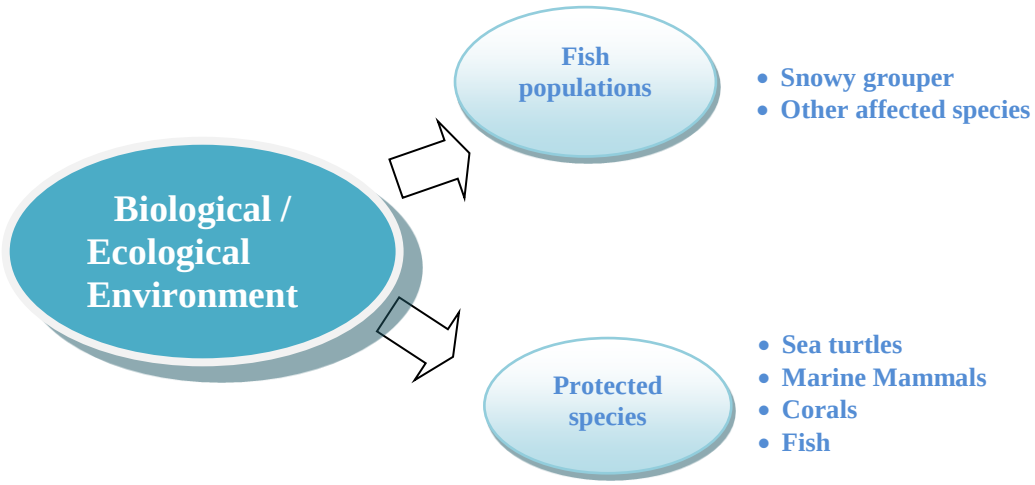


Figure 3.2.1. Two components of the biological environment described in this document.

3.2.1 Fish Populations Affected by this Amendment

The waters off the South Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 59 species of fish, many of them neither "snappers" nor "groupers". These species live in depths from a few feet (typically as juveniles) to hundreds of feet. As far as north/south distribution, the more temperate species tend to live in the upper reaches of the South Atlantic management area (e.g., black sea bass, red porgy) while the tropical variety's core residence is in the waters off south Florida, Caribbean Islands, and northern South America (e.g., black grouper, mutton snapper). These are reef-dwelling species that live amongst each other. These species rely on the reef environment for protection and food. There are several reef tracts that follow the southeastern coast. The fact that these fish populations congregate dictates the nature of the fishery (multi-species) and further forms the type of management regulations proposed in this document.

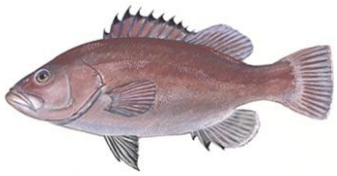
Snapper grouper species that may be affected by the proposed action include snowy grouper, blueline tilefish, yellowedge grouper, warsaw grouper, and silk snapper. Golden tilefish, sand tilefish, misty grouper, queen snapper, black snapper, and blackfin snapper are also part of the deepwater complex.

3.2.2 Snowy grouper

The snowy grouper, *Epinephelus niveatus*, is a commercially important deepwater species that occurs in the western Atlantic from Massachusetts to Brazil, including Bermuda, Cuba, the Bahamas, and the Gulf of Mexico (Carpenter 2002). Stray specimens have been collected in the Canadian Atlantic (Scott and Scott 1988). Along the coast of the southeast United States, adult snowy grouper are predominantly found on the upper continental slope (> 75 m; Lee et al. 1985) at depths of 116-259 m (Low and Ulrich 1983; Moore and Labisky 1984; Parker and Ross 1986), whereas juveniles are more common at shallower depths (Moore and Labisky 1984). Low and Ulrich (1983) and Wyanski et al. (2000) noted a positive correlation between total length (TL) and water depth off South Carolina. Snowy Grouper feed on fish, crabs and other crustaceans, squid, and snails (Heemstra and Randall 1993). Information on predators of Snowy Grouper is limited.

Snowy grouper is a protogynous hermaphrodite that reaches sexual maturity between the ages of 3 and 8 yrs (Wyanski et al. 2000), most by the age of 5 yrs (Moore and Libisky 1984) to 7 yrs (Wyanski et al. 2000). Wyanski et al. (2000) found evidence that the number of males in the population decreased between the 1970s and the 1990s off North Carolina and South Carolina. The maximum age reported by Wyanski et al. (2013) is 35 years for a mature female and 32 years for a mature male. The spawning season for snowy grouper is from April through September Wyanski et al. (2000, 2013). Snowy grouper is slow growing, with the estimates of 'k' in the von Bertalanffy growth model ranging from 0.07 to 0.12 in life history studies (Matheson and Huntsman 1984; Moore and Labisky 1984; Wyanski et al. 2000). Snowy grouper is capable of reaching a size of 1.2 m (4 ft) in length and 30 kg (66 lb) in weight (Heemstra and Randall 1993). SEDAR 36 (2013) determined natural mortality (M) = 0.12, constant over time, but decreasing with age. Most fishing for this species occurs in habitats characterized by rocky ledges, cliffs, and swift currents (Matheson and Huntsman 1984). Snowy grouper in the South Atlantic Region is harvested by hook-and-line gear and bottom longline gear. The use of bottom longline gear is prohibited shallower than 50 fathoms (91.4 m) and south of 27°10' N. lat. (due east of the entrance to St. Lucie Inlet, FL) in the waters under the South Atlantic Council's jurisdiction.

Snowy Grouper Life History
An Overview



- Extend from Massachusetts to Brazil and Mexico, including Bermuda, Cuba, the Bahamas, and the Gulf of Mexico.
- Adults range in waters ranging from 116-259 m, with juveniles documented from 46-91 m.
- May exhibit spawning aggregations.
- The spawning season extends from April through September.
- Oldest fish reported is 35 years old.

3.2.3 The Stock Assessment Process and Stock Status of Snowy Grouper

SEDAR is a cooperative Fishery Management Council process initiated to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean. The Caribbean, Gulf of Mexico, and South Atlantic Fishery Management Councils manage SEDAR in coordination with the National Marine Fisheries Service (NMFS) 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, which may be conducted via a workshop and several webinars, during which assessment models are developed and population parameters are estimated using the information provided from the Data Workshop. Third and final is the Review Workshop, during which independent experts review the input data, assessment methods, and assessment products. The completed assessment, including the reports of all three workshops and all supporting documentation, are then forwarded to the South Atlantic Council's Scientific and Statistical Committee (SSC). The SSC considers whether the assessment represents the best available science and develops fishing level recommendations for South Atlantic Council consideration.

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

In 2004, the snowy grouper stock was first assessed through SEDAR as a benchmark assessment (SEDAR 2004). That assessment (SEDAR-4) applied a statistical catch-age model to data through 2002. Recreational landings from the Florida Keys were not included because there was no way to post-stratify them into Atlantic and Gulf Council areas. The results indicated that fishing mortality first exceeded F_{MSY} in the mid-1970s, and overfishing continued through the end of the assessment period. During that time, the population declined to levels below SSB_{MSY} starting in the early 1980s. SEDAR-4 concluded that the stock was overfished and experiencing overfishing in 2002. $SSB_{2002}/SSB_{MSY} = 0.18$ and $F_{current}/F_{MSY} = 3.08$.

In 2013, the snowy grouper stock was assessed through SEDAR as a standard assessment (SEDAR 2013). That assessment (SEDAR 36) applied a statistical catch-age model to data through 2012. Recreational landings from the Florida Keys were included using a post-stratification methodology to separate Florida West Coast landings into those from the Atlantic and Gulf of Mexico areas. The results were reviewed by the South Atlantic Council's Scientific and Statistical Committee (SSC) in April 2014, and their report was presented to the South Atlantic Council in June 2014. The SSC determined that the snowy grouper stock is not undergoing overfished, is rebuilding, and remains overfished. The SSC recommended an acceptable biological catch equal to the yield at $75\%F_{MSY}$, and an overfishing limit equal to the yield at F_{MSY}. The following is taken directly from the SEDAR 36 assessment report (page 8):

"Results suggest that spawning stock declined until the mid-1990s and then increased gradually over the last decade. The terminal (2012) base-run estimate of spawning stock was below SSBMSY (SSB2012/SSBMSY = 0.49), as was the median estimate (SSB2012/SSBMSY = 0.38), indicating that the **stock remains overfished**. The estimated fishing rate has exceeded the MFMT (represented by FMSY) for most of the assessment period, but only once in the last six years. This one overage occurred in 2012, when the recreational fleet exceeded its quota. Still, the terminal estimate, which is based on a three-year geometric mean, is below FMSY in the case of the base run (F2010–2012/FMSY = 0.59) and the median (F2010–2012/FMSY = 0.70). Thus, this assessment indicates that the stock has not yet recovered to its biomass target, but is **no longer experiencing overfishing**." The South Atlantic Council, through Regulatory Amendment 20, intends to implement management measures prevent overfishing and rebuild the snowy grouper stock. See **Appendix D** for a history of management of snowy grouper.

Table 3.1. Stock status of snowy grouper.

	SEDAR 36 (2012 most recent data)
Overfishing ($F_{2010-2012}/F_{MSY}$)	No (0.59)
Overfished ($SSBF_{2012}$/MSST(75%))	Yes (0.65)
F_{MSY} (proxy for MFMT)	0.14
MSY	418,600 pounds whole weight (lb ww)
MSST	1,442,264 lb ww
OFL*	222,000 lb ww in 2015 235,000 lb ww in 2016 248,000 lb ww in 2017 259,000 lb ww in 2018 272,000 lb ww in 2019
ABC	164,136 lb ww in 2015 178,791 lb ww in 2016 192,469 lb ww in 2017 205,170 lb ww in 2018 218,848 lb ww in 2019

*OFL at equilibrium = 418,600 lb ww. OFL values for the years 2015 through 2019 are from Table 21 in SEDAR 36.

Snowy Grouper is listed as vulnerable to extinction by the International Union for the Conservation of Nature (IUCN) due to inferred large population declines throughout the species' distribution in the western Atlantic Ocean (Thierry et al. 2008).

3.2.4 Other Affected Species

Species that co-occur with the species considered in this amendment are snowy grouper, blueline tilefish, yellowedge grouper, Warsaw grouper, and silk snapper. Golden tilefish, sand tilefish, misty grouper, queen snapper, black snapper, and blackfin snapper are all part of the deepwater complex, but are not as closely associated with snowy grouper with regard to life history, habitat, etc. Non-target species like mackerels, sharks, and dolphin could also be caught by fishers targeting snowy grouper (SAFMC 2010b).

For details on the life histories and ecology of co-occurring species, the reader is referred to Volume II of the Fishery Ecosystem Plan (SAFMC 2009b) available at: http://www.safmc.net/ecosystem-management/fishery-ecosystem-plan-1.

Blueline tilefish was assessed in 2013 (SEDAR 32). Warsaw grouper and yellowedge grouper were included in the SEDAR 4 stock assessment in 2004, but the results were inconclusive due to infrequent landings and dearth of life-history data. There is no SEDAR stock assessment for silk snapper.

3.2.5 Protected Species

There are 40 listed species protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region and are under the purview of NMFS. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act (MMPA). Six of these marine mammal species (sperm, sei, fin, blue, humpback, and North Atlantic right whales) are also listed as endangered under the Endangered Species Act (ESA). In addition to those six marine mammals, five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; five distinct population segments (DPSs) of Atlantic sturgeon; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]) are also protected under the ESA. Portions of designated critical habitat for North Atlantic right whales and *Acropora* corals occur within the South Atlantic Council's jurisdiction. Additionally, NMFS has proposed rules to uplist *Acropora* Corals, list 6 additional species of corals, and designate critical habitat for loggerhead sea turtles. The species most likely to interact with black sea bass pot sector of the South Atlantic Snapper-Grouper Fishery are discussed below.

3.2.5.1 ESA-Listed Sea Turtles

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and travel widely throughout the South Atlantic. The following sections are a brief overview of the general life history characteristics of the sea turtles found in the South Atlantic region. Several volumes exist that cover the biology and ecology of these species more thoroughly (i.e., Lutz and Musick (eds.) 1997, Lutz et al. (eds.) 2003).

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

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

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

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

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

3.2.5.2 ESA-Listed Marine Fish

Historically the **smalltooth sawfish** in the U.S. ranged from New York to the Mexico border. Their current range is poorly understood but believed to have contracted from these historical areas. In the South Atlantic region, they are most commonly found in Florida, primarily off the Florida Keys (Simpfendorfer and Wiley 2004). Only two smalltooth sawfish have been recorded north of Florida since 1963 (the first was captured off North Carolina in 1963 and the other off Georgia in 2002 (National

Smalltooth Sawfish Database, Florida Museum of Natural History)). Historical accounts and recent encounter data suggest that immature individuals are most common in shallow coastal waters less than 25 meters (Bigelow and Schroeder 1953, Adams and Wilson 1995), while mature animals occur in waters in excess of 100 meters (Simpfendorfer pers. comm. 2006). Smalltooth sawfish feed primarily on fish. Mullet, jacks, and ladyfish are believed to be their primary food resources (Simpfendorfer 2001). Smalltooth sawfish also prey on crustaceans (mostly shrimp and crabs) by disturbing bottom sediment with their saw (Norman and Fraser 1938, Bigelow and Schroeder 1953).

3.3 Socio-economic Environment

3.3.1 Economic Description of the Commercial Sector

The South Atlantic Fishery Management Council manages 6 key species groups, in addition to sargassum and coral/coral reefs. The distributions of commercial landings and dockside revenues for these 6 species groups over a 5-year period from 2009 through 2013 are presented in **Figure 3.3.1.1** and **Figure 3.3.1.2**. The 2013 landings for most species groups are preliminary. The snapper grouper complex accounted for the highest percentage of commercial landings (gw) at 39% followed by coastal migratory pelagics at 37% and spiny lobster at 14%. The rest of the species groups represented 10% of commercial landings. In terms of dockside revenues (2013 $), the snapper grouper complex represented the highest share at 38%, followed by spiny lobster at 33%, with coastal migratory pelagics ranking third at 19%.

Within the snapper grouper fishery, snappers ranks first by both weight and revenue (**Figure 3.3.1.3** and **Figure 3.3.1.4)**. Sea basses and groupers ranks second by both weight and revenue. Jacks ranks third by weight but falls to fourth place behind tilefishes in terms of revenues. Tilefishes ranks fourth by weight and third by revenues.

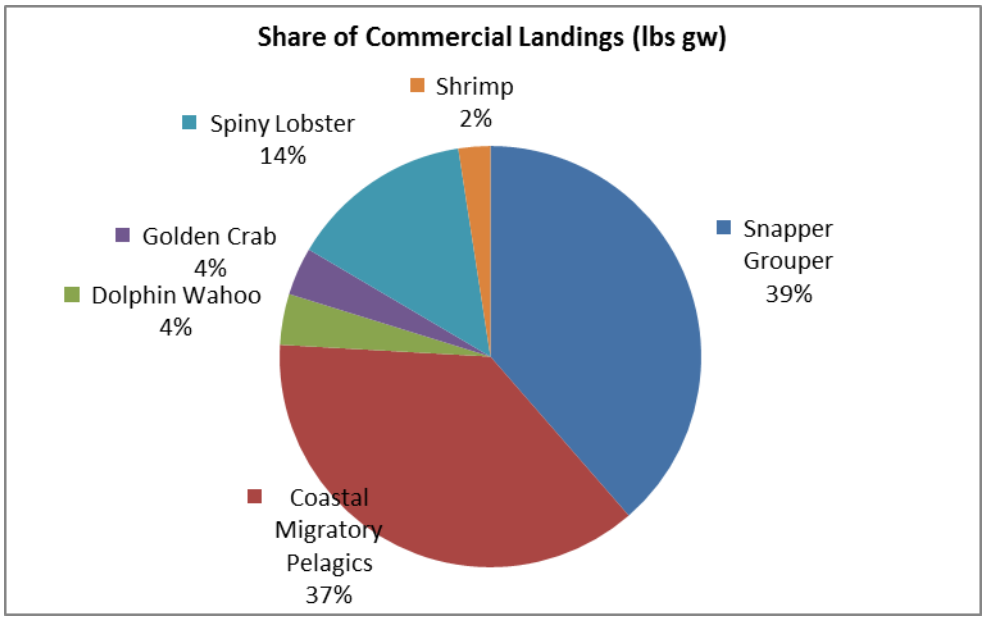


Figure 3.3.1.1. Share of commercial landings (lb gw) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009 – 2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

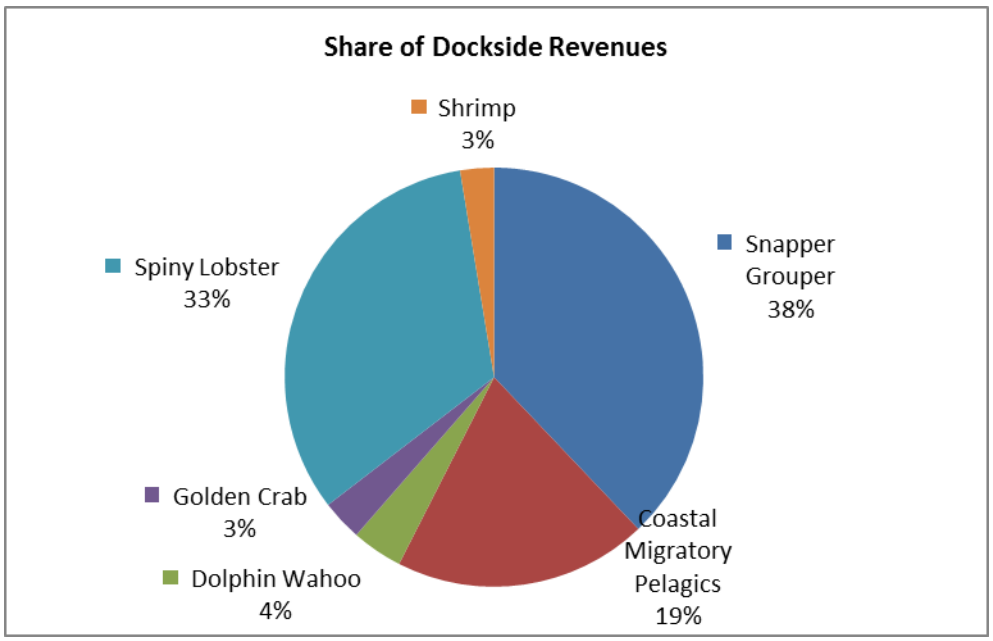


Figure 3.3.1.2. Share of dockside revenues ($) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

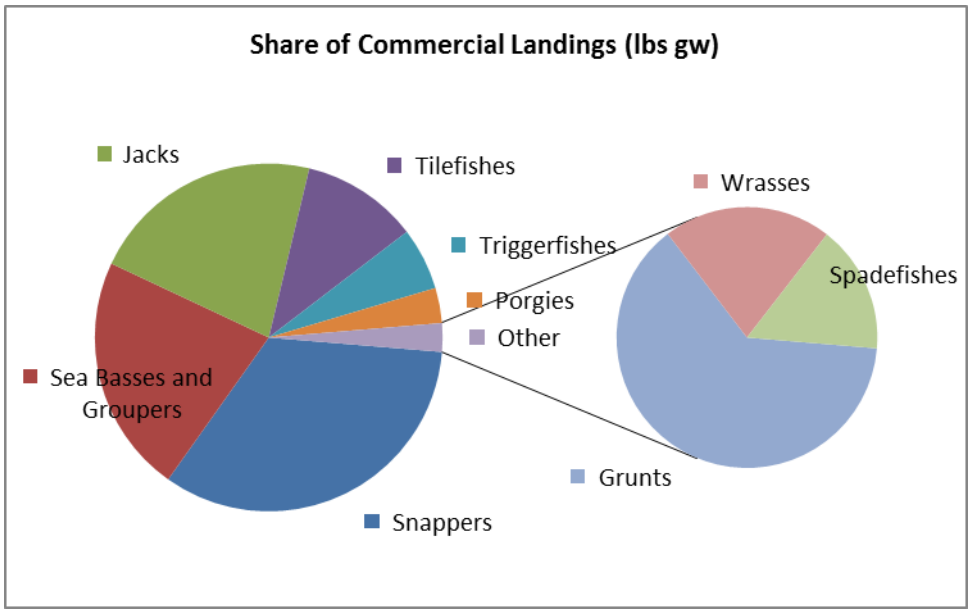


Figure 3.3.1.3. Share of commercial landings (lb gw) by group of snapper grouper species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

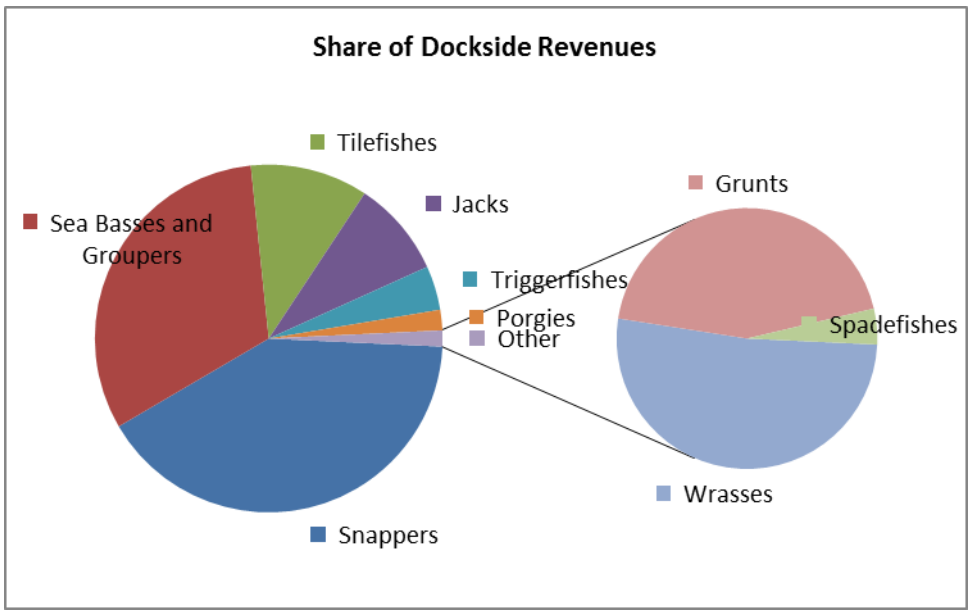


Figure 3.3.1.4. Share of dockside revenues ($) by group of snapper grouper species managed by the South Atlantic Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

Any fishing vessel that harvests and sells any of the snapper grouper species from the South Atlantic EEZ must have a valid South Atlantic commercial snapper grouper permit, which is a limited access permit. There are currently 547 valid South Atlantic Snapper Grouper Unlimited Permits and 117 valid 225 lb Trip Limited Permits (**Table 3.3.1.1**). After a permit expires, it can be renewed and transferred up to one year after it expires. The numbers of valid and transferrable/renewable permits have declined since 2009, from 640 to 593 for the unlimited permits and from 144 to 130 for the limited permits (**Table 3.3.1.2**).

Table 3.3.1.1. Valid and transferrable/renewable South Atlantic commercial snapper grouper permits as of January 30, 2014.

South Atlantic S-G Permits	Unlimited lb	225 lb
Valid	547	117
Transferrable/Renewable	22	8
Total	569	125

Source: NMFS SERO PIMS, 2014.

Table 3.3.1.2. Number of South Atlantic commercial snapper grouper permits.

	Unlimited	Limited 225 lb
2009	640	144
2010	624	139
2011	569	126
2012	558	123
2013	593	130
Average	597	132

Source: NMFS SERO PIMS, 2014.

The following focuses on commercial landings and revenues for snowy grouper. Total landings and revenues are based on the SEFSC Commercial ACL Dataset while vessel-level landings and revenues are based on the SEFSC Coastal Fisheries Logbook Dataset. Landings from the logbook program do not include all landings shown from the ACL database due to landings by fishermen who do not have the federal snapper grouper permit and are not required to complete the logbook; non-reporting in the logbook program is also an issue. Additional information on commercial landings and fishing for the snapper grouper fishery can be found in previous amendments [Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Regulatory Amendment 9 (SAFMC 2011a), and Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c)] and is incorporated herein by reference.

Snowy grouper is within the sea basses and groupers group of the snapper grouper fishery. From 2009 through 2013, snowy grouper's 5-year commercial landings ranked 19th by weight and 13th by revenue among the 70 species within the snapper grouper complex. Annual commercial landings of snowy grouper in the South Atlantic ranged from about 37,000 lb gw to 89,000 lb gw from 2009 through 2013 (**Figure 3.3.1.5**). Dockside revenues from those landings ranged from about $150,000 to $370,000 (2013 $) (**Figure 3.3.1.5**). The average dockside price during those five years was $4.10 per pound gw (2013$). Commercial landings of snowy grouper peaked in 2012 and troughed in 2011 by both weight and revenue. It is noted that the 2013 data are not incomplete.

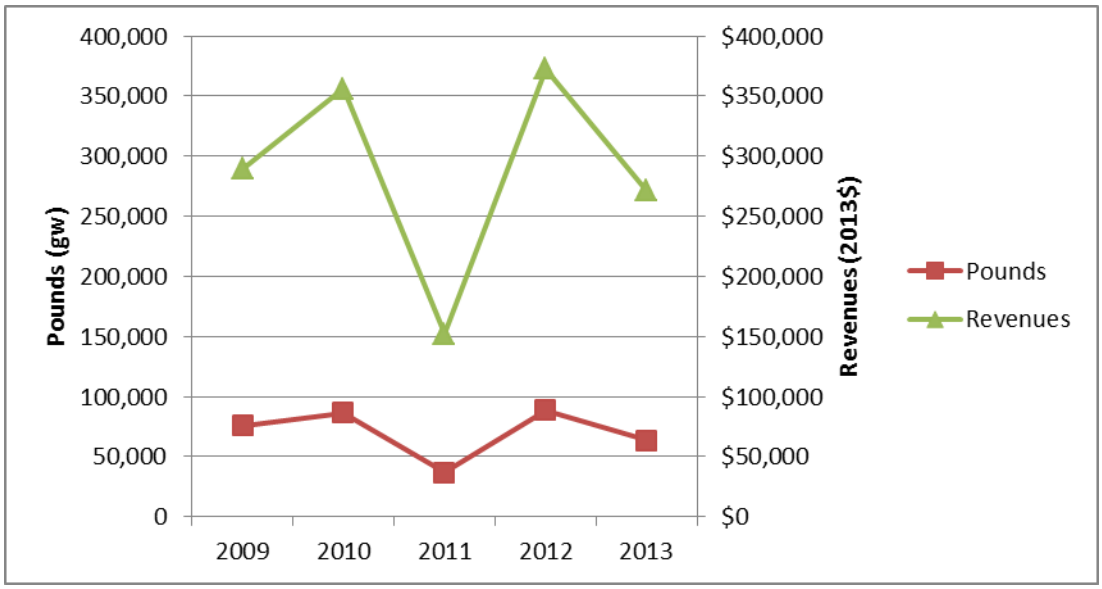


Figure 3.3.1.5. Annual commercial landings of snowy grouper by weight (lb gw) and dockside revenue (2013 $). Source: SEFSC Commercial ACL Dataset, excluding confidential data.

The commercial fishing season for snowy grouper is January 1 through December 31. The commercial ACL for snowy grouper has been 82,900 lb gw since 2009. Although the ACL was exceeded in 2010 and 2012, it was only in 2013 that a fishery closure was implemented when the commercial ACL was reached in October.

Table 3.3.1.3 shows the snowy grouper landings and dockside revenues by state. It should be noted that South Carolina snowy grouper landings for 2013 are not yet available. For a visual comparison of landings and revenues by state, **Figures 3.3.1.6** and **3.3.1.7** are developed from data shown in **Table 3.3.1.3**. Data for 2013 are not included in these figures.

Among the South Atlantic states, Florida/Georgia ranks first in snowy grouper landings by both weight and dockside revenue, followed by North Carolina and last by South Carolina (**Figure 3.3.1.6** and **Figure 3.3.1.7**). Landings and revenues for Georgia are combined with those of Florida to avoid confidentiality issues. The year 2011 was an exception when South Carolina registered higher landings by both weight and revenue than North Carolina. The Florida/Georgia area accounted approximately from over 40% to over 70% of all snowy grouper landings by both weight and revenue over the 5-year period. It should be noted that the information on the 2013 South Carolina commercial landings for snowy grouper is not yet available.

Table 3.3.1.3. Snowy grouper landings (lb gw) and dockside revenues (2013 $) by state, 2009-2013.

	Florida/Georgia	North Carolina	South Carolina	Total
Landings (lb gw)				
2009	38,427	27,918	9,269	75,614
2010	42,369	30,069	14,209	86,648
2011	14,939	7,634	14,269	36,842
2012	48,631	21,823	18,436	88,889
2013	46,151	17,187	u/a	63,338
Average	38,103	20,926	11,236	70,266
Dockside Revenues (2013 $)				
2009	$148,141	$102,101	$39,297	$289,539
2010	$179,766	$114,011	$62,068	$355,844
2011	$65,650	$25,558	$61,004	$152,211
2012	$214,266	$79,376	$79,214	$372,856
2013	$209,231	$61,760	u/a	$270,991
Average	$163,411	$76,561	$48,317	$288,288

Source: SEFSC Commercial ACL Dataset, excluding confidential data.
Note: South Carolina landings for 2013 are not yet available (u/a).

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 are shown in **Figure 3.3.1.8**. Seasonality characterizes the landings and dockside revenues for snowy grouper. Average landings and revenues peaked in June and were lowest in December.

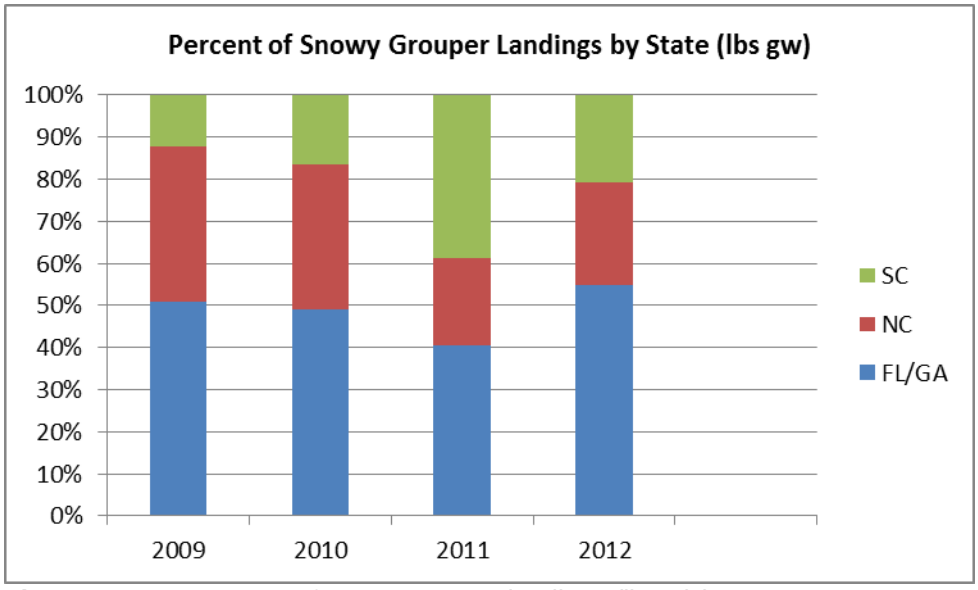


Figure 3.3.1.6. Percent of snowy grouper landings (lb gw) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

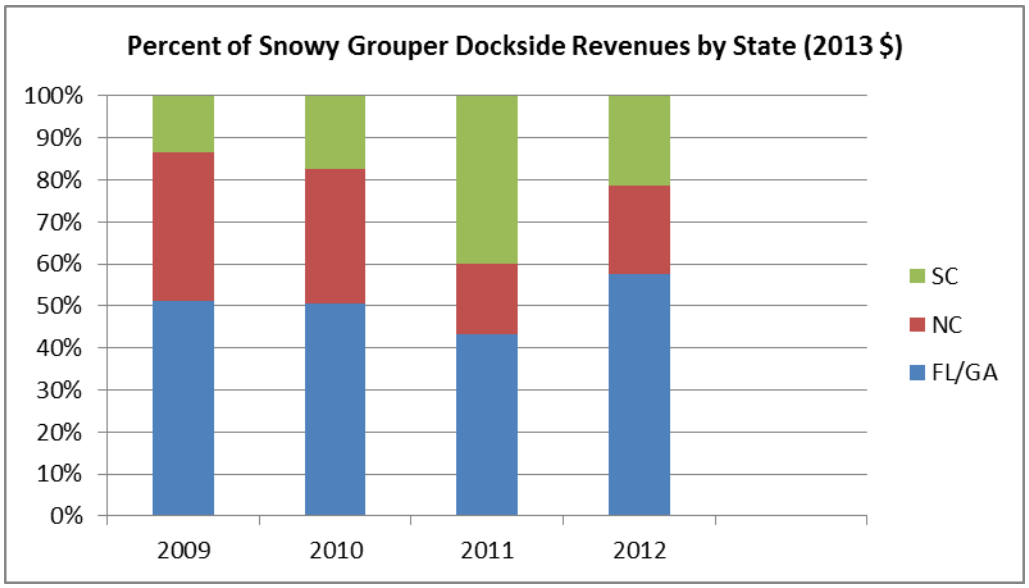


Figure 3.3.1.7. Percent of snowy grouper dockside revenues (2013 $) by state, 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

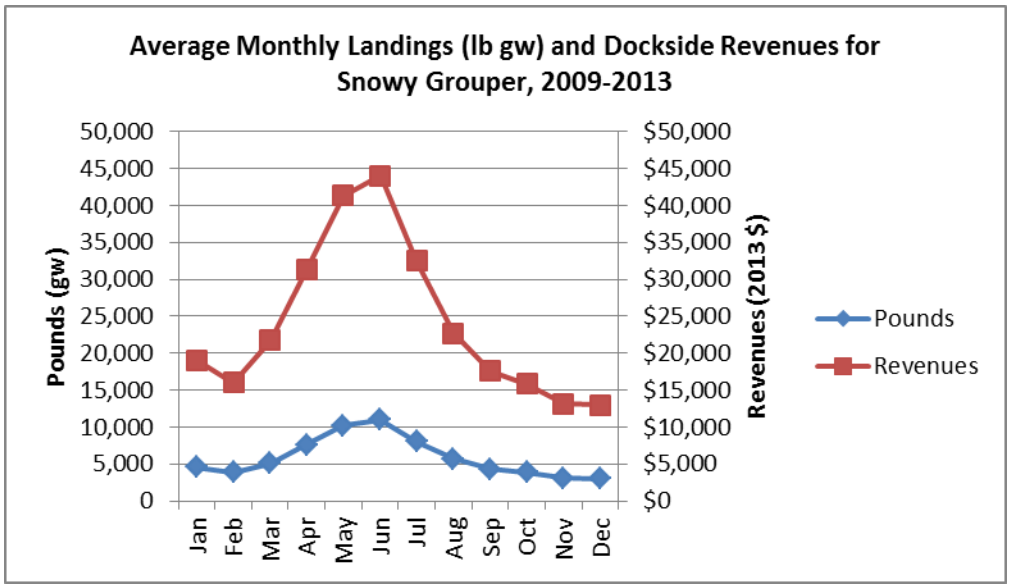


Figure 3.3.1.8. Average monthly landings (lb gw) and dockside revenues (2013 $), 2009–2012.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

From 2009 through 2013, an annual average of 138 vessels took 935 commercial trips that combined landed an average of 70,218 lb gw of snowy grouper annually with a dockside value (2013 dollars) of $284,024 (**Table 3.3.1.4**). The average trip with landings of the species sold approximately 75 lb gw of snowy grouper yielding average dockside revenue of $304. Average annual dockside revenue from snowy grouper landings represented approximately 9% of total dockside revenue from trips that landed snowy grouper from 2009 through 2013.

Table 3.3.1.4. Vessels and trips with snowy grouper landings by weight (lb gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lb gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lb gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	151	1,057	66,013	$254,473	1,091,322	$2,742,902	$2,997,376
2010	134	1,088	74,693	$298,355	969,160	$2,467,975	$2,766,330
2011	112	592	35,472	$148,354	781,586	$2,174,886	$2,323,240
2012	128	1,080	80,490	$338,892	829,793	$2,283,829	$2,622,721
2013	166	856	94,425	$380,047	1,486,015	$4,730,487	$5,110,534
Average	138	935	70,218	$284,024	1,031,575	$2,880,016	$3,164,040

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested snowy grouper also took 3,412 trips per year without snowy grouper landings (**Figure 3.3.1.9**). The 935 average annual trips that these vessels took with snowy grouper landings represented approximately 22% of the average of all annual commercial trips of those vessels in the South Atlantic region from 2009 through 2013.

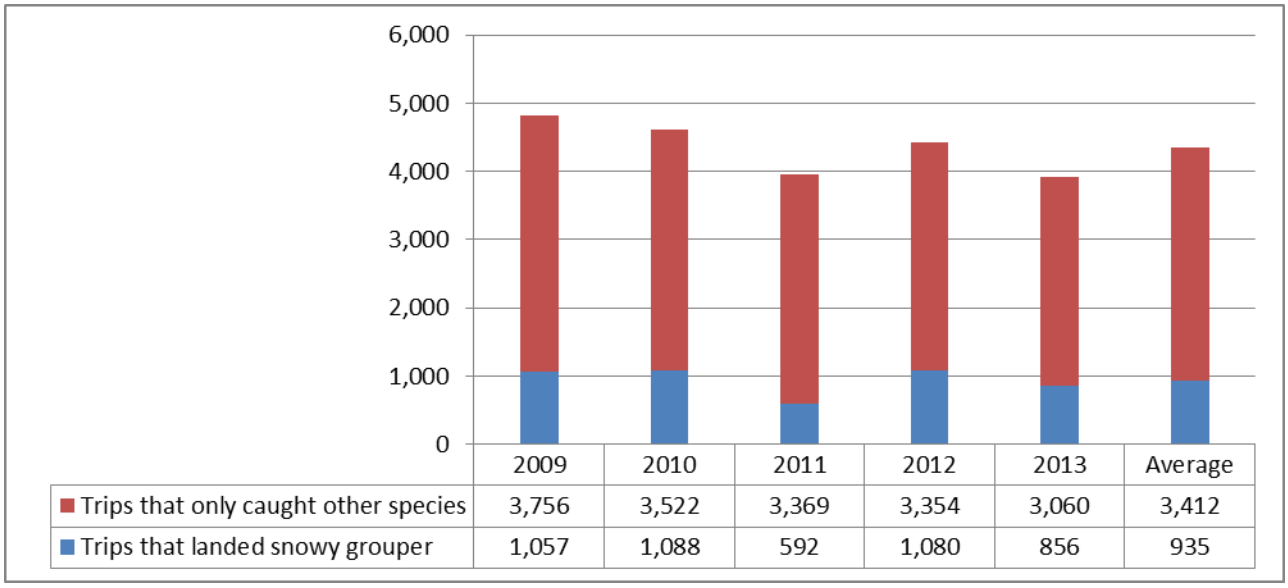


Figure 3.3.1.9. All annual trips by vessels that landed snowy grouper, 2009–2013.
Source: SEFSC Coastal Fisheries Logbook.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper was about $77,860 (2013 $) (**Table 3.3.1.4**). Annual dockside revenue from snowy grouper landings represented, on average, approximately 3% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $77,860 as compared to $2,058 per vessel from snowy grouper only.

Table 3.3.1.5. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	151	$254,473	$2,742,902	$7,291,820	$10,289,196	$68,140
2010	134	$298,355	$2,467,975	$7,260,791	$10,027,121	$74,829
2011	112	$148,354	$2,174,886	$7,055,797	$9,379,037	$83,741
2012	128	$338,892	$2,283,829	$6,819,137	$9,441,858	$73,765
2013	166	$380,047	$4,730,487	$9,634,449	$14,744,983	$88,825
Average	138	$284,024	$2,880,016	$7,612,399	$10,776,439	$77,860

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

The following 6 tables present a state by state breakdown of vessel-level information for vessels landing snowy grouper. As in the previous tables, Florida and Georgia landings/revenues are combined to avoid confidentiality issues.

In Florida/Georgia, from 2009 through 2013, an annual average of 65 vessels took 456 commercial trips that combined landed an average of 37,857 lb gw of snowy grouper annually with a dockside value (2013 dollars) of $157,631 (**Table 3.3.1.6**). These numbers represent about 47% of all vessels, 49% of all trips, 54% of all landings, and 55% of all revenues for all vessels landing snowy grouper in the South Atlantic.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper in Florida/Georgia was about $74,034 (2013 $) (**Table 3.3.1.7**). This is about 5% lower than the average revenues per vessel of about $77,860 (2013 $) for all vessels landing snowy grouper in the South Atlantic. Annual dockside revenue from snowy grouper landings represented, on average, approximately 3% of the total dockside revenue from all commercial landings from 2009 through 2013. This is about the same percentage for all vessels landing snowy grouper in the South Atlantic.

Table 3.3.1.6. Vessels and trips with snowy grouper landings by weight (lb gw) and dockside revenue (2013 $) in Florida/Georgia, 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lb gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lb gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	67	507	31,537	$122,032	227,950	$585,467	$707,500
2010	56	538	38,056	$152,670	205,243	$459,464	$612,134
2011	49	233	13,646	$61,142	132,071	$275,671	$336,813
2012	62	568	44,721	$197,106	194,852	$463,826	$660,932
2013	91	435	61,325	$255,203	882,288	$3,092,914	$3,348,117
Average	65	456	37,857	$157,631	328,481	$975,468	$1,133,099

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

Table 3.3.1.7. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper in Florida/Georgia, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	67	$122,032	$585,467	$2,477,068	$3,184,567	$47,531
2010	56	$152,670	$459,464	$3,193,551	$3,805,684	$67,959
2011	49	$61,142	$275,671	$3,511,914	$3,848,727	$78,545
2012	62	$197,106	$463,826	$3,547,795	$4,208,727	$67,883
2013	91	$255,203	$3,092,914	$6,503,050	$9,851,167	$108,255
Average	65	$157,631	$975,468	$3,846,675	$4,979,775	$74,034

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

In North Carolina, from 2009 through 2013, an annual average of 39 vessels took 255 commercial trips that combined landed an average of 17,209 lb gw of snowy grouper annually with a dockside value (2013 dollars) of $62,798 (**Table 3.3.1.8**). These numbers represent about 28% of all vessels, 27% of all trips, 25% of all landings, and 22% of all revenues for all vessels landing snowy grouper in the South Atlantic.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper in North Carolina was about $68,667 (2013 $) (**Table 3.3.1.9**). This is about 12% lower than the average revenues per vessel of about $77,860 (2013 $) for all vessels landing snowy grouper in the South Atlantic. Annual dockside revenue from snowy grouper landings represented, on average, approximately 2.3% of the total dockside revenue from all commercial landings from 2009 through 2013. This is lower than the 3% corresponding percentage for all vessels landing snowy grouper in the South Atlantic.

Table 3.3.1.8. Vessels and trips with snowy grouper landings by weight (lb gw) and dockside revenue (2013 $) in North Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lb gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lb gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	54	349	23,838	$87,170	451,646	$920,490	$1,007,661
2010	49	354	23,078	$87,101	346,442	$799,454	$886,555
2011	28	115	6,551	$21,917	156,901	$407,700	$429,617
2012	29	249	17,486	$63,572	245,007	$643,391	$706,963
2013	36	208	15,091	$54,232	177,254	$409,064	$463,296
Average	39	255	17,209	$62,798	275,450	$636,020	$698,818

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

Table 3.3.1.9. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper in North Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	54	$87,170	$920,490	$2,929,778	$3,937,439	$72,916
2010	49	$87,101	$799,454	$2,279,063	$3,165,617	$64,604
2011	28	$21,917	$407,700	$1,669,732	$2,099,348	$74,977
2012	29	$63,572	$643,391	$1,533,884	$2,240,847	$77,271
2013	36	$54,232	$409,064	$1,465,063	$1,928,360	$53,566
Average	39	$62,798	$636,020	$1,975,504	$2,674,322	$68,667

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

In South Carolina, from 2009 through 2013, an annual average of 34 vessels took 221 commercial trips that combined landed an average of 14,709 lb gw of snowy grouper annually with a dockside value (2013 dollars) of $62,250 (**Table 3.3.1.10**). These numbers represent about 24% of all vessels, 24% of all trips, 21% of all landings, and 22% of all revenues for all vessels landing snowy grouper in the South Atlantic.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper in North Carolina was about $89,536 (2013 $) (**Table 3.3.1.11**). This is about 15% higher than the average revenues per vessel of about $77,860 (2013 $) for all vessels landing snowy grouper in the South Atlantic. Annual dockside revenue from snowy grouper landings represented, on average, approximately 2% of the total dockside revenue from all commercial landings from 2009 through 2013. This is lower than the 3% corresponding percentage for all vessels landing snowy grouper in the South Atlantic.

Table 3.3.1.10. Vessels and trips with snowy grouper landings by weight (lb gw) and dockside revenue (2013 $) in South Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lb gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lb gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	32	201	10,638	$45,271	411,726	$1,236,944	$1,282,215
2010	31	196	13,559	$58,584	417,474	$1,209,058	$1,267,642
2011	35	244	15,274	$65,295	492,615	$1,491,515	$1,556,810
2012	38	263	18,283	$78,213	389,935	$1,176,613	$1,254,826
2013	33	201	15,792	$63,884	359,252	$1,031,504	$1,095,388
Average	34	221	14,709	$62,250	414,200	$1,229,127	$1,291,376

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

Table 3.3.1.11. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper in South Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	32	$45,271	$1,236,944	$1,842,301	$3,124,516	$97,641
2010	31	$58,584	$1,209,058	$1,752,056	$3,019,698	$97,410
2011	35	$65,295	$1,491,515	$1,874,151	$3,430,961	$98,027
2012	38	$78,213	$1,176,613	$1,726,851	$2,981,677	$78,465
2013	33	$63,884	$1,031,504	$1,417,053	$2,512,441	$76,135
Average	34	$62,250	$1,229,127	$1,722,483	$3,013,859	$89,536

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.2 Economic Description of the Recreational Sector

The recreational sector of the snapper grouper fishery is comprised of the private sector and the for-hire sector. The private sector includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire sector is composed of the charter boat and headboat (also called partyboat) sectors. Charter boats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person.

For-hire vessels are required to have a for-hire snapper grouper permit to fish for or possess snapper grouper species in the South Atlantic EEZ. The number of vessels with for-hire snapper grouper permits for the period 2009-2013 is provided in **Table 3.3.2.1**. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire vessel permits issued for the South Atlantic snapper grouper fishery decreased from 1,852 permits in 2009 to 1,799 permits in 2013. However, the for-hire snapper grouper permits increased in 2012 and 2013. The majority of snapper grouper for-hire permitted vessels were home-ported in Florida; a relatively high proportion of these permitted vessels were also home-ported in North Carolina and South Carolina. Many vessels with South Atlantic for-hire snapper grouper permits were home-ported in states outside of the SAFMC's area of jurisdiction, particularly in the Gulf states of Alabama through Texas. The number of vessels with South Atlantic for-hire snapper grouper permits home-ported in states outside of South Atlantic Council's area of jurisdiction has accounted for about the same proportion (10-11%) of the total number of permits.

Table 3.3.2.1. Number of South Atlantic for-hire snapper grouper permits, by homeport state, 2009-2013.

Home Port	2009	2010	2011	2012	2013	Average
North Carolina	349	331	330	312	307	326
South Carolina	146	145	132	138	150	142
Georgia	30	27	26	26	30	28
Florida	1,131	1,109	1,099	1,122	1,121	1,116
Gulf (AL-TX)	83	86	91	93	91	89
Others	113	114	103	106	100	107
TOTAL	1,852	1,812	1,781	1,797	1,799	1,808

Source: NMFS SERO Permits Dataset, 2014.

For-hire permits do not distinguish charter boats from headboats. Based on a 1997 survey, Holland et al. (1999) estimated that a total of 1,080 charter vessels and 96 headboats supplied for-hire services in all South Atlantic fisheries during 1997. By 2014, the estimated number of headboats supplying for-hire services in all South Atlantic fisheries had fallen to 77, indicating a decrease in fleet size of approximately 20% between 1997 and 2014 (K. Brennan, Beaufort Laboratory, SEFSC, personal communication, 2014).

According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 1,456 current holders of South Atlantic for-hire snapper grouper permits as of May 16, 2014. There are no specific permitting requirements for recreational anglers to harvest snapper grouper. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions

The following description focuses on the recreational sector for snowy grouper. Additional information on the recreational sector of the snapper grouper fishery as a whole is contained in previous or concurrent amendments and is incorporated herein by reference [see Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Amendment 17A (SAFMC 2010a), Amendment 17B (SAFMC 2010b), Regulatory Amendment 9 (SAFMC 2011a), Regulatory Amendment 11 (SAFMC 2011b), Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c), and Amendment 24 (SAFMC 2011d)].

On average, the private mode dominated in the harvest of snowy grouper; however, the for-hire mode landed more snowy grouper than the private mode in 2010 and 2011 (**Figure 3.3.2.1**). Among the states, Florida/Georgia had higher average landings of snowy grouper than South/North Carolina, but the latter area had higher landings in 2010 and 2011 (**Figure 3.3.2.2**). There is an apparent seasonality in the recreational harvests of snowy grouper (**Figure 3.3.2.3**). Recreational harvests tended to increase from the first through the third wave, fell on the fourth wave, rose in the fifth wave, and fell sharply in the sixth wave. Recreational harvests of snowy grouper were lowest in January/February and highest in September/October.

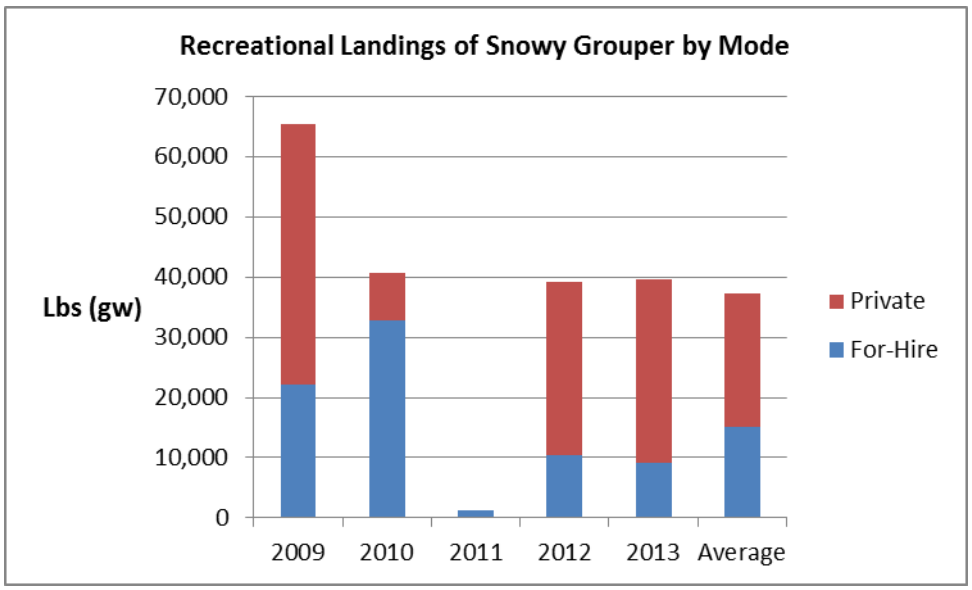


Figure 3.3.2.1. Recreational landings (gw) of snowy grouper by fishing mode, 2009-2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

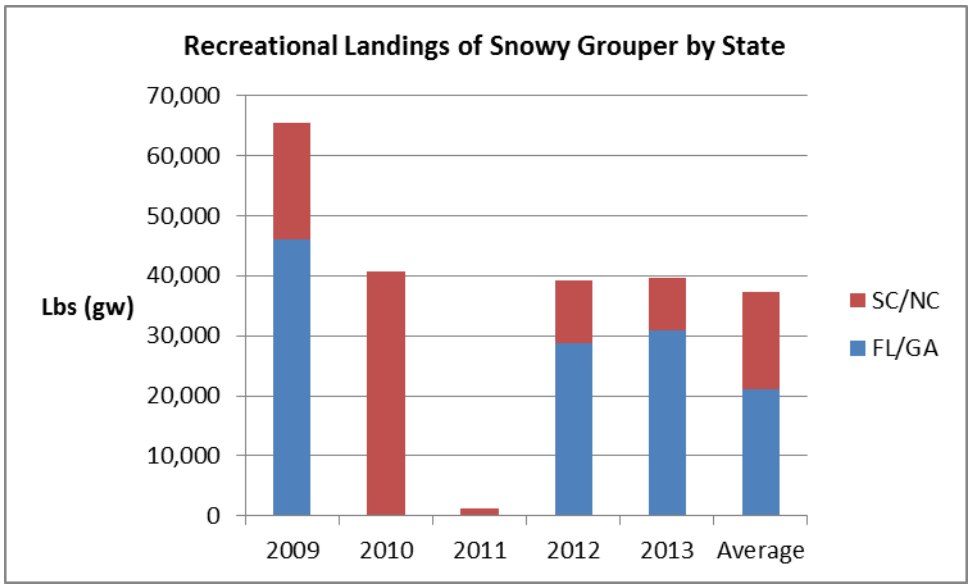


Figure 3.3.2.2. Recreational landings (gw) of snowy grouper by state, 2009-2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

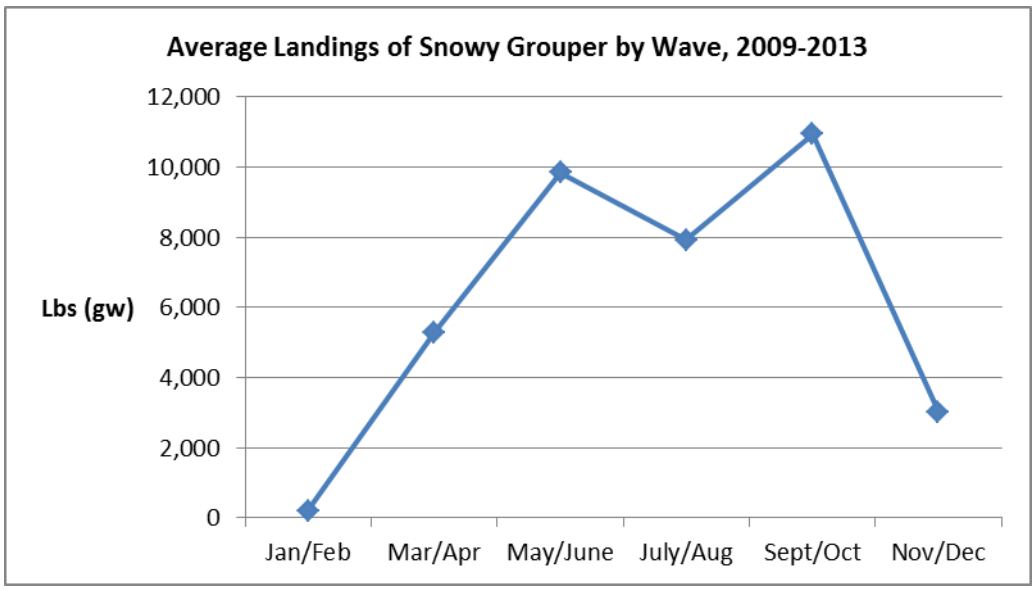


Figure 3.3.2.3. Average recreational landings (gw) of snowy grouper by wave, 2009-2013. Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_24feb14).

Recreational effort can be characterized in terms of the number of trips as follows:

1. Target effort - The number of individual angler trips, regardless of trip duration, where the intercepted angler indicated that the species was targeted as either the first or the second primary target for the trip. The species did not have to be caught.
2. Catch effort - The number of individual angler trips, regardless of trip duration and target intent, where the individual species was caught. The fish caught did not have to be kept.
3. All recreational trips - The total estimated number of recreational trips taken, regardless of target intent or catch success.

The source of the following target and catch trips is NOAA fisheries website for accessing recreational data: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/index.

For the years 2009 through 2013, there have been no reported target trips for snowy grouper. Some catch trips have been recorded in certain states in the South Atlantic. Catch trips ranged from a low of about 70 trips to a high of about 2,500 trips (**Figure 3.3.2.4**). Most catch trips were made by the private mode, although the for-hire mode registered higher trips in 2010 and 2011. Florida/Georgia has been the dominant area for snowy grouper catch trips but South/North Carolina had higher trips in 2010 and 2011 (**Figure 3.3.2.5**). The apparent seasonality in catch trips have some similarities and differences with that of harvests (**Figure 3.3.2.6** vs. **Figure 3.3.2.3**). Like harvests, catch trips tended to increase from the first to the third wave, fell in the fourth wave, and rose in the fifth wave. Unlike harvests, catch trips rose in the sixth wave. In addition, harvests peaked in September/October whereas catch trips peaked in May/June.

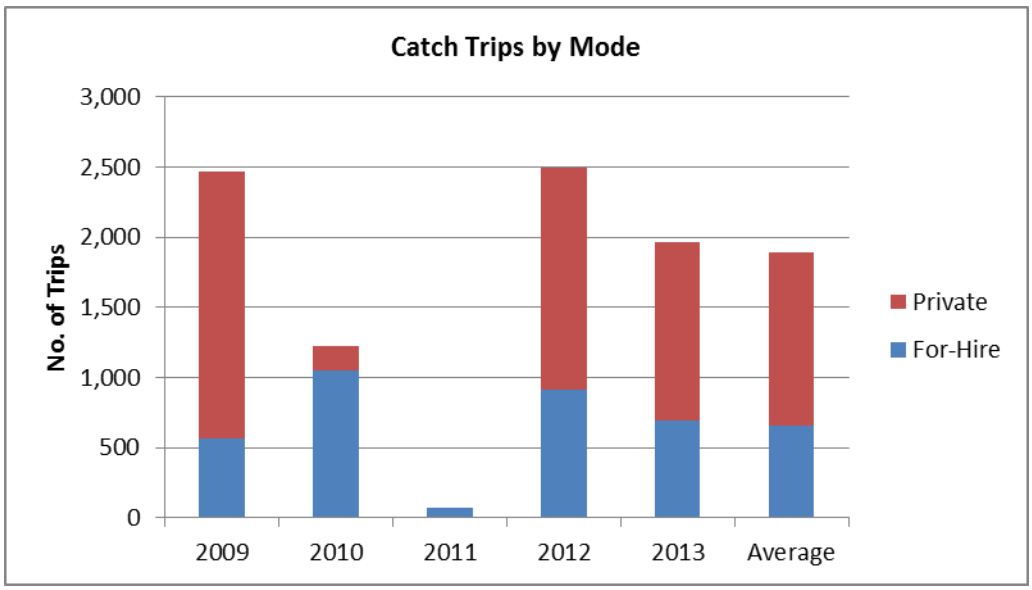


Figure 3.3.2.4. Number of catch trips for snowy grouper by fishing mode, 2009-2013.

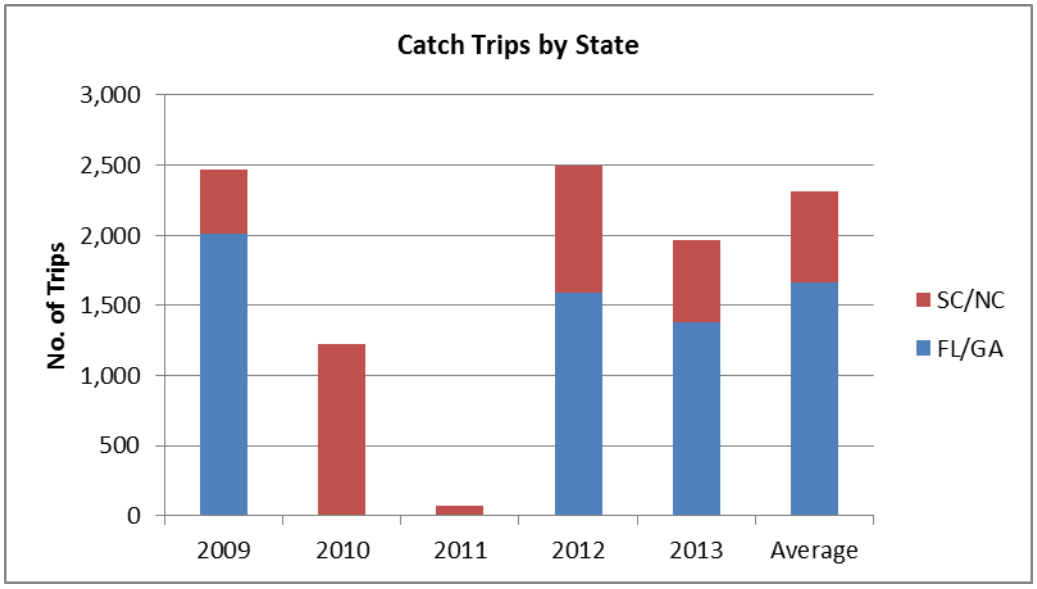


Figure 3.3.2.5. Number of catch trips for snowy grouper by state, 2009-2013.

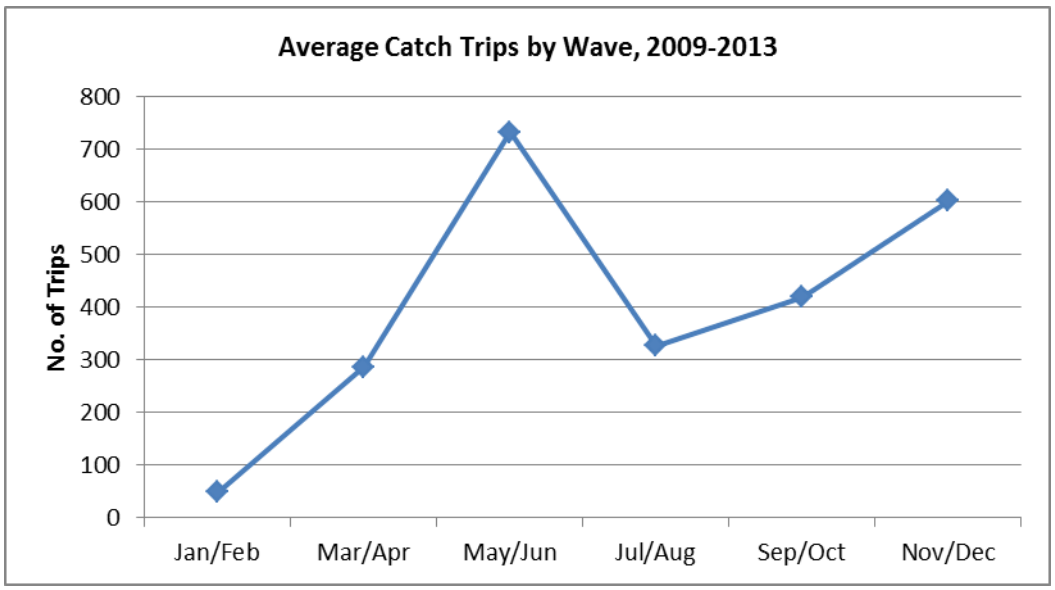


Figure 3.3.2.6. Average number of catch trips for snowy grouper by wave, 2009-2013.

Similar analysis of recreational effort is not possible for the headboat sector because headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. **Table 3.3.2.2** displays the annual angler days by state for 2009-2013 and **Table 3.3.2.3** displays their average (2009-2013) monthly distribution. Confidentiality issues required combining Georgia estimates with those of Northeast Florida.

Headboat angler days (trips) varied from year to year across various states. Total headboat angler trips decreases in 2010 and 2011 but increased in the next two years, reaching their highest level of 227,189 in 2013 (**Table 3.3.2.2**). Southeast Florida registered the highest number of angler trips, followed by Georgia/Northeast Florida, South Carolina, and North Carolina. Clearly Florida dominated all other states in terms of headboat angler days.

On average (2009-2013), overall angler days peaked in July and troughed in November (**Table 3.3.2.3**). All states recorded peak angler trips in July, similar to the overall peak month. None of the states, however, had the same trough month as the overall angler trips. North Carolina had a trough in December, South Carolina in January, Georgia/Northeast Florida in November, and Southeast Florida in October.

Table 3.3.2.2. South Atlantic headboat angler days, by state, 2009-2013.

	2009	2010	2011	2012	2013	AVERAGE
NC	19,468	21,071	18,457	20,766	20,547	20,062
SC	40,919	44,951	44,645	41,003	40,963	42,496
GA/NEFL	66,447	53,676	46,256	8,800	66,587	48,353
SEFL	69,973	69,986	77,785	130,823	99,092	89,532
TOTAL	196,807	189,684	187,143	201,392	227,189	200,443

Source: SEFSC Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab.

Table 3.3.2.3. Average monthly distribution of headboat angler days in the South Atlantic, by state, 2009-2013.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NC	26	12	198	1,020	2,227	3,959	4,631	3,791	2,114	1,758	316	7
SC	59	114	1,077	2,793	3,496	8,822	11,350	8,337	3,439	2,316	567	125
GA/NEFL	443	299	478	1,080	1,622	2,735	3,490	2,612	1,400	1,152	147	176
SEFL	8,047	9,377	12,784	13,104	11,617	14,270	15,345	11,156	6,326	5,836	5,898	8,488
TOTAL	8,574	9,801	14,536	17,997	18,962	29,787	34,816	25,896	13,279	11,062	6,929	8,797

Source: SEFSC Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab.

Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus (CS). The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips.

The NMFS Southeast Science Center (Carter and Liese 2012) developed estimates of consumer surplus per fish, per angler trip. These estimates were culled from various studies – Haab et al. (2009), Dumas et al. (2009), and NOAA SEFSC SSRG (2009). The values/ranges of consumer surplus estimates are (in 2013 dollars) $121 to $139 for red snapper, $134 to $139 for grouper, $11.9 for other snappers, and $87 for snapper grouper. Haab et al. (2009) also estimated consumer surplus for snapper in general to range from $12 to $34 (2013 dollars) for one additional fish caught and kept. Haab et al. (2009) also estimated consumer surplus for dolphin of two general sizes. They estimated that for one additional fish caught and kept this consumer surplus would range from $50 to $5557 (2013 dollars) for dolphin greater than 20 inches and from $5.18 to $31.07 (2013 dollars) for smaller dolphin. Carter and Liese (2012) also estimated the mean willingness to pay per fish, per trip for dolphin (in 2013 dollars) of $14.91, $9.94, $7.35, $5.80, and $4.76, respectively for the second, third, fourth, fifth, and sixth fish caught and kept. They also estimated declining mean willingness to pay for additional fish caught and released due to the size or bag limit.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus (PS) is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (C. Liese, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese et al. (2009), Dumas et al. (2009), Holland et al. (1999), and Sutton et al. (1999). Estimates of net operating revenue per angler trip (2013 dollars) on representative charter trips (average charter trip regardless of area fished) are $158 for Louisiana through east Florida, $147 for east Florida, $170 for northeast Florida, and $139 for North Carolina. For charter trips into the EEZ only, net operating revenues are $153 in east Florida and $161 in northeast Florida. For full-day and overnight trips only, net operating revenues are estimated to be $169-$174 in North Carolina. Comparable estimates are not available for Georgia or South Carolina.

Net operating revenues per angler trip are lower for headboats than for charter boats. Net operating revenue estimates (2013 dollars) for a representative headboat trip are $52 in the Gulf of Mexico (all states and all of Florida), and $68-$74 in North Carolina. For full-day and overnight headboat trips, net operating revenues are estimated to be $81-$84 in North Carolina. Comparable estimates are not available for Georgia or South Carolina.

A study of the North Carolina for-hire fishery provides some information on the financial status of the for-hire fishery in the state (Dumas et al. 2009). Depending on vessel length, regional location, and season, charter fees per passenger per trip ranged from $182.58 to $273.20 for a full-day trip and from $101.70 to $134.63 for a half-day trip; headboat fees ranged from $78.71 to $88.75 for a full-day trip and from $41.32 to $43.70 for a half-day trip. Charter boats generated a total of $60.48 million in passenger fees, $3.5 million in other vessel income (e.g., food and beverages), and $5.2 million in tips. The corresponding figures for headboats were $10.67 million in passenger fees, $0.22 million in other vessel income, and $0.97 million in tips. Non-labor expenditures (e.g., boat insurance, dockage fees, bait, ice, fuel) amounted to $46.6 million for charter boats and $5.8 million for headboats. Summing across vessel lengths and regions, charter vessels had an aggregate value (depreciated) of $130.70 million and headboats had an aggregate value (depreciated) of $11.08 million. All the above values are in 2013 dollars.

A more recent study of the for-hire sector provides estimates on gross revenues generated by the charter boats and headboats in the South Atlantic (Holland et al. 2012). Average annual revenues (2013 dollars) for charter boats are estimated to be $130,524 for Florida vessels, $55,348 for Georgia vessels, $104,417 for South Carolina vessels, and $105,593 for North Carolina vessels. For headboats, the corresponding estimates in 2013 dollars are $216,975 for Florida vessels and $159,332 for vessels in the other states. Due to limited sample size, revenue information for headboats in state other than Florida is aggregated to avoid disclosure of sensitive information.

3.3.3 Social Environment

This regulatory amendment proposes to adjust the rebuilding strategy, adjust the ACLs, modify the commercial trip limit, split the commercial fishing season, and modify the recreational bag limit for snowy grouper. Therefore, descriptions of the recreational and commercial components of the snowy grouper fishery are included in the following narrative. The description is based on the geographical distribution of landings and the relative importance of the species for commercial and recreational communities. A spatial approach enables the consideration of fishing communities and consideration of the importance of fishery resources to those communities, as required by National Standard 8.

Because so many communities in the South Atlantic benefit from snapper grouper fishing, a discussion of the communities most involved in South Atlantic fishing, is included in **Section 3.8.3.3** of the Comprehensive ACL Amendment (SAFMC 2011), which is hereby incorporated by reference. Detailed information is included on the importance of individual commercial species to each community and can be partnered with the following narrative to provide an understanding of the dependence by communities on snowy grouper. The Comprehensive ACL Amendment may be found at: https://www.dropbox.com/s/mp3xwedsrarfpjn/Comp%20ACL%20Am%20101411%20FINAL.pdf.

Social Importance of Fishing

Socio-cultural values are qualitative in nature making it difficult to measure social valuation of marine resources and fishing activity. The following description includes multiple approaches to examining fishing importance. These spatial approaches focus on the community level (based on the address of dealers or permit holders) and identify importance by "community", defined according to geo-political boundaries (cities). A single county may thus have several communities identified as reliant on fishing and the boundaries of these communities are not discrete in terms of residence, vessel homeport, and dealer address. For example, a fisherman may reside in one community, homeport his vessel in another, and land his catch in yet another. Furthermore, while commercial fishing data are available at the species level, these data are not available for recreational fishing which must be addressed more generally. Despite these caveats, the analysis identifies where most fishing activity takes place.

To identify the communities of greatest engagement in recreational fishing, a factor analysis was run on a set of predictor variables including the number of federal charter permits, number of vessels designated recreational by owner address, number of vessels designated recreational by homeport (SERO permit office 2008), and recreational fishing infrastructure (MRIP site survey 2010). The communities with the highest factor scores are identified in **Table 3.3.3.2** as the communities of greatest recreational fishing engagement. However, this measure does not adjust for population size meaning that larger communities are given more weight over smaller communities. The ranking addresses recreational fishing generally and is not specific to an individual species. Ideally, additional variables quantifying the importance of recreational fishing to a community would be included (such as the amount of recreational landings in a community, number of recreational fishing related businesses, etc.); however, these data are not available at the community level.

One approach to identify communities with the greatest engagement utilizes measures called the regional quotient (rq) to identify commercial reliance. The rq is a way to measure the relative importance of a given species across all communities in the region and represents the proportional distribution of commercial landings of a particular species. This proportional measure does not provide

the number of pounds or the value of the catch, data which might be confidential at the community level for many places. The rq is calculated by dividing the total pounds (or value) of a species landed in a given community, by the total pounds (or value) for that species for all communities in the region.

Another type of analysis has been completed which uses the top communities identified in the rq analysis, and applies indices which were created using secondary data from permit and landings information for the commercial sector and permit information for the recreational sector (Jepson and Colburn 2013; Jacob et al. 2013). Fishing engagement is primarily the absolute numbers of permits, landings and value. For commercial fishing, the analysis used the number of vessels designated commercial by homeport and owner address, value of landings and total number of commercial permits for each community. For recreational engagement we used the number of recreational permits, vessels designated as recreational by homeport and owners address. Fishing reliance has the same variables as engagement divided by population to give an indication of the per capita influence of this activity.

Using a principal component and single solution factor analysis each community receives a factor score for each index to compare to other communities. Taking the communities with the highest regional quotients, factor scores of both engagement and reliance for both commercial and recreational fishing were plotted. Two thresholds of one and ½ standard deviation above the mean are plotted onto the graphs to help determine a threshold for significance. The factor scores are standardized therefore a score above 1 is also above one standard deviation. A score above ½ standard deviation is considered engaged or reliant with anything above 1 standard deviation to be very engaged or reliant.

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

These measures are an attempt to quantify the importance of the components of the included fisheries to communities around South Atlantic coast and suggest where impacts from management actions are more likely to be experienced.

Snowy Grouper Recreational Fishing

Snowy grouper is landed recreationally in Florida, North Carolina, and South Carolina. In 2012, recreational landings for snowy grouper were greatest in Florida (92.7%) and a small amount of snowy grouper were landed recreationally in North Carolina (7.3%, **Table 3.3.3.1**). Of the recreational landings in 2012, over 81% occurred in Monroe County, Florida (SEDAR 36). A very small amount of snowy grouper has been landed recreationally in South Carolina within the last five years (**Table 3.3.3.1**).

Table 3.3.3.1. Snowy grouper recreational landings in lb gutted weight, by state.

Year	FL	GA	NC	SC	Total
2008	3017	0	23359	21	26397
2009	38909	0	19293	19	58221
2010	11063	0	69204	0	80267
2011	197	0	532	0	729
2012	74836	0	5935	0	80770

Source: SEDAR 36. Includes all recreational landings (including headboat and Monroe County).

Landings for the recreational sector are not available by species at the community level; therefore, it is difficult to identify communities as dependent on recreational fishing for individual species. Recreational fishing communities in the South Atlantic are listed in **Table 3.3.3.2**. Identified recreational communities include a large number of communities in Monroe County, Florida and in North Carolina (**Table 3.3.3.2**), areas where the majority of snowy grouper recreational landings occurred in 2012. Monroe County recreational fishing communities include Islamorada, Cudjoe Key, Key West, Tavernier, Little Torch Key, Marathon, Sugarloaf Key, Big Pine Key, Key Largo, and Summerland Key.

Table 3.3.3.2. South Atlantic recreational fishing communities.

Community	State	Community	State
Jekyll Island	GA	Cape Carteret	NC
Hatteras	NC	Kill Devil Hill	NC
Manns Harbor	NC	Murrells Inlet	SC
Manteo	NC	Little River	SC
Atlantic Beach	NC	Georgetown	SC
Wanchese	NC	Islamorada	FL
Salter Path	NC	Cudjoe Key	FL
Holden Beach	NC	Key West	FL
Ocean Isle	NC	Tavernier	FL
Southport	NC	Little Torch Key	FL
Wrightsville Beach	NC	Ponce Inlet	FL
Marshallberg	NC	Marathon	FL
Carolina Beach	NC	Sugarloaf Key	FL
Oriental	NC	Palm Beach Shores	FL
Topsail Beach	NC	Big Pine Key	FL
Swansboro	NC	Saint Augustine	FL
Nags Head	NC	Key Largo	FL
Harkers Island	NC	Summerland Key	FL
Calabash	NC	Sebastian	FL
Morehead City	NC	Cape Canaveral	FL

Source: SERO permit office 2008, MRIP site survey 2010.

Snowy Grouper Commercial Fishing

Commercial landings for snowy grouper are greatest in Florida (54.4% in 2012), followed by North Carolina (23.4%) and South Carolina (22.2%, SEDAR 36). There were no commercial landings of snowy grouper in Georgia in 2012 (SEDAR 36).

Figure **3.3.3.1** identifies the communities with the most commercial landings of snowy grouper. The top two communities of Murrells Inlet and Little River, South Carolina land about 31% of snowy grouper, and these landings represent over 31% of total value (**Figure 3.3.3.1**). One other South Carolina community makes up the top fifteen, seven Florida communities (including about 38% of landings in pounds and 41% in value), and five North Carolina communities (including about 19% of landings in pounds and 15% in value). No Georgia communities were included.

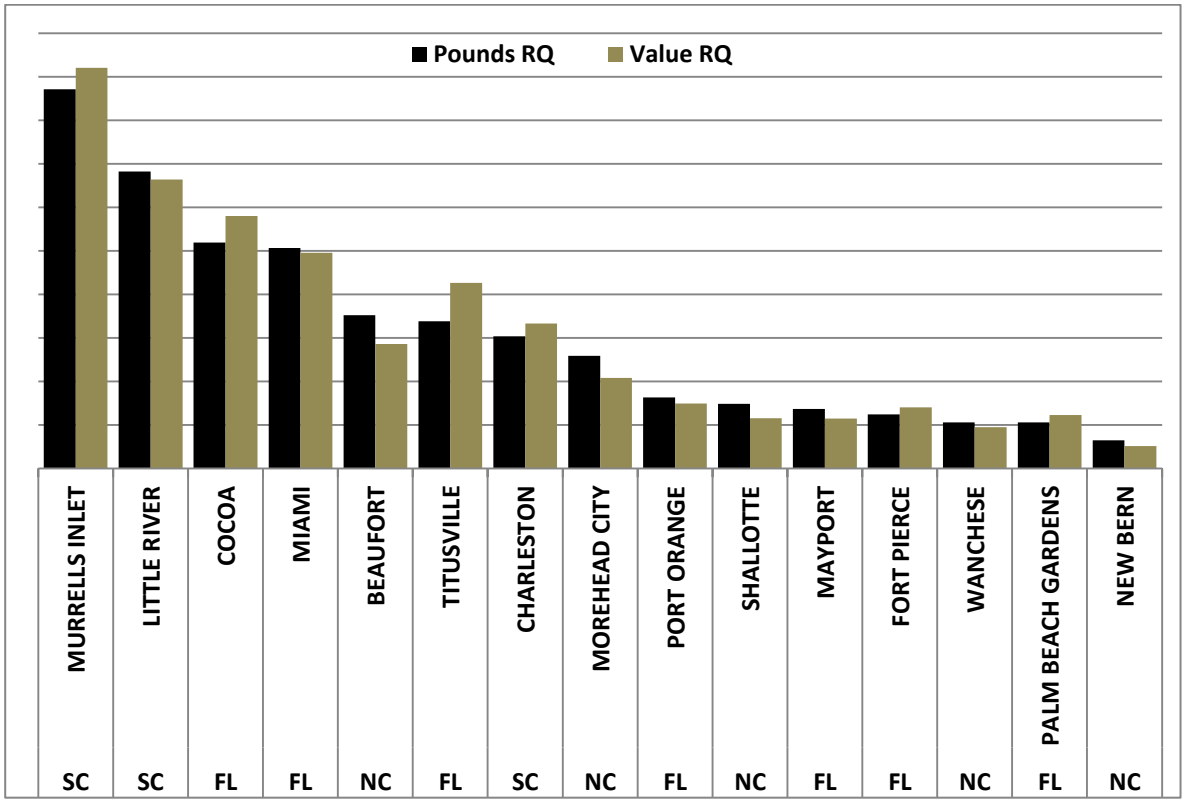


Figure 3.3.3.1. Top fifteen communities ranked by pounds and value of regional quotient of snowy grouper. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: Southeast Regional Office, Community ALS 2011.

For snowy grouper (**Figure 3.3.3.2**), the primary communities that demonstrate high levels of commercial fishing engagement and reliance include Fort Pierce and Miami, Florida; Beaufort, Morehead City, and Wanchese, North Carolina; and Charleston, South Carolina.

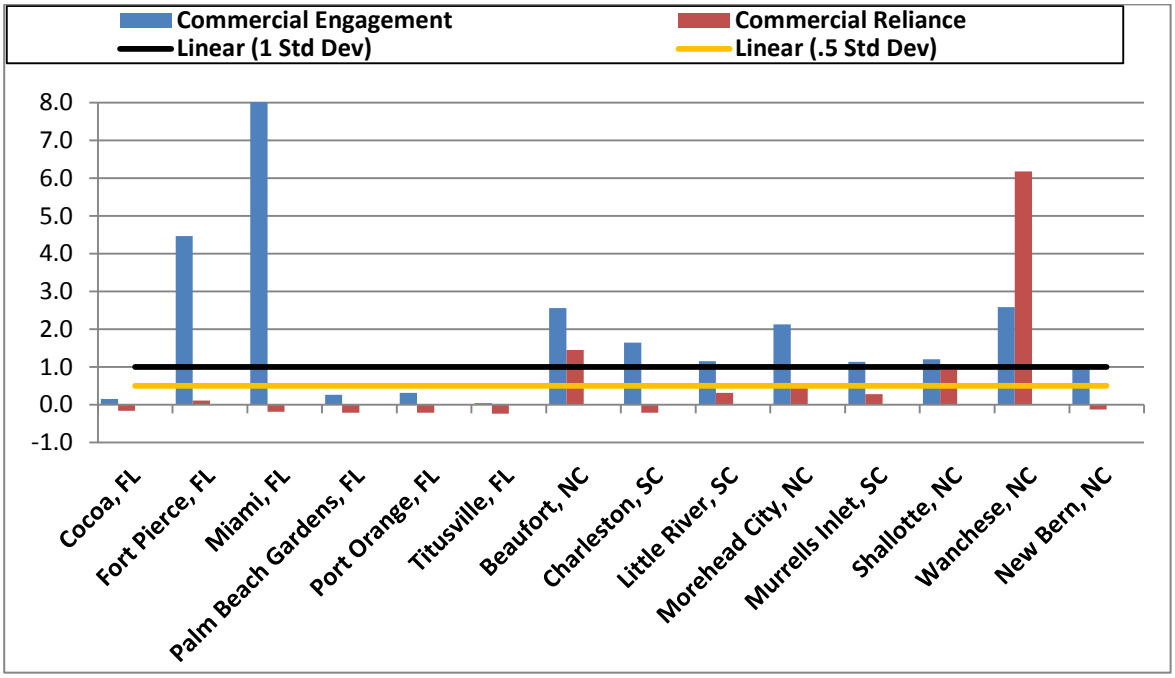


Figure 3.3.3.2. Commercial engagement and reliance for communities with top regional quotients for snowy grouper.
Source: Southeast Regional Office Social Indicator Database 2013.

Communities with substantial recreational engagement and reliance include Fort Pierce and Miami, Florida; Morehead City and Wanchese, North Carolina; and Charleston, Little River, and Murrels Inlet, South Carolina (**Figure 3.3.3.3**).

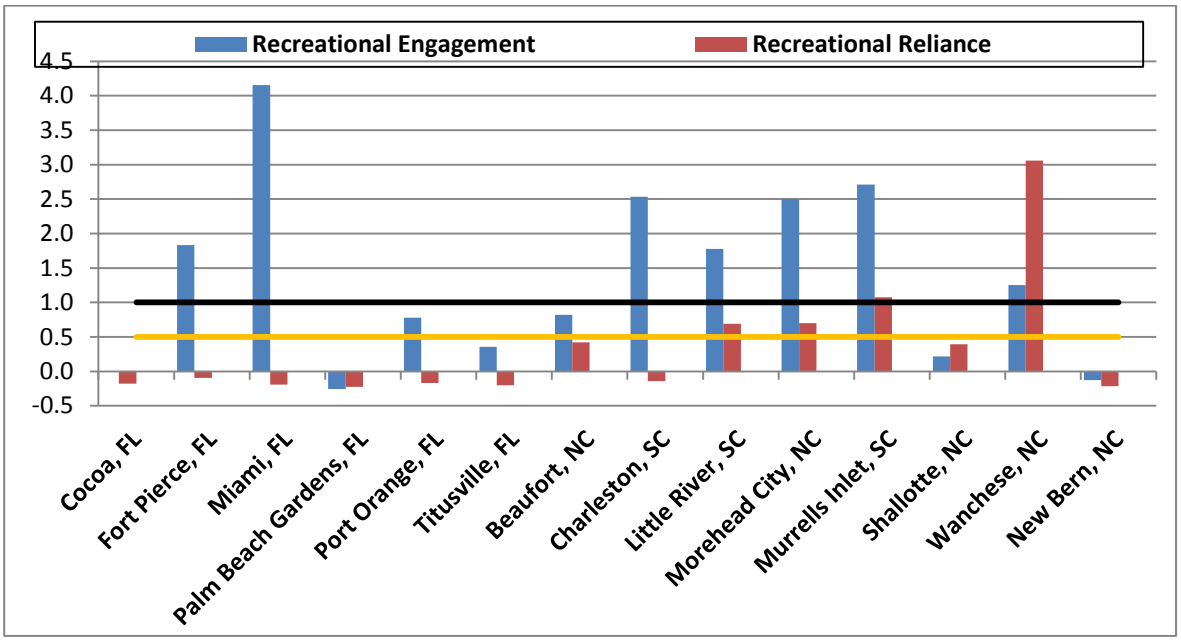


Figure 3.3.3.3. Recreational engagement and reliance for communities with top regional quotients for snowy grouper.
Source: Southeast Regional Office Social Indicator Database 2013.

3.3.4 Environmental Justice

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, employees, etc.) is not available. Because the proposed actions would be expected to affect fishermen and associated industries along the South Atlantic coast and not just those profiled, it is possible that other counties 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 county was greater than or equal to 1.2 times the state average, then the county was considered an area of potential EJ concern (EPA 1999). Census data for the year 2010 was used. Estimates of the state minority and poverty rates, associated thresholds, and county rates are provided in **Table 3.3.4.1**; note that only counties that exceed the minority threshold and/or the poverty threshold are included in the table**.**

Another type of analysis uses a suite of indices created to examine the social vulnerability of coastal communities and is depicted in **Figure 3.3.4.1**. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups; more single female-headed households; more households with children under the age of 5; and disruptions like higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. The data used to create these indices are from the 2005-2009 American Community Survey estimates at the U.S. Census Bureau. The thresholds of 1 and ½ standard deviation are the same for these standardized indices. Again, for those communities that exceed the threshold for all indices it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

The vulnerability indices use normalized factor scores. Comparison of vulnerability scores is relative, but the score is related to the percent of communities with similar attributes. The social vulnerability indices provide a way to gauge change over time with these communities but also provides a comparison of one community with another.

Table 3.3.4.1. 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.

With regard to social vulnerabilities, the following communities exceed the threshold of 0.5 standard deviation for at least one of the social vulnerability indices (**Figure 3.3.4.1**): Miami, Fort Pierce, and Cocoa, Florida and Beaufort, Morehead City, Wanchese, and New Bern, North Carolina. The Florida communities of Miami, Fort Pierce, and Cocoa and the North Carolina community of New Bern exceed the thresholds on all three social vulnerabilities. These communities are expressing substantial vulnerabilities and may be susceptible to further effects from any regulatory change depending upon the direction and extent of that change.

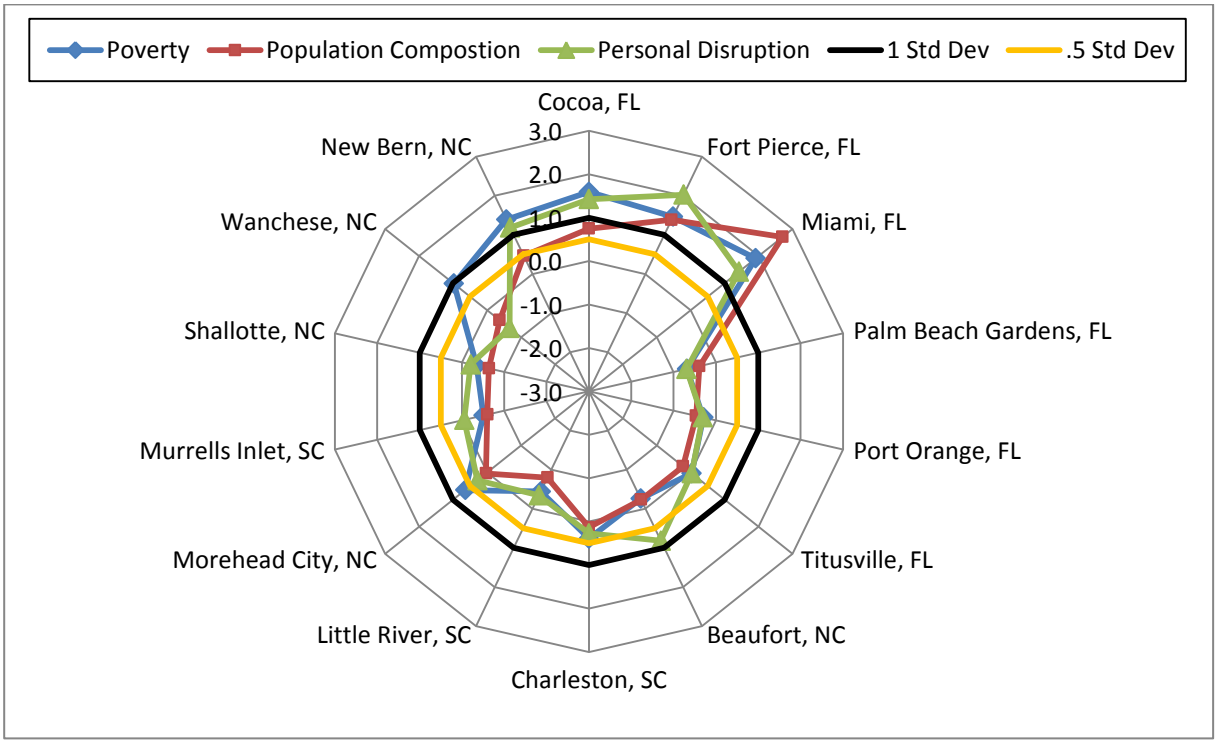


Figure 3.3.4.1. Social vulnerability indices for fifteen communities with the top regional quotients for snowy grouper.
Source: Southeast Regional Office, Social Indicator Database 2013.

While some counties and 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.

Finally, the general participatory process used in the development of fishery management measures (e.g., open Council meetings and electronic public comment periods) is expected to provide 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.

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

3.4.1.1 Federal Fishery Management

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

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

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

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

3.4.1.2 State Fishery Management

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

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

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

3.4.1.3 Enforcement

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

Neither NOAA/OLE nor the USCG can provide a continuous law enforcement presence in all areas due to the limited resources of NOAA/OLE and the priority tasking of the USCG. To supplement at sea and dockside inspections of fishing vessels, NOAA entered into Cooperative Enforcement Agreements with all but one of the states in the Southeast Region (North Carolina), which granted authority to state officers to enforce the laws for which NOAA/OLE has jurisdiction. In recent years, the level of involvement by the states has increased through Joint Enforcement Agreements, whereby states conduct patrols that focus on federal priorities and, in some circumstances, prosecute resultant violators through the state when a state violation has occurred. The NOAA Office of General Counsel Penalty Policy and Penalty Schedules can be found at http://www.gc.noaa.gov/enforce-office3.html.

Chapter 4.

Environmental Consequences and Comparison of Alternatives

4.1 Action 1. Adjust the Rebuilding Strategy for Snowy Grouper

4.1.1 Biological Effects

In 2008, Amendment 15A to the Snapper Grouper FMP (Amendment 15A, SAFMC 2008a) implemented a rebuilding schedule for snowy grouper with the maximum recommended period of T_{MIN} + one generation time = 34 years for snowy grouper. 2006 was year 1, and the terminal year is 2039. As described in **Alternative 1 (No Action)**, the rebuilding strategy implemented by Amendment 15A also maintained a modified/constant fishing mortality rate throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009 would remain in effect beyond 2009 until modified = 102,960 pounds whole weight (lb ww).

The rebuilding strategy under **Alternative 1 (No Action)** specified in Amendment 15A to the Snapper Grouper FMP (SAFMC 2008) was in response to SEDAR 4 (2004), which indicated snowy grouper was overfished and undergoing overfishing. The rebuilding strategy was put in place prior to the P* approach and establishment of the acceptable biological catch (ABC) control rule. Therefore, the status quo **Alternative 1** would is not based upon the best available science.

Alternative 1 (No Action) would constrain harvest to a lower level than **Alternatives 2-4** and

Alternatives for Action 1
(preferred alternatives in bold)

Alternative 1 (No Action). The current rebuilding strategy is specified as maintaining a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009, of 102,960 pounds whole weight (lb ww) remains in effect beyond 2009 until modified. The current acceptable biological catch (ABC) is 102,960 ~~pounds~~ lb ww consistent with this rebuilding strategy.

Alternative 2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{Rebuild}$ and ABC projections will change with each assessment. **Specify a probability of success of 50% or what the SSC recommends based on the ABC control rule (Council to specify).** ABC would change each year until 2019~~xx~~; the ABC for 2019~~xx~~ would remain in effect until modified.

Preferred Alternative 3. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F= 75\%F_{MSY}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $75\%F_{MSY}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

Alternative 4. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{current}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{current}$ and ABC projections will change with each assessment. ABC would change each year until 2019~~xx~~; the ABC for 2019~~xx~~ would remain in effect

have greater biological benefits than the action alternatives. However, the 2013 stock assessment update indicates snowy grouper is no longer undergoing overfishing, and the South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical (SSC) has increased the ABC; therefore, there is no biological need to constrain harvest at a level lower than that determined to be appropriate by the SSC.

Alternatives 2-4 would establish a rebuilding strategy based on the results of the most recent stock assessment (SEDAR 36 3013), which indicates the stock remains overfished, is rebuilding, and is no longer experiencing overfishing. The South Atlantic Council's SSC has recommended an ABC equal to the yield at 75%F_{MSY}, and an overfishing limit equal to yield at F_{MSY}. Under **Alternatives 2-5** the total ABC would increase for a period of five years, 2015-2019, and remain at the 2019 value until modifications are warranted due to a new stock assessment.

Alternative 2 would define a rebuilding strategy for snowy grouper that would maintain a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. The ABC resulting from this rebuilding strategy would be larger than the ABC recommended by the South Atlantic Council's SSC. **Table 4.1.1** shows the total ABC values in pounds whole weight (lb ww) for snowy grouper under **Alternative 2** based on the probability of success in rebuilding at 50% and 70% by the end of the 34 year rebuilding schedule. With a 50% probability of success, the ABC would increase by 91,463 lb ww to 194,423 lb ww in 2015 (an increase of 89%), and continue to increase by 139,336 lb ww to 242,296 lb ww (an increase of 135%) in 2019 as the stock rebuilds (**Table 4.1.1**). This level of harvest is greater than the ABC (**Alternative 2**) recommended by the South Atlantic Council's SSC. At a 70% probability of rebuilding success, the ABC would increase by 27,958 lb ww to 130,918 lb ww in 2015 (an increase of 27%), and continue to increase by 76,808 lb ww to 179,768 lb ww (an increase of 75%) in 2019 as the stock rebuilds (**Table 4.1.1**). This level of harvest is more conservative than the ABC (**Alternative 3**) recommended by the South Atlantic Council's SSC. After 2019, the total ABC would stay constant at 242,296 lbw ww under a 50% probability of success, and at 179,768 lb ww under a 70% probability of success, until modifications are warranted due to a new stock assessment. The positive biological effects under **Alternative 2** would be expected to be higher using the 70% probability of success when compared with 50% (which would inherently have a 50% probability of failure to rebuild the snowy grouper stock by 2039). **Alternative 2** with a rebuilding strategy of 70% probability of success would have a greater biological benefits than **Alternatives 3** or **4**, while **Alternative 2** with a 50% probability of success would have the least amount of biological benefits among the action alternatives.

Table 4.1.1. Total ABC values (lb ww) under Alternative 2 based on yield at F=$F_{Rebuild}$ and probability of rebuilding of 50% or the value from the ABC Control Rule (likely close to 70%). The five-year ABC values starting from 2015 to 2019 are highlighted. The current ABC = total ACL= 102,960 lb ww; the Commercial ACL (95%) = 97,812 lb ww; and the Recreational ACL = 5,148 lb ww or 523 fish.

Year	Yield at $F_{rebuild}$ 50% (lb ww)	Difference from current ABC (lb ww)	Percent Difference (%)	Probability Rebuilding (%)	Yield at $F_{rebuild}$ 70% (lb ww)	Difference from current ABC (lb ww)	Percent Difference (%)	Probability Rebuilding (%)
2013	102,585	-375	-0.36%	12.0%	102,585	-375	-0.36%	12.0%
2014	102,585	-375	-0.36%	14.8%	102,585	-375	-0.36%	14.8%
2015	**194,423**	**+91,463**	**+88.83%**	17.8%	**130,918**	**+27,958**	**+27.15%**	18.3%
2016	**208,101**	**+105,141**	**+102.12%**	19.7%	**143,619**	**+40,659**	**+39.49%**	21.2%
2017	**219,825**	**+116,865**	**+113.51%**	22.0%	**156,320**	**+53,360**	**+51.83%**	25.2%
2018	**231,549**	**+128,589**	**+124.89%**	24.6%	**168,044**	**+65,084**	**+63.21%**	28.9%
2019	**242,296**	**+139,336**	**+135.33%**	26.9%	**179,768**	**+76,808**	**+74.60%**	32.4%
2020	253,043			29.1%				35.7%
2021	262,813			31.0%				38.8%
2022	271,606			32.8%				41.5%
2023	280,399			34.7%				44.4%
2024	288,215			36.2%				47.0%
2025	295,054			37.8%				49.4%
2026	301,893			39.1%				51.7%
2027	308,732			40.3%				53.9%
2028	314,594			41.5%				55.8%
2029	319,479			42.5%				57.7%
2030	323,387			43.7%				59.3%
2031	328,272			44.6%				60.9%
2032	333,157			45.4%				62.4%
2033	337,065			46.2%				63.6%
2034	340,973			47.0%				64.8%
2035	344,881			47.7%				66.0%
2036	348,789			48.4%				67.2%
2037	351,720			49.1%				68.3%
2038	353,674			49.6%				69.3%
2039	357,582			50.2%				70.2%

Preferred Alternative 3 would define a rebuilding strategy for snowy grouper recommended by the South Atlantic Council's SSC that would maintain a constant fishing mortality rate (F= 75%F_{MSY}) throughout the rebuilding timeframe. The probability of success is estimated as 68.9% (**Table 4.1.2**), and this rebuilding strategy has been used for a number of other snapper grouper species. ABC values are shown in **Table 4.1.2**. The ABC would increase by 61,176 lb ww to 164,136 lb ww in 2015 (an increase

of 59%), and continue to increase by 115,888 lb ww to 218,848 lb ww (an increase of 113%) in 2019 as the stock rebuilds (**Table 4.1.2**). After 2019, the total ABC would stay constant at 218,848 lb ww until modifications are warranted due to a new stock assessment. **Preferred Alternative 3** would be expected to have biological effects similar to but less than those under the 70% probability of success of rebuilding under **Alternative 2**. **Preferred Alternative 3** would be using best available science to adjust the rebuilding strategy for snowy grouper since it is based on the recent stock assessment (SEDAR 36 2013), and recommendations from the South Atlantic Council's SSC. Current accountability measures (AMs) such as an in-season closure for the commercial sector and a payback provision for the recreational sector that will reduce the length of the following year's fishing season to account for an overage in the past year's overage, would be expected to prevent the ACLs from being exceeded despite the increase in the ABC under all the alternatives considered in this action. Modifications to the recreational AM is being considered in an amendment under development by the South Atlantic Council.

Alternative 4 would define a rebuilding strategy for snowy grouper that would maintain a constant fishing mortality rate ($F= F_{current}$) throughout the rebuilding timeframe. The probability of rebuilding success under **Alternative 4** is estimated as 63.1% (**Table 4.1.3**). ABC values are shown in **Table 4.1.3**. The ABC would increase by 44,567 lb ww to 147,527 lb ww in 2015 (an increase of 43%), and continue to increase by 92,440 lb ww to 195,400 lb ww (an increase of 90%) in 2019 as the stock continues to rebuild (**Table 4.1.3**). After 2019, the total ABC would stay constant at 195,400 lbw ww, until modifications are warranted due to a new stock assessment. **Alternative 4** would be expected to have intermediate biological effects compared with the **Alternative 2** rebuilding strategy that has a 50% probability of rebuilding the stock by 2039 and **Preferred Alternative 3**. The new ABC recommendation and subsequent proposed annual ACLs in **Action 2** of Regulatory Amendment 20 are based on the new SEDAR stock assessment and the ABC control rule developed by the SSC and the South Atlantic Council.

Regardless of the alternative or sub-alternative select, none is anticipated to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-and-line sector of the snapper-grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. For the species that may interact with the fishery (i.e., sea turtles and smalltooth sawfish), there is likely to be no additional biological benefit from **Alternative 1 (No Action)** because it would perpetuate the existing level of risk for interactions between these ESA-listed species and the fishery. Assuming that total ABC translate directly to fishing effort, and fishing effort translates to potential for interactions with protected species, **Alternative 4** would likely be the most biologically beneficial for sea turtles and smalltooth sawfish. After **Alternative 4, Preferred Alternative 3** with **Alternative 2** being the least biologically beneficial for sea turtles and smalltooth sawfish.

Table 4.1.2. Total ABC values (lb ww) under Preferred Alternative 3 based on yield at F=75%F_{MSY}. The current total ABC = 102,960 lb ww; the Commercial ACL (95%) = 97,812 lb ww; and the Recreational ACL = 5,148 lb ww or 523 fish.

Year	Yield at 75% F_{MSY} (lb ww)	Difference from current ABC (lb ww)	Percent Difference (%)	Probability Rebuilding (%)
2013	102,585	-375	-0.36%	12.0%
2014	102,585	-375	-0.36%	14.8%
2015	**164,136**	**+61,176**	**+59.42%**	17.3%
2016	**178,791**	**+75,831**	**+73.65%**	18.5%
2017	**192,469**	**+89,509**	**+86.94%**	20.3%
2018	**205,170**	**+102,210**	**+99.27%**	22.4%
2019	**218,848**	**+115,888**	**+112.56%**	24.7%
2020	231,549			27.2%
2021	243,273			29.7%
2022	254,997			32.3%
2023	264,767			34.9%
2024	274,537			37.4%
2025	283,330			39.8%
2026	291,146			42.4%
2027	299,939			44.8%
2028	306,778			47.2%
2029	312,640			49.5%
2030	318,502			51.8%
2031	324,364			54.1%
2032	330,226			56.3%
2033	336,088			58.4%
2034	340,973			60.2%
2035	345,858			62.0%
2036	350,743			63.6%
2037	354,651			65.5%
2038	358,559			67.2%
2039	362,467			68.9%

Table 4.1.3. Total ABC values (lb ww) under Alternative 4 based on yield at $F=F_{current}$. The current total ABC = 102,960 lb ww; the Commercial ACL (95%) = 97,812 lb ww; and the Recreational ACL = 5,148 lb ww or 523 fish.

Year	$F_{current}$	Difference from current ABC	Percent Difference	Probability Rebuilding
2013	102,585	-375	-0.36	12.00%
2014	102,585	-375	-0.36	14.80%
2015	**147,527**	**+44,567**	**+43.29%**	18.20%
2016	**160,228**	**+57,268**	**+55.62%**	20.80%
2017	**171,952**	**+68,992**	**+67.01%**	24.40%
2018	**183,676**	**+80,716**	**+78.40%**	28.00%
2019	**195,400**	**+92,440**	**+89.78%**	31.30%
2020	207,124			34.20%
2021	216,894			36.90%
2022	227,641			39.40%
2023	237,411			41.80%
2024	246,204			43.90%
2025	255,974			46.00%
2026	263,790			47.90%
2027	271,606			49.60%
2028	278,445			51.20%
2029	285,284			52.70%
2030	291,146			54.00%
2031	297,008			55.30%
2032	301,893			56.50%
2033	307,755			57.60%
2034	312,640			58.60%
2035	318,502			59.50%
2036	323,387			60.40%
2037	326,318			61.40%
2038	330,226			62.30%
2039	334,134			63.10%

4.1.2 Economic Effects

The rebuilding strategy and ABC under **Alternative 1 (No Action)**, is based on the results of SEDAR 4 (2004), which indicated the stock was overfished and undergoing overfishing. **Alternatives 2-4** would update the rebuilding strategy and ABC based upon the results of a recent stock assessment that indicates the stock is no longer undergoing overfishing and rebuilding but remains overfished. Retention of **Alternative 1 (No Action)** creates short-term and long-term indirect adverse effects for commercial and recreational fishermen when a stock assessment indicates higher ABC levels are possible. While the long-term health of the stock may improve with a lower than necessary ABC, fishermen will not benefit unless the ABC also increases, potentially resulting in a higher ACL. A stock assessment that indicates that a lower ABC is necessary, would have indirect short-term benefits through potentially higher harvests if the ABC is exceeded but this also would result in long-term adverse effects for fishermen as they could potentially exceed the ACL (if landings data collection efforts are not successful in accurately predicting an appropriate closure date) and result in damage to the long-term health of the stock and lower future catch rates. The ranking of the different alternatives below is based on the expectation of long-term economic benefits resulting from better stock health and higher future catch rates. Long-term indirect economic benefits from healthier stocks trump most short-term harvest rate increases.

The rebuilding strategies associated with **Alternative 2**, **Preferred Alternative 3**, and **Alternative 4** would specify an ABC based on SEDAR 36 (2013) but to different degrees. **Alternative 2** would provide an ABC at $F_{rebuid,50\%}$ that fluctuates from 194,423 in 2015 to 242,296 in 2019 or an ABC at $F_{rebuild,70\%}$ that fluctuates from 130,918 in 2015 to 179,768 in 2019. Both options under **Alterative 2** can result in indirect short-term and long-term indirect beneficial economic effects for commercial and recreational fishermen in that they allow for a higher ABC and a potentially higher future ACL and resulting harvests and revenues than **Alternative 1 (No Action)**.

Preferred Alternative 3 proposes ABC values based on yield at $F=75\%F_{MSY}$, which is the recommendation of the South Atlantic Council's SSC. This produces lower ABC values than **Alternative 2** under the first scenario of $F_{rebuild,50\%}$, and slightly higher ABCs at $F_{rebuild,70\%}$. The probability of successfully rebuilding the stock by 2039 under **Preferred Alternative 3** is 68.9%. **Preferred Alternative 3** would be expected to have greater indirect long-term economic benefits than **Alternative 1 (No Action)** and **Alternative 2** under the 50% probability of rebuilding scenario due to the expectation of greater stock health and potentially higher future catch levels. **Preferred Alternative 3** has similar expected economic benefits to **Alternative 2** under $F_{rebuild,70\%}$.

Under **Alternative 4**, the probability of successfully rebuilding the stock by 2039 is about 63%, which is lower than under **Preferred Alternative 3**. While **Alternative 4** would be expected to have greater economic benefits than **Alternative 1 (No Action)** because it proposes to change the ABC in response to the new stock assessment, the economic benefits of **Alternative 4** would be less than **Preferred Alternative 3** due to greater long-term indirect economic benefits to fishermen from potentially better stock quality and higher future catch levels under **Preferred Alternative 3**.

In summary, **Preferred Alternative 3** is expected to yield the highest long-term economic benefits compared to the next best **Alternative 2**, then **Alternative 4** and then **Alternative 1 (No Action)**.

4.1.3 Social Effects

Although adjustment of the rebuilding strategy for snowy grouper is primarily an administrative action, the selected level of fishing mortality and associated ABCs determine the level of restrictiveness that the management measures need to be in order to rebuild the resource within the specified timeframe. The level to which access to the resource is limited or non-existent would determine the magnitude of the associated social and economic effects expected to accrue during the recovery period. The rebuilding strategies and associated ABCs in this action are trade-offs of long-term and short-term biological benefits, which are directly tied to long-term and short-term social benefits. A more conservative rebuilding strategy would likely result in short-term negative social impacts such as loss of income and decreased fishing opportunities due to lower target fishing mortality. However, the resulting larger sustainable biomass once the snowy stock is rebuilt is expected to produce long-term social benefits, including stable and sustainable livelihoods for commercial fishermen and the for-hire sector; consistent product for fish houses and restaurants; and private recreational fishing opportunities.

Because the recent assessment update determined that overfishing is no longer occurring for snowy grouper, the stock is, is rebuilding, and catch levels can be increased, **Alternative 1 (No Action)** would be expected to result in minimal or no benefits to fishermen by not taking advantage of possible flexibility in the rebuilding plan and associated ABCs. **Alternatives 2-4** specify different rebuilding strategies but all would continue to follow the rebuilding schedule of 34 years set in Amendment 15A (SAFMC 2008), which ends in 2039.

Overall the most benefits to fishermen and communities would come from a rebuilding strategy that allows increased harvest and access to the resource for fishermen than the current ABC and ACL, but would not cause long-term negative biological effects to the stock that could result in negative effects on fishermen in the future. **Section 3.3.3** describes South Atlantic communities that could be affected by changes to the snowy rebuilding strategy. **Alternatives 2-4** would result in higher ABCs than under **Alternative 1 (No Action)** and increase access to the resource, which would be expected to reduce and minimize short-term negative effects on fishermen. **Alternative 2** would be expected to have the least short-term negative effects on fishermen, followed by **Preferred Alternative 3** and **Alternative 4**.

4.1.4 Administrative Effects

The rebuilding strategy specified under **Alternative 1 (No Action)** would not use the best scientific information available since it would not incorporate information from the latest stock assessment (SEDAR 36 2013). A change in the ABC under **Alternative 2**, **Preferred Alternative 3,** and **4**, would result in a proportional change in the ACL; especially if ABC=ACL. Thus, the lower the ABC, the more likely an ACL would be met and an AM would be triggered. However, meeting an ACL would depend on fishing behavior since even the highest ACL proposed in **Alternatives 2-4** is likely to be met. A rebuilding strategy with a 50% probability of success under **Alternative 2** would result in the highest ABC and would likely be associated with the highest ACL value specified in **Action 2**. Therefore, impacts on the administrative environment that would result from AMs being triggered would likely be lowest under the 50% probability of success under **Alternative 2**. **Alternative 1 (No Action)** specifies the lowest ABC among the ABCs considered and would be expected to have the greatest administrative effects. Administrative effects would be expected to be ranked lower to higher in the following order:

70% probability of success under **Alternative 2, Preferred Alternative 3, Alternative 4**, 70% probability of success under **Alternative 2,** and **Alternative 1 (No Action)**. All the rebuilding strategy alternatives considered would require continued monitoring of commercial and recreational landings in addition to continued enforcement of current harvest restrictions for snowy grouper including the 1-fish per vessel bag limit, and the 100 lb gutted weight (gw) trip limit. Overall, administrative impacts under all the rebuilding strategy alternatives, with the exception of **Alternative 1 (No Action)**, are not likely to be significant.

4.2 Action 2. Adjust Annual Catch Limits for Snowy Grouper

4.2.1 Biological Effects

Under **Alternative 1 (No Action),** the total ACL for snowy grouper is equal to the total ABC (TAC) of 102,960 lb ww (87,254 lb gw) as per Amendment 15A (SAFMC 2008a). Amendment 17B (SAFMC 2010b) did not specifically set ACL=ABC, but set the commercial ACL equal to the commercial quota (97,812 lb ww or 82,891 lb gw) from Amendment 15B (SAFMC 2008b), and the recreational ACL equal to the recreational allocation (5,148 lb ww or 4,363 lb gw) from Amendment 15B.

Alternative 2 would set ACL=ABC=OY. **Table 4.2.1a** represent the ABC and ACL values for **Alternative 2** based on the South Atlantic Council's preferred rebuilding strategy of 75%F_{MSY} (Preferred Alternative 3) in **Action 1**.

The ABC generated from SEDAR 36 is in pounds, however, the recreational ACL is in numbers of fish. Therefore, the recreational ACL in pounds had to be converted to numbers of fish. This was done by first determining snowy grouper

Alternatives for Action 2
(preferred alternatives in bold)

Alternative 1 (No Action). The current acceptable biological catch (ABC) = 102,960 pounds whole weight (lb ww) or 87,254 pounds gutted weight (lb gw). The total annual catch limit (ACL) (=ABC), commercial ACL, and recreational ACL are shown below:

whole weight		Calculated Values		Implemented Values (SG Am 15B)		
ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Com ACL (95%)	Rec ACL (5%)	
102,960	102,960	97,812	5,148			
gutted weight						
ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Com ACL (95%)	Rec ACL (5%)	Rec # Fish
87,254	87,254	82,891	4,363	82,900	4,400	523

Alternative 2. Specify that ACL=ABC=OY.
The ACL, commercial ACL, and recreational ACL are shown below.

Whole Weight					
Year	ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Estimated Rec #Fish
2015	164,136	164,136	155,929	8,207	1,221
2016	178,791	178,791	169,851	8,940	1,319
2017	192,469	192,469	182,846	9,623	1,417
2018	205,170	205,170	194,912	10,259	1,466
2019	218,848	218,848	207,906	10,942	1,563
Gutted Weight					
Year	ABC	ACL	Com ACL (95%)	Rec ACL (5%)	Estimated Rec #Fish
2015	139,098	139,098	132,143	6,955	1,221
2016	151,518	151,518	143,942	7,576	1,319
2017	163,109	163,109	154,954	8,155	1,417
2018	173,873	173,873	165,179	8,694	1,466
2019	185,464	185,464	176,191	9,273	1,563

Alternative 3. Update the ABC from the recent SEDAR assessment. Set ACL=X%ABC=OY. The ABC, ACL, commercial ACL, and recreational ACL are shown below.

Sub-alternative 3a. Set ACL=95%ABC=OY
Sub-alternative 3b. Set ACL=90%ABC=OY
Sub-alternative 3c. Set ACL=85%ABC=OY

average weight by year. As the stock rebuilds the average weight is expected to change each year. SEDAR 36 provides the annual projected removals both by numbers and weight when fishing mortality is fixed at 75%F_{MSY} (Table 22 of SEDAR 36 final report). This fishing mortality rate was chosen because 75%F_{MSY} is the optimum yield management benchmark for the stock, and the yield generated from 75%F_{MSY} was used to determine the new proposed ABC numbers. For each year the projection weights are divided by the projection numbers to determine the annual average weight.

Table 4.2.1b shows the results of this calculation. The annual average weights are divided into the recreational ACL in pounds whole weight to convert the ACL from pounds to numbers of fish. For example, the 2015 recreational ACL of 8,207 pounds whole weight is divided by the average weight of 6.72 to get a recreational ACL of 1,221 fish.

Table 4.2.1a. ABC and ACL values (ww and gw) of snowy grouper from 2015 to 2019 under **Alternative 2**. Current commercial ACL is 97,812 lb ww or 82,891 lb gw; and the recreational ACL is 5,148 lb ww or 4,363 lb gw. Commercial ACL is 95% of the total ACL and recreational ACL is 5% of the total ACL.

Whole Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference**	**Percent Difference**	**Recreational ACL**	**Difference**	**Percent Difference**	**Estimated Recreational Numbers of Fish**
2015	164,136	164,136	155,929	+58,117	+59%	8,207	+3,059	+59%	1,221
2016	178,791	178,791	169,851	+72,039	+74%	8,940	+3,792	+74%	1,319
2017	192,469	192,469	182,846	+85,034	+87%	9,623	+4,475	+87%	1,417
2018	205,170	205,170	194,912	+97,100	+99%	10,259	+5,111	+99%	1,466
2019	218,848	218,848	207,906	+110,094	+113%	10,942	+5,794	+113%	1,563
Gutted Weight									
2015	139,098	139,098	132,143	+49,252	+59%	6,955	+2,592	+59%	1,221
2016	151,518	151,518	143,942	+61,051	+74%	7,576	+3,213	+74%	1,319
2017	163,109	163,109	154,954	+72,063	+87%	8,155	+3,792	+87%	1,417
2018	173,873	173,873	165,179	+82,288	+99%	8,694	+4,331	+99%	1,466
2019	185,464	185,464	176,191	+93,300	+113%	9,273	+4,910	+113%	1,563

Table 4.2.1b. Annual average weight of South Atlantic snowy grouper generated from SEDAR 36 projection results when fishing mortality is fixed at 75%F_{MSY}. Numbers and weight projections came from the median values of the stochastic projections, and the numbers are provided in Table 22 of the SEDAR 36 final report.

Year	Numbers	Weight (ww lbs)	Average Weight
2015	25,000	168,000	6.72
2016	27,000	183,000	6.78
2017	29,000	197,000	6.79
2018	30,000	210,000	7.00
2019	32,000	224,000	7.00

The Magnuson-Stevens Fishery Conservation and Management Act National Standard 1 established the relationship between conservation and management measures, preventing overfishing, and achieving optimum yield (OY) from each stock, stock complex, or fishery. The National Standard 1 guidelines discuss the relationship of the overfishing limit (OFL) to the maximum sustainable yield (MSY) and annual catch target (ACT) or ACL to OY. The OFL is an annual amount of catch that corresponds to the estimate of maximum fishing mortality threshold applied to a stock or complex's abundance; MSY is the long-term average of such catches. The ACL is the limit that triggers AMs, and ACT, if specified, would be the management target for a species. Management measures for a species should, on an annual basis, prevent the ACL from being exceeded.

The South Atlantic Council and their SSC have established an ABC control rule that takes into consideration scientific and management uncertainty to ensure catches are maintained below a MSY level. Setting the ACL equal to the ABC leaves no buffer between the two harvest parameters, which may increase risk that harvest could exceed the ABC. The South Atlantic Council considered alternatives for snapper grouper species in the Comprehensive ACL Amendment and Amendment 24 (SAFMC 2011d) that would set the ACL below the ABC, but selected ACL=ABC=OY as their preferred alternative.

The National Standard 1 Guidelines recommend a performance standard by which the efficacy of any system of ACLs and AMs can be measured and evaluated. According to the guidelines:
…if catch exceeds the ACL for a given stock or stock complex more than once in the last four years, the system of ACLs and AMs should be re-evaluated, and modified if necessary, to improve its performance and effectiveness (74 FR 3178).

If the ACL is exceeded more than once over the course of four years, the South Atlantic Council would reassess the system of ACLs and AMs for the species. Amendment 17B (SAFMC 2010b) updated the Framework Procedure for the Snapper Grouper FMP to allow OFL, ABC, ACLs, AMs, and ACTs to be modified via framework amendment, which requires less time to implement compared to an FMP amendment. Furthermore, the current commercial AM with its in-season closure and recreational AMs that include a payback provision to shorten the length of the following year's recreational fishing season for snowy grouper, could prevent both sectors from exceeding their ACLs.

With vastly improved commercial monitoring mechanisms recently implemented, it is unlikely that repeated commercial ACL overages would occur. The Commercial Landings Monitoring System (CLM)

came online in June 2012 and is now being used to track commercial landings of federally-managed fish species. This system is able to track individual dealer reports, track compliance with reporting requirements, project harvest closures using five different methods, and analyze why ACLs are exceeded. The CLM performs these tasks by taking into account: (1) spatial boundaries for each stock based on fishing area; (2) variable quota periods such as overlapping years or multiple quota periods in one year; and (3) overlapping species groups for single species as well as aggregated species. Data sources for the CLM system include the Standard Atlantic Fisheries Information System for Georgia and South Carolina, and the Bluefin Data file upload system for Florida and North Carolina. The CLM system is also able to track dealer reporting compliance with a direct link to the permits database in National Marine Fisheries Service (NMFS) Southeast Regional Office (SERO).

Additionally, the Southeast Fisheries Science Center (SEFSC) worked with SERO, the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council), and South Atlantic Council to develop a Joint Dealer Reporting Amendment, which will be implemented on August 7, 2014. The Joint Dealer Reporting Amendment will increase required reporting frequency for dealers to once per week, and require a single dealer permit for all finfish dealers in the Southeast Region. On January 27, 2014, the Generic For-Hire Reporting Amendment was implemented (78 FR 78779), which required all federally-permitted headboats in the South Atlantic to report landings information electronically and on a weekly basis. The CLM, the for-hire reporting, and the new dealer reporting requirements constitute major improvements to how commercial and for-hire fisheries are monitored, and go far beyond monitoring efforts that were in place when the National Standard 1 guidelines were developed. The new CLM quota monitoring system and actions in the Joint Generic Dealer and Generic For-Hire Reporting amendments are expected to provide more timely and accurate data reporting and would thus reduce the incidence of quota overages.

The biological effects of the ACL alternatives would be greatest for **Alternative 1 (No Action)** since it specifies a lower ACL than **Alternatives 2** and **3**. However, the ACL in **Alternative 1 (No Action)** is based on the results of SEDAR 4 (2004), which indicated the stock was overfished and undergoing overfishing. The results of the new assessment (SEDAR 36 2013) demonstrates that the condition of snowy grouper has improved and the stock is no longer undergoing overfished and is rebuilding, but remains overfished. Furthermore, the South Atlantic Council's SSC has recommended an ABC associated with the yield at 75%F_{MSY} (**Preferred Alternative 3** in **Action 1**), which is larger than the ABC resulting from SEDAR 4 (2004) under **Alternative 1 (No Action)**. Thus, there is not a biological need to maintain the ACL at the level specified under **Alternative 1 (No Action)**, and a larger ACL identified in **Alternatives 2-4** would be appropriate to maintain a sustainable harvest of the stock.

The ABC values from the yield at 75%F_{MSY} (**Preferred Alternative 3** in **Action 1**) are used to determine the ACLs in the alternatives under **Action 2**. **Preferred Alternative 3** in **Action 1** is based on the recent stock assessment that uses the best scientific information available (SEDAR 36, 2013) to attain OY. **Alternative 2** would set the ACL=ABC=OY. In 2015, the commercial ACL under **Alternative 2** would increase from 97,812 lb ww (82,891 lb gw) to 155,929 lb ww (132,143 lb gw); and the recreational ACL would increase from 8,207 lb ww (6,955 lb gw) to 10, 942 lb ww (9,273 lb gw), or 523 fish to 834 fish; both sectors would see an increase by 59% in their respective ACLs (**Table 4.2.1a**). From 2015 to 2019, the commercial ACL would increase from 155,929 lb ww (132,143 lb gw) to 207,906 lb ww (176,191 lb gw) (**Table 4.2.1a**). During 2015-2019, the recreational ACL would increase from 8,207 lb

ww (6,955 lb gw) to 10,942 lb ww (9,273 lb gw); or 1,221 to 1,563 fish (**Table 4.2.1a**). Both sectors would see an increase in their respective ACLs from 59% to 113% during 2015-2019, respectively. The ACL values would remain at the 2019 levels until specified otherwise by a stock assessment.

Alternative 3 and its sub-alternatives would specify a range of buffers between the ABC and ACL and have a greater biological benefit than **Alternative 2** and **Alternative 1 (No Action)**. Creating a buffer between the ACL and ABC would provide greater assurance overfishing would not occur. Setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. **Table 4.2.2** shows the ABC and ACL values with a buffer of 95% ABC **(Sub-alternative 3a)**, 90% ABC **(Sub-alternative 3b**), and 85% ABC **(Sub-alternative 3c)**.

Table 4.2.2. ABC and ACL values (ww and gw) of snowy grouper from 2015 to 2019 under **Alternative 3**. Current commercial ACL is 97,812 lb ww or 82,891 lb gw; and the recreational ACL is 5,148 lb ww or 4,363 lb gw. Commercial ACL is 95% of the total ACL and recreational ACL is 5% of the total ACL. ABC values in 2015 are based on projections from SEDAR 36 (2013) at 75% F_{MSY}.

Whole Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference**	**Percent Difference**	**Recreational ACL**	**Difference**	**Percent Difference**	**Estimated Recreational Numbers of Fish**
Sub-Alternative 3a, ACL = 95%ABC									
2015	164,136	155,929	148,133	+50,321	+51%	7,796	+2,648	+51%	1,160
2016	178,791	169,851	161,359	+63,547	+65%	8,493	+3,345	+65%	1,253
2017	192,469	182,846	173,703	+75,891	+78%	9,142	+3,994	+78%	1,346
2018	205,170	194,912	185,166	+87,354	+89%	9,746	+4,598	+89%	1,392
2019	218,848	207,906	197,510	+99,698	+102%	10,395	+5,247	+102%	1,485
Sub-Alternative 3b, ACL = 90%ABC									
2015	164,136	147,722	140,336	+42,524	+43%	7,386	+2,238	+43%	1,099
2016	178,791	160,912	152,866	+55,054	+56%	8,046	+2,898	+56%	1,187
2017	192,469	173,222	164,561	+66,749	+68%	8,661	+3,513	+68%	1,275
2018	205,170	184,653	175,420	+77,608	+79%	9,233	+4,085	+79%	1,319
2019	218,848	196,963	187,115	+89,303	+91%	9,848	+4,700	+91%	1,407
Sub-Alternative 3c, ACL = 85%ABC									
2015	164,136	139,516	132,540	+34,728	+36%	6,976	+1,828	+36%	1,038
2016	178,791	151,972	144,374	+46,562	+48%	7,599	+2,451	+48%	1,121
2017	192,469	163,599	155,419	+57,607	+59%	8,180	+3,032	+59%	1,204
2018	205,170	174,395	165,675	+67,863	+69%	8,720	+3,572	+69%	1,246
2019	218,848	186,021	176,720	+78,908	+81%	9,301	+4,153	+81%	1,329
Gutted Weight									

Whole Weight									
Year Year	ABC ABC	Total ACL Total ACL	Commercial ACL Commercial ACL	Difference Difference	Percent Difference Percent Difference	Recreational ACL Recreational ACL	Difference Difference	Percent Difference Percent Difference	Estimated Recreational Numbers of Fish Estimated Recreational Numbers of Fish
Sub-Alternative 3a, ACL = 95%ABC									
2015	139,098	132,143	125,536	+42,645	+51%	6,607	+2,244	+51%	1,160
2016	151,518	143,942	136,745	+53,854	+65%	7,197	+2,834	+65%	1,253
2017	163,109	154,954	147,206	+64,315	+78%	7,748	+3,385	+78%	1,346
2018	173,873	165,179	156,920	+74,029	+89%	8,259	+3,896	+89%	1,392
2019	185,464	176,191	167,382	+84,491	+102%	8,810	+4,447	+102%	1,485
Sub-Alternative 3b, ACL = 90%ABC									
2015	139,098	125,188	118,929	+36,038	+43%	6,259	+1,896	+43%	1,099
2016	151,518	136,366	129,548	+46,657	+56%	6,818	+2,455	+56%	1,187
2017	163,109	146,798	139,458	+56,567	+68%	7,340	+2,977	+68%	1,275
2018	173,873	156,486	148,661	+65,770	+79%	7,824	+3,461	+79%	1,319
2019	185,464	166,918	158,572	+75,681	+91%	8,346	+3,983	+91%	1,407
Sub-Alternative 3c, ACL = 85%ABC									
2015	139,098	118,234	112,322	+29,431	+36%	5,912	+1,549	+36%	1,038
2016	151,518	128,790	122,351	+39,460	+48%	6,440	+2,077	+48%	1,121
2017	163,109	138,643	131,711	+48,820	+59%	6,932	+2,569	+59%	1,204
2018	173,873	147,792	140,402	+57,511	+69%	7,390	+3,027	+69%	1,246
2019	185,464	157,645	149,763	+66,872	+81%	7,882	+3,519	+81%	1,329

Under **Sub-alternative 3a**, the total ACL would be 95% of the ABC creating a 5% buffer between the two values resulting in a total ACL of 155,929 lb ww (132,143 lb gw) in 2015, and increase to 207,906 lb ww (176,191 lb gw) in 2019 **(Table 4.2.2)**. The commercial ACL would increase by 50,321 lb ww (42,645 lb gw) to 148,133 lb ww (125,536 lb gw) in 2015; and by 99,698 lb ww (84,491 lb gw) to 197,510 lb ww (167,382 lb gw) in 2019. The recreational ACL would increase by 2,648 lb ww (2,244 lb gw) to 7,796 lb ww (6,607 lb gw) in 2015 (523 to 1,160 fish); and by 5,247 lb ww (4,447 lb gw) to 10,395 lb ww (8,810 lb gw) in 2019 (1,160 to 1,485 fish). This would be an increase of 51% to 102% from 2015 to 2019, respectively, for both sectors.

Under **Sub-alternative 3b**, the total ACL would be 90% of the ABC creating a 10% buffer between the two values resulting in a total ACL of 147,722 lb ww (125,188 lb gw) in 2015, and increase to 196,963 lb ww (166,918 lb gw) in 2019 **(Table 4.2.2)**. The commercial ACL would increase by 42,524 lb ww (36,038 lb gw) to 140,336 lb ww (118,929 lb gw) in 2015; and by 89,303 lb ww (75,681 lb gw) to 187,115 lb ww (158,572 lb gw) in 2019. The recreational ACL would increase by 2,238 lb ww (1,896 lb gw) to 7,386 lb ww (6,259 lb gw) in 2015 (523 to 1,099 fish); and by 4,700 lb ww (3,983 lb gw) to 9,848 lb ww (8,346 lb gw) in 2019 (1,099 to 1,407 fish). This would be an increase of 43% to 91% from 2015 to 2019, respectively, for both sectors.

Under **Sub-alternative 3c**, the total ACL would be 85% of the ABC creating a 15% buffer between the two values resulting in a total ACL of 139,516 lb ww (118,234 lb gw) in 2015, and increase to 186,021 lb ww (157,645 lb gw) in 2019 **(Table 4.2.2)**. The commercial ACL would increase by 34,728 lb ww (29,431 lb gw) to 132,540 lb ww (112,322 lb gw) in 2015; and by 78,908 lb ww (66,872 lb gw) to 176,720 lb ww (149,763 lb gw) in 2019. The recreational ACL would increase by 1,828 lb ww (1,549 lb gw) to 6,976 lb ww (5,912 lb gw) in 2015 (523 to 1,038 fish); and by 4,153 lb ww (3,519 lb gw) to 9,301 lb ww (7,882 lb gw) in 2019 (1,038 to 1,329 fish). This would be an increase of 36% to 81% from 2015 to 2019, respectively, for both sectors.

Since **Sub-alternative 3c** has the largest buffer between the ABC and the ACL, it would be expected to yield the largest biological benefits of all the sub-alternatives under **Alternative 3**. Biological effects would also be expected to be higher under **Alternative 3** and its sub-alternatives when compared with **Alternative 2**. While the ACL currently under **Alternative 1 (No Action)** is lower than those proposed under **Alternatives 2** and **3** (including its sub-alternatives), it does not reflect the ABC recommendations of South Atlantic Council's SSC from the latest stock assessment for snowy grouper, and maintaining the ACL at a lower level may not be biologically needed. Furthermore, scientific and management uncertainties are included in the SSC's ABC control rule, which is factored into the ABC (and therefore ACL) values generated by **Alternatives 2** and **3** (including its sub-alternatives).

Thus, under **Action 2**, the biological effects of the alternatives would be expected to be greatest for **Alternative 1 (No Action)** followed by **Sub-alternative 3c**, **Sub-alternative 3b**, **Sub-alternative 2a**, and **Alternative 2**.

Regardless of the alternative or sub-alternative select, none is anticipated to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-and-line sector of the snapper-grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. For the species that may interact with the fishery (i.e., sea turtles and smalltooth sawfish), there is likely to be no additional biological benefit from **Alternative 1 (No Action)** because it would perpetuate the existing level of risk for interactions between these ESA-listed species and the fishery. Assuming that the proposed ACLs translate directly to fishing effort, and fishing effort translates to potential for interactions with protected species, **Sub-alternative 3c** would likely be the most biologically beneficial for sea turtles and smalltooth sawfish. After **Sub-alternative 3c**, the most biological beneficial alternatives for sea turtles and smalltooth sawfish are likely **Sub-alternative 3b, Sub-alternative 3a,** with **Alternative 2** being the least biologically beneficial.

4.2.2 Economic Effects

Under **Alternative 1 (No Action)**, the current ACL is 102,960 pounds whole weight (ww) or 87,254 gutted weight (gw). The commercial ACL is 97,812 (95%) pounds (whole weight) while the recreational ACL is 5,148 (5%) pounds ww or 523 fish. The ex-vessel revenue able to be generated by the commercial ACL is $329,077 using the gutted weight commercial ACL of 82,891 pounds and a price of $3.97 in 2013 U.S. dollars. Under the status quo, the snowy grouper recreational landings exceeded the ACL in 2012 and 2013 by over 400%. The Economic Description in Chapter 3 notes that almost 40,000

gutted pounds of snowy grouper were landed in 2012 and 2013 by the recreational fishery while the recreational ACL was 4,400 gutted pounds. Unless the alternative chosen as preferred under Action 5 is successful in controlling recreational harvest, the ACL under **Alternative 1 (No Action)** will continue to be exceeded based on 2012 and 2013 landings data. This would have negative long-term economic effects on both sectors of the fishery and their associated communities.

Alternative 2 proposes that the ACL be set such that ACL=ABC=OY. Under this scenario, the resulting ACLs are higher, ranging from increases in the commercial ACL of about 50,000 pounds gutted weight (gw) in 2015 to 93,000 pounds gutted weight (gw) in 2019. Of course, these ACL values represent the potential harvest that is available and not what may be actually caught. The potential ex-vessel revenue increases could total $198,457 to $369,129 in 2013 U.S. dollars. The difference for the recreational fishery ranges from increases of 834 fish in 2015 to 1,112 fish in 2019. Using consumer surplus estimates made by Carter and Liese (2012), each grouper caught per angler trip is valued by the customer at $133 to $138 in 2013 U.S. dollars. Using an average of $135.50 per fish, the consumer surplus differences for the recreational fishery ranges from increases of $42,140 in 2015 to $79,810 in 2019. This is simply multiplication of the average consumer surplus per grouper and the difference in the ACL (in numbers of fish) between **Alternative 2** and **Alternative 1 (No Action)**. However, these increases are relative to the status quo ACL and would not occur relative to the much higher current recreational landings. In addition, if the preferred alternative in Action 5 is effective in limiting recreational landings to the sector's ACL, these increases would be unlikely to occur. However, the reduction in benefits from the status quo landings that might occur under Action 5 will likely be less if there is an increase in the ACL. No change in producer surplus is expected since for hire vessels will continue to be able to offer fishing excursions because other fish can be caught and retained.

Alternative 3 proposes three sub-alternatives that set the ACL equal to 95%ABC (**Sub-alternative 3a**), 90%ABC (**Sub-alternative 3b**), and 85%ABC (**Sub-alternative 3c**), thus creating buffers between the ABC and the ACL. This provides greater assurance that the ACL will not be exceeded and that overfishing will not occur. Under **Sub-alternative 3a**, the total ACL would be 132,143 lb gw in 2015, and increase to 176,191 lb gw in 2019. The commercial ACL would increase by 42,645 lb gw (approximately $170,000 in ex-vessel revenue) to 125,536 lb gw in 2015 and by 84,491 lb gw (approximately $335,500 in ex-vessel revenue) to 167,382 lb gw in 2019. The recreational ACL would increase by 2,244 lb gw ($36,450 in consumer surplus) to 6,607 lb gw in 2015 and by 4,447 lb gw ($72,220 in consumer surplus) to 8,810 lb gw in 2019. Again, no increases in consumer surplus are likely compared to recent recreational landings.

Under **Sub-alternative 3b**, the total ACL would be 125,188 lb gw in 2015, and increase to 166,918 lb gw in 2019. The commercial ACL would increase by 36,038 lb gw (approximately $143,000 in ex-vessel revenue) to 118,929 lb gw in 2015 and by 75,681 lb gw (approximately $300,500 in ex-vessel revenue) to 158,572 lb gw in 2019. The recreational ACL would increase by 1,896 lb gw (approximately $31,000 in consumer surplus) to 6,259 lb gw in 2015 and by 3,983 lb gw (approximately $65,000 in consumer surplus) to 8,346 lb gw in 2019. As stated previously, no increases in consumer surplus are likely compared to recent recreational landings.

Under **Sub-alternative 3c**, the total ACL would be 118,234 lb gw in 2015 and increase to 157,645 lb gw in 2019. The commercial ACL would increase by 29,431 lb gw (approximately $117,000 in ex-vessel

revenue) to 112,322 lb gw in 2015 and by 66,872 lb gw (approximately $265,500 in ex-vessel revenue) to 149,763 lb gw in 2019. The recreational ACL would increase by 1,549 lb gw (approximately $25,200 in consumer surplus) to 5,912 lb gw in 2015 and by 3,519 lb gw (approximately $57,200 in consumer surplus) to 7,882 lb gw in 2019. As above, no increases in consumer surplus are likely compared to recent recreational landings rates because they are much higher than the ACL proposed.

In general, the greater the buffer between the ABC and the ACL, the greater the expectations are for a healthier stock and the greater the long-term economic benefits for commercial and recreational fishermen due to the expectation of higher future harvest levels. However, it must be stated that unless both the commercial and recreational sectors are held to their respective ACLs, then there is no chance for increases in long-term economic benefits. As is mentioned above, the recreational sector exceeded their snowy grouper ACL by about 400% in 2012 and 2013 under the no action alternative. This impacts both commercial and recreational sectors as AMs are applied. Action 5 in this document may assist in decreasing the recreational harvest to some degree.

In general, the higher the ACL, the greater the short-term economic benefits to commercial and recreational fishermen. Long-term economic benefits can also be realized if the ACL options are expected to achieve long-term biological health of the resource. However, the chances of long-term health are improved (if the sectors can be held to their ACLs) if a buffer exists between the ABC and the ACL. Therefore, since **Alternative 3** incorporates information from the newest stock assessment and incorporates a buffer, it is expected to achieve the greatest long-term health of the stock and therefore the greatest long-term economic benefits with **Sub-alterative 3c** offering the largest buffer and therefore the largest economics benefits. **Alternative 2** incorporates new information from the new stock assessment and has a higher ACL and is therefore expected to produce greater long-term economic benefits than **Alternative 1 (No Action)** but because of a lack of a buffer between the ABC and ACL, **Alternative 3, Sub-alternative 3c** will likely yield the greatest economic benefits.

4.2.3 Social Effects

Changes in the ACL for any stock would not directly affect resource users unless the ACL is met or exceeded, in which case AMs that restrict or close harvest could negatively impact the commercial fleet, for-hire fleet, and private anglers. AMs can have significant direct and indirect social effects because, when triggered, can restrict harvest in the current season or subsequent seasons. 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, such as increased pressure on another species, or fishermen having to stop fishing all together due to regulatory closures.

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. Adhering to stock recovery and rebuilding goals is assumed to result in net long-term positive social and economic benefits. Additionally, adjustments in an ACL based on updated information from a stock assessment would be the most beneficial in the long term to fishermen and communities because catch limits would be based on the current conditions.

Because the resulting ACL would be the same, the expected effects on fishermen under **Alternative 1 (No Action)** and **Alternative 2** would be identical, and would likely be minimal. The lower ACLs in **Sub-alternatives 3a-3c** under **Alternative 3** could have negative short-term effects on fishermen if the AMs were triggered when a lower ACL is met. **Sub-alternative 3c** would be expected to result in the least benefits to fishermen and communities. However, setting the ACL at a percentage of the ABC under **Sub-alternatives 3a-3c** would still result in a higher ACL than under **Alternative 1 (No Action)**, and allow more access to the resource for fishermen than under the status quo ACL.

4.2.4 Administrative Effects

Administrative impacts of this action are likely to be minimal. **Alternative 1 (No Action)** may result in slightly higher indirect administrative impacts because the lower ACLs are more likely to cause AMs to be triggered in-season, which would require development of outreach materials and internal agency documents to close the commercial sector and assess whether or not the recreational ACL has been exceeded. **Alternatives 2** and **3** (including its sub-alternatives) would not result in significant administrative cost or time burdens other than notifying fishery participants of the change in the sector ACLs and continued monitoring of the sector ACLs. The burden on law enforcement would not change under either alternative since commercial quota closures and bag limits implemented are currently enforced.

4.3 Action 3. Split the Commercial Fishing Year into 2 Fishing Seasons for Snowy Grouper

4.3.1 Biological Effects

Alternative 1 (No Action) would maintain the current commercial fishing year to start on January 1 and end when the commercial ACL is met or projected to be met. In 2012, the commercial sector closed on December 19, and in 2013, it closed on August 10. Due to inclement weather conditions in the northern states during the winter months, and to extend fishing opportunities, commercial fishers for snowy grouper requested the South Atlantic Council consider splitting the current commercial fishing year. **Alternative 2** would split the commercial ACL (from **Action 2**) equally into two seasonal commercial quotas. The first seasonal quota would be effective January through April, and the second seasonal quota from May to December. Any unused poundage from the first season would carry over into the second season~~,~~; however, any remaining commercial quota from the second season would not carry over into the next year. **Sub-alternative 2a** would maintain the current trip limit of 100 lb gw for both commercial fishing seasons, while **Sub-alternatives 2b** and **2c** would increase the commercial trip limit to 150 lb gw and 200 lb gw, respectively, for both commercial fishing seasons.

Trip limits have a different effect on fishermen in different areas depending on the distance to the fishing grounds (**Table 4.3.1** and **Figures 4.3.1-4.3.5**). On average, travel distance from Georgia, South Carolina, and North Carolina, is longer than Florida to reach depths where snowy grouper are normally fished (**Table 4.3.1** and **Figures 4.3.1-4.3.5**).

Alternatives for Action 3
(preferred alternatives in bold)

Alternative 1 (No Action). The current commercial snowy grouper fishing year~~season~~ is the calendar year with no split of the commercial ACL into separate seasons.

Alternative 2. Split the commercial snowy grouper fishing season with an equal split of the ACL between January through April and May through December with the following trip limits for each of the seasons.

Revised Alternative 2. Split the commercial snowy grouper ACL into two quotas: 50% to the period January 1 through April 30 and 50% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. The following trip limit would apply to each season:

Sub-alternative 2a. 100 pounds ~~whole~~ gutted weight (lb gw).

Sub-alternative 2b. 150 lb gw.~~pounds whole gutted weight (lb gw)~~.

Sub-alternative 2c. 200 lb gw.~~pounds whole gutted weight (lb gw)~~.

New Alternative 3. Split the commercial snowy grouper ACL into two quotas: 40% to the period January 1 through April 30 and 60% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. Maintain the current 100 lb gw trip limit for the January 1 through April 30 season and establish the following trip limit for the May through December season:

Sub-alternative 3a. 100 lb gw.
Sub-alternative 3b. 150 lb gw.
Sub-alternative 3c. 200 lb gw.
Sub-alternative 3d. 250 lb gw.
Sub-alternative 3e. 300 lb gw.

Table 4.3.1. Estimated travel distances (miles) from select ports/inlets/locations from North Carolina through Florida to approximated depths of 200, 300, 330, 600, and 650 feet.

Location off North Carolina	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Oregon Inlet	34.2	38.2	38.8	40.3	40.4
Ocracoke	31.7	32.1	32.4	33.8	35.2
Morehead City	41.1	45.2	45.7	46.9	48.3
New River	64.1	66.3	66.6	68	70.1
Southport	57.6	61.8	62	62.5	64.6
Location off South Carolina	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Little River	70.3	71.8	72.2	76	79.1
Georgetown	54.2	55.7	56	57.6	66.9
Charleston	53.9	57.5	58.9	62.7	65.3
Hilton Head	68.7	75.6	76.3	79.2	81.2
Location off Georgia	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Savannah	73.3	77.8	78.4	80.9	83.1
St. Catherines	81.8	83.3	83.9	85.5	87.5
St. Simons	80.2	81.4	82.1	83.4	85.6
Fernandina	75	76.1	76.5	77.8	79
Jacksonville	68.1	69.6	70	71.4	72
Location off NE Florida	Distance (mi.) to Approx. 200ft	Distance (mi.) to Approx. 300ft	Distance (mi.) to Approx. 330ft	Distance (mi.) to Approx. 500ft	Distance (mi.) to Approx. 650ft
Ft. Pierce	18.4	23.4	24.7	26.3	27.6
Sebastian	25.5	31	32.7	34	35.4
Melbourne	32.3	36.8	38.1	40	43
New Smyrna	42.4	46.6	47.3	49.2	51.6
St. Augustine	59.2	60.7	61.1	62.3	63.3
Location off Fl Keys	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Key Largo	7.6	9.2	10.1	12.4	14.5
Islamorada	5.9	7.5	8.3	11.9	15.2
Marathon	6.4	7.6	8	9.7	16.8
Key West	6.9	7.9	8.3	10.3	13.8

Source: Roger Pugliese, SAFMC Staff, prepared 2/6/14.

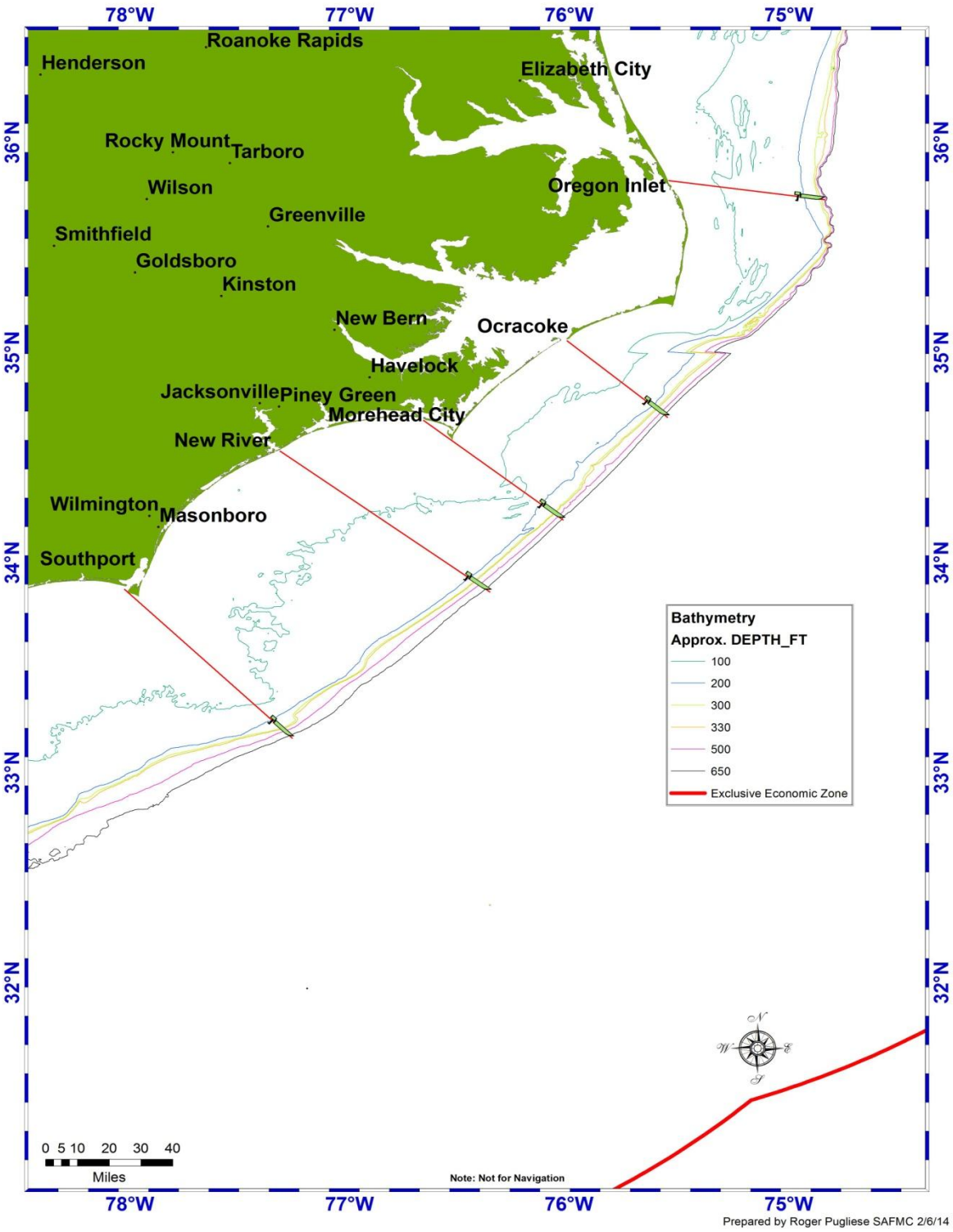


Figure 4.3.1. Estimated travel distances (miles) from select ports/inlets/locations in North Carolina to approximated depths of 200, 300, 330, 600, and 650 feet.

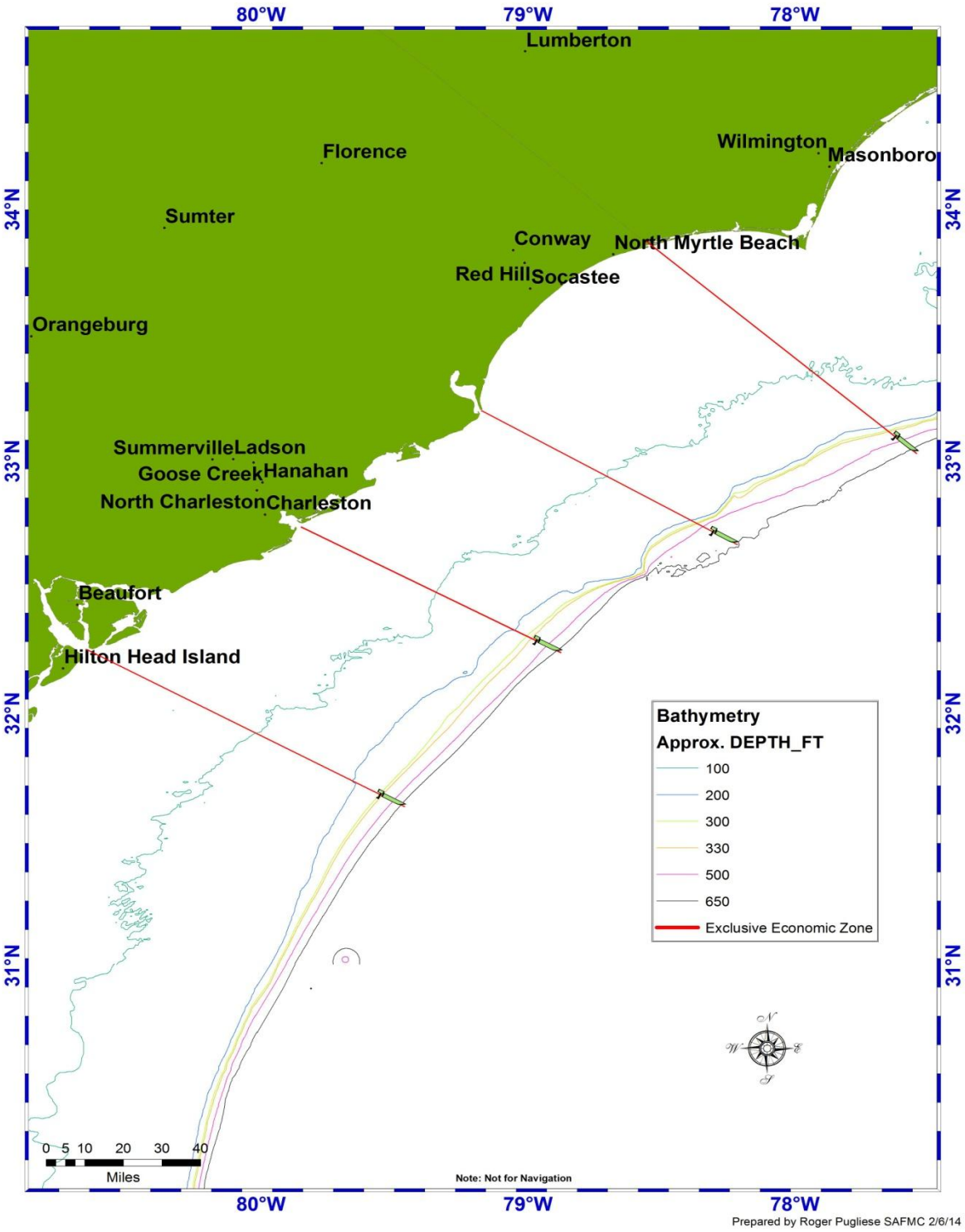


Figure 4.3.2. Estimated travel distances (miles) from select ports/inlets/locations in South Carolina to approximated depths of 200, 300, 330, 600, and 650 feet.

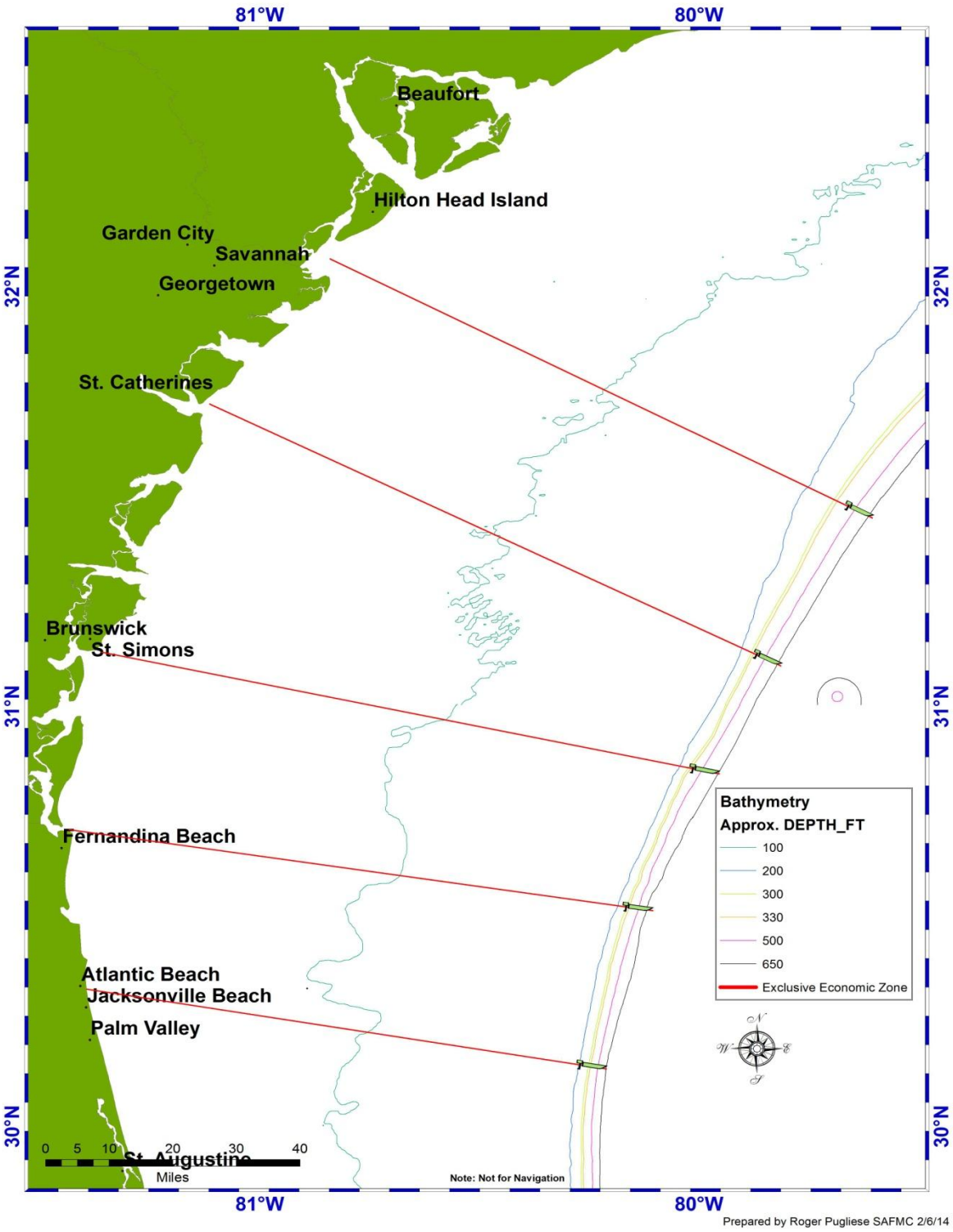


Figure 4.3.3. Estimated travel distances (miles) from select ports/inlets/locations in Georgia and Northeast Florida to approximated depths of 200, 300, 330, 600, and 650 feet.

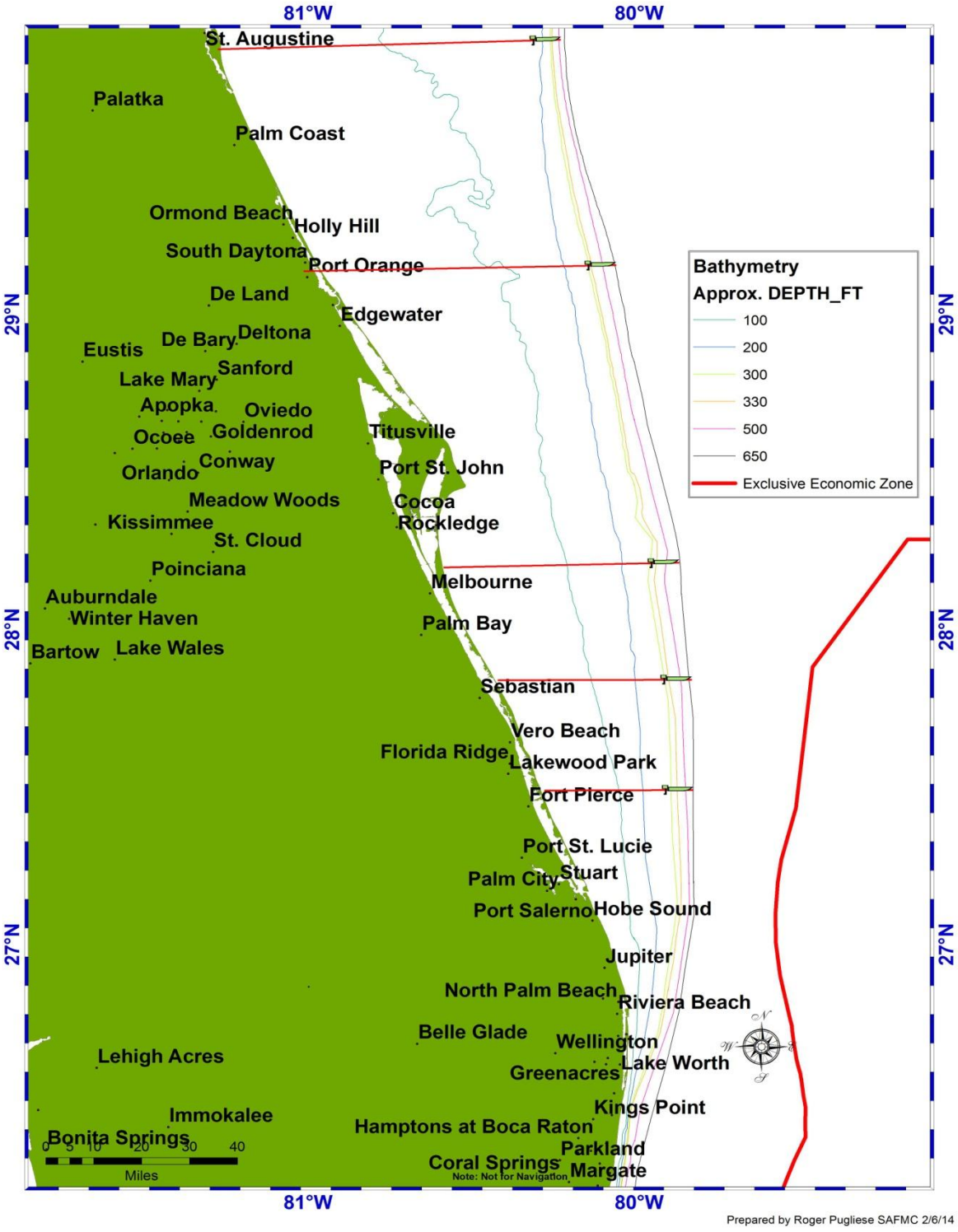


Figure 4.3.4. Estimated travel distances (miles) from select ports/inlets/locations in Florida East Coast to approximated depths of 200, 300, 330, 600, and 650 feet.

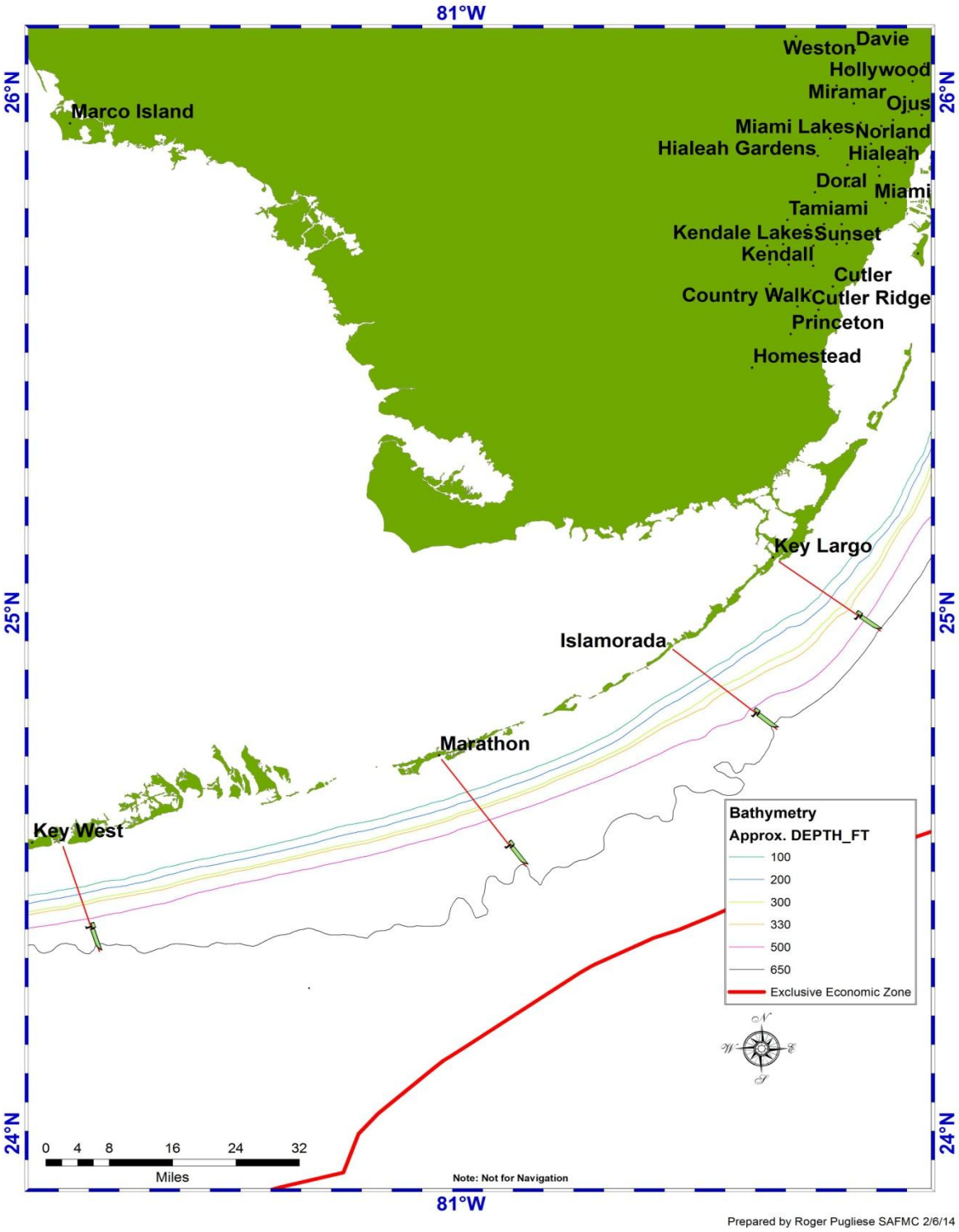


Figure 4.3.5. Estimated travel distances (miles) from select ports/inlets/locations in the Florida Keys to approximated depths of 200, 300, 330, 600, and 650 feet.

Alternative 1 (No Action) would maintain the current 12-month time period for harvest of the commercial ACL. **Table 4.4.2** in **Action 4** shows the predicted dates that the commercial ACL would be met under **Alternative 1 (No Action)**.

Table 4.3.2a shows the predicted closure dates for the snowy grouper commercial portion of the snapper grouper fishery in the South Atlantic under the different trip limits (**Sub-alternatives 2a-2c**) proposed for the split seasons proposed in **Alternative 2**. Season 1 would start on January 1 and end on April 30; season 2 would start on May 1 and end on December 31 (unless the commercial ACL is met or projected to be me before any of the end dates). With the exception of the ACL proposed un **Sub-alternative 3c** of **Action 2**, there would be no closure in season 1 for the different trip limits proposed under Action 3. Thus, there would be no difference between the **Action 1 (No Action)** and **Action 2** in specifying a split season. Similar to the analysis used in **Action 4 (Table 4.4.2)**, closure dates were predicted using the ACLs predicted for 2015.

Table 4.3.2a. Predicted closure dates for the snowy grouper commercial fishery in the South Atlantic under the split seasons proposed in **Action 3**. Predicted closure dates for **Alternative 1 (No action)** are the same as those for Season 2 in **Sub-Alternative 2a** in **Action 3** and are also shown in **Table 4.4.2** in **Action 4**.

Action 2: Proposed Annual Catch Limits	**Action 3: Split the Commercial Fishing Season**					
	Sub-alternative 2a		**Sub-alternative 2b**		**Sub-alternative 2c**	
	100 lb gw		150 lb gw		200 lb gw	
	Season 1	Season 2	Season 1	Season 2	Season 1	Season 2
Alt. 1 (Current ACL) (ACL split to 41,450 lb gw)	No Closure	24-Aug	18-Apr	10-Jul	28-Mar	24-Jun
Alt. 2 (ACL = 100% ABC from SEDAR 36, 75% F_{MSY}) (ACL split to 66,072 lb gw)	No Closure	No Closure	No Closure	3-Nov	No Closure	18-Aug
Sub-alt. 3a (ACL = 95% ABC) (ACL split to 62,768 lb gw)	No Closure	No Closure	No Closure	10-Oct	No Closure	6-Aug
Sub-alt. 3b (ACL = 90% ABC) (ACL split to 59,465 lb gw)	No Closure	No Closure	No Closure	19-Sep	No Closure	25-Jul
Sub-alt. 3c (ACL 85% ABC) (ACL split to 56,161 lb gw)	No Closure	16-Dec	No Closure	1-Sep	28-Apr	16-Jul

Sub-alternative 2a in **Action 3 (same as Alternative 1 No Action),** with a trip limit of 100 lb gw , would not be expected result in a closure for either commercial fishing seasons if the ACL from **Alternative 2**, **Sub-alternative 3a**, or **3b** from **Action 2** is selected. However, under **Sub-alternative 2a**, the second commercial fishing season would close on August 24 under the ACL in **Alternative 1 (No Action)** and on December 16 under the ACL in **Sub-alternative 3c** for **Action 2 (Table 4.3.2a)**.

With an increase in the commercial trip limit to 150 lb gw under **Sub-alternative 2b** in **Action 3**, the first season would not close under all the alternatives with an increase in the ACLs under **Action 2**, but close two weeks before the end of the first season under **Action 2 Alternative 1**(**Table 4.3.2a**). The second season would close as early as July 10 under **Alternative 1** in **Action 2**, and extend as long as November 3 if **Alternative 2** in **Action 2** (the most liberal ACL alternative) is selected (**Table 4.3.2a**).

Sub-alternative 2c in **Action 3**, with a trip limit of 200 lb gw, would not result in a closure in season 1 if the ACLs reflect those in **Alternatives 2**, **Sub-alternative 3a**, and **3b** from **Action 2,** but close a month earlier if the current ACL is retained and two days early if the most conservative ACL is chosen under **Sub-alternative 3c** in **Action 2**. The second season would close as early as June 24 and extend only as long as August 18 if **Alternative 2** in **Action 2** (the most liberal ACL alternative) is selected (**Table 4.3.2a**).

By dividing the commercial ACL into two six-month fishing quotas (**Alternative 2**), fishermen would theoretically be given the opportunity to fish for snowy grouper at the beginning of the year and during the summer. The divided commercial quota is intended to provide fishermen in the northern and southern areas of the South Atlantic a chance to fish for snowy grouper when weather conditions are favorable in their respective areas. However, since the ACL is likely to be increased under **Action 2**, a closure during season 1 is not expected for most of the ACLs being considered. Without an in-season closure during season 1 for most of the scenarios examine, a split season has little to no effect on extending the fishing season. The biological impacts of a split season for snowy grouper is likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas, and AMs would be triggered if the ACL or quotas were exceeded. In-season closures are expected in season 2 for the different ACLs if there is an increase in the trip limit. Any differences between Alternative 1 (No Action) and Alternative 2 are a function of the trip limit sub-alternatives under Action 2 and not splitting the ACL into seasonal quotas.

The biological effects of **Alternatives 1 (No Action)** and the trip limit sub-alternatives under **Alternative 2** would be expected to be neutral because ACLs and AMs are in place to cap harvest, and take action if ACLs are exceeded. Alternatives with larger trip limits (**Sub-alternative 2c**) could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. However, improvements have been made to the quota monitoring system, and the South Atlantic Council has approved a Dealer Reporting Amendment (effective August 7, 2014), which should enhance data reporting. Larger trip limits could also result in earlier closures of snowy grouper. Early closures can lead to regulatory discards and release mortality for snowy grouper is 100%, which would not be beneficial to the stock. Similarly smaller trip limits could increase bycatch if a trip is not ended and fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

Regardless of the alternative selected, none of them are anticipated to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-and-line sector of the snapper-grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Regardless of the alternative selected, this action is not anticipated to increase the potential for interactions with smalltooth sawfish. **Alternative 1 (No Action)** is likely to perpetuate the existing level of risk between the fishery and sea turtles. However, the biological impact of the remaining alternatives on sea turtles is unclear. Sea turtles nest along the East Coast of the United States from April-October, with peak nesting occurring from May-July. Sea turtle nesting brings gravid females closer to shore where they are more susceptible to interaction with snapper-grouper fishing gear. Strictly based on the number of months fishing is projected to occur during sea turtle nesting season, the most biologically beneficial combination of actions and alternatives is **Sub-alternative 3c for Action 2** and **Sub-alternative 2c for Action 3**. A number of action/alternative

scenarios are slightly less biological beneficial that this one, simply because the amount of fishing effort gradually increases under each scenario. Independent of what alternative is selected for **Action 2**, **Action 3 Sub-alternative 2a** is likely to have the least biological benefit to sea turtles. Under **Action 3 Sub-alternative 2a** the fishery would operate during the entirety of the nesting season including all of the peak nesting season. Only under **Action 2 Sub-alternative 3c Action 3 Sub-alternative 2a** and would the fishery be closed for any portion of time.

Predicted closure dates for new **Alternative 3** are shown in **Table 4.3.2b**.

Table 4.3.2b. Predicted closure dates for the snowy grouper commercial fishery in the South Atlantic under **new Alternative 3** in **Action 3**.

Season 1	100 lb gw	Season 2	**Sub-alt 3a**	**Sub-alt 3b**	**Sub-alt 3c**	**Sub-alt 3d**	**Sub-alt 3e**
			100 lbs gw	150 lbs gw	200 lbs gw	250 lbs gw	300 lbs gw
Alt. 1 ACL (split to 33,160 lb gw)	21-Apr	Alt. 1 ACL (split to 49,740 lb gw)	1-Sep	27-Jul	6-Jul	24-Jun	17-Jun
Alt. 2 ACL (split to 52,857 lb gw)	No Closure	Alt. 2 ACL (split to 79,286 lb gw)	No Closure	5-Dec	3-Oct	28-Aug	6-Aug
Alt. 3a ACL (split to 50,214 lb gw)	No Closure	Alt. 3a ACL (split to 75,321 lb gw)	No Closure	16-Nov	18-Sep	18-Aug	29-Jul
Alt. 3b ACL (split to 47,572 lb gw)	No Closure	Alt. 3b ACL (split to 71,357 lb gw)	No Closure	25-Oct	3-Sep	7-Aug	21-Jul
Alt. 3c ACL (split to 44,929 lb gw)	No Closure	Alt. 3c ACL (split to 67,393 lb gw)	16-Dec	30-Sep	21-Aug	28-Jul	13-Jul

4.3.2 Economic Effects

Under **Alternative 1 (No Action)**, the commercial snowy grouper fishing season would continue with no split in the ACL. In 2012, snowy grouper was closed on December 19th, and 107% of the quota was met. In 2013, the commercial sector for snowy grouper was closed on August 10th and 97% of the commercial ACL was met. The South Atlantic Council is proposing an increase in the commercial ACL under Action 2, which is expected to extend the length of the fishing season.

Alternative 2 proposes splitting the commercial snowy grouper fishing season with an equal split of the ACL between January and April and May through December. The three sub-alternatives propose trip limits of 100 pounds whole weight (**Sub-alternative 2a**), 150 pounds whole weight (**Sub-alternative 2b**), and 200 pounds whole weight (**Sub-alternative 2c**). **Alternative 2** and its sub-alternatives likely provide the economic benefit of maintaining landings of snowy grouper on more of a year round basis, which can have economic benefits in the form of helping to maintain markets and a more stable income stream.

A split in the ACL (**Alternative 2**) into seasonal quotas is expected to provide long-term economic benefits because it would help spread harvest throughout a greater portion of the year and maintain market demand. For the same reasons as those stated in the economic effects section under **Action 3**, the smaller trip limits will have the greater biological and economic benefits due to greater future harvests and revenues from a healthier stock. As a result, **Sub-alternative 2a** is expected to offer the greatest long-term economic benefits followed by **Sub-alternatives 2b**, **Sub-alternative 2c** and **Alternative 1 (No Action)**.

4.3.3 Social Effects

Snowy grouper is an important commercial species for deepwater catch combinations and at specific times of the year when other species are closed. The effects on the commercial fleet due to changing the snowy grouper commercial fishing year into split seasons would depend on the ACL set in **Actions 1** and **2,** and the rate of catch, which would depend on the trip limit specified in **Action 4**.

Under current conditions and fishing patterns, no closure is expected in Season 1 for most of the scenarios examined under **Action 3** (**Table 4.3.2**). If participation, market conditions, and fishing behavior stay the same, the effect of splitting the commercial into ACL into two seasonal quotas under **Alternative 2** would not be much different from leaving the fishing season intact (**Alternative 1 (No Action)**). However, fishermen may shift effort to or from a certain species (including targets on multi-species trips) based on economic, regulatory, biological, or environmental changes in the fishery. Although split seasons for snowy grouper may not immediately produce any effects on the fleet and associated businesses and communities, there could be positive and negative effects on commercial fishermen in different areas of the South Atlantic if conditions change in the future, as discussed below.

For fishermen in the more northern range of the South Atlantic region, the early months of the fishing year may not be feasible times to travel to snowy grouper fishing grounds (see **Table 4.3.1** in **Section 4.3.1**), and these fishermen may only have access to a lower portion of the commercial ACL in later months. Maintaining the commercial ACL for the whole fishing year under **Alternative 1 (No Action)** would limit benefits for these fishermen from increased trip limits and any increased in the ACL due to restricted access to snowy grouper due to environmental conditions.

A split season under **Alternative 2** could likely be beneficial to commercial fishermen harvesting snowy grouper in North Carolina, South Carolina, and Georgia. Because the current fishing year starts in January 1 (**Alternative 1 (No Action**), fishermen in North Carolina, South Carolina, and Georgia could have less access to snowy grouper in the early months due to weather, or could risk unsafe conditions to fish, if an increased trip limit results in additional participation in snowy grouper harvest. A split season under **Alternative 2** would likely increase access to the ACL for North Carolina, South Carolina, and Georgia.

4.3.4 Administrative Effects

Currently, there is no split season for the commercial sector for snowy grouper (**Alternative 1, No Action**). **Alternative 2** and its sub-alternatives would add to the administrative burden in the form of cost, time, or law enforcement efforts because two quotas instead of one would need to be monitored and enforced. However, even if the commercial ACLs are met during each of the fishing seasons under **Sub-Alternatives 2a**, **2b,** and **2c**, the administrative resources required to implement in-season closures would not be much different from what is currently in place under **Alternative 1 (No Action)**.

4.4 Action 4. Modify the Commercial Trip Limit for Snowy Grouper

4.4.1 Biological Effects

Snowy grouper landings for the commercial sector for 2012 and 2013 were explored to predict future landings **(Figure 4.4.1** and **Table 4.4.1a)**. Recent landings were impacted by fishing regulations; changes in landings by state are shown in **Table 4.4.1b**. From January 31, 2011 to May 10, 2012, harvest of snowy grouper in depths greater than 240 feet was prohibited (Amendment 17B, SAFMC 2010b). Additionally, the snowy grouper commercial sector was closed on December 19, 2012, and August 19, 2013, because it was determined the ACL had been met. The existing commercial trip limit of 100 lb gw (**Alternative 1, No Action**) has not prevented fishermen from harvesting the full ACL in recent years. **Alternatives 2** and **3** (and sub-alternatives) consider changes to the to the 100 lb gw snowy grouper trip limit to allow harvest of a possible increase in the commercial ACL under **Action 2**.

Examination of commercial logbook landings from 2012 and 2013 **(Figure 4.4.2** and **Table 4.4.1c)** revealed that 171 (16%) out of 1,097 trips in 2012, and 184 (19%) out of 956 trips in 2013 reported landings in excess of the 100 lb gw trip limit under **Alternative 1 (No Action)**.

Alternative 2 would change the 100 lb gw trip limit for the January 1-December 31 fishing year to 300 lb gw **(Sub-alternative 2a)**, 200 lb gw **(Sub-alternative 2b)**, and 150 lb gw **(Sub-alternative 2c)**. **Alternative 3** would specify a 150 lb gw from January to April, and a 50 lb gw **(Sub-alternative 3b)** or 100 lb gw **(Sub-alternative 3c)** from May to December.

Alternatives for Action 4
(**preferred alternatives in **bold)

Alternative 1 (No Action). The current commercial snowy grouper trip limit is 100 pounds ~~whole~~ gutted weight (lb ~~ww~~ gw).

Alternative 2. ~~Establish a~~ Modify the commercial snowy grouper trip limit from January 1 until the ACL is met or projected to be met:

Sub-alternative 2a. 300 ~~pounds whole gutted weight (~~lb ~~ww~~ gw~~)~~.

Sub-alternative 2b. 200 lb gw.~~pounds whole gutted weight (lb ww gw)~~.

Sub-alternative 2c. 150 lb gw.~~pounds whole gutted weight (lb ww gw)~~.

Alternative 3. ~~Establish a~~ Modify the commercial snowy grouper trip limit of 150 ~~pounds gutted weight (~~lb ~~ww~~ gw~~)~~ from January through April and a different trip limit from May through the end of the year:

Sub-alternative 3a. 50 lb gw~~pounds whole gutted weight (lb ww gw).~~

Sub-alternative 3b. 100 lb gw~~100 pounds whole gutted weight (lb ww gw).~~

Alternative 4. ~~Establish a~~ Modify the commercial snowy grouper trip limit of 100 ~~pounds whole weight (~~lb ~~ww~~ gw~~)~~ January through April for all areas; for May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida as shown below; and 100 ~~pounds whole gutted weight (~~lb ~~ww~~ gw~~)~~ May through August for the rest of the area. From September through the end of the year, or until the ACL is met or projected to be met, the trip limit would be set at 100 ~~pounds whole gutted weight (~~lb ~~ww~~ gw~~)~~.

Sub-alternative 4a. 200 lb gw~~pounds whole gutted weight (lb ww gw)~~.

Sub-alternative 4b. 250 lb gw~~pounds whole gutted weight (lb ww gw).~~

Sub-alternative 4c. 300 lb gw~~pounds whole gutted weight (lb ww gw)~~.

Revised Alternative 4. Maintain the current commercial snowy grouper trip limit of 100 lb gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Volusia/Brevard County line north when the trip limit will be as follows:

Sub-alternative 4a. 200 lb gw.

Sub-alternative 4b. 250 lb gw.

Sub-alternative 4c. 300 lb gw

Commercial logbook data from 2012 and 2013 were analyzed to estimate the expected change in landings for the proposed commercial trip limits under **Alternatives 2** and **3** (and their respective sub-alternatives) **(Table 4.4.1d)**. **Table 4.4.2** shows the predicted closure dates for the various alternatives under **Action 4**, using the ACLs resulting from the alternatives under **Action 2**. Closure dates were predicted using the ACLs generated from the assessment and specified for 2015, since these ACLs are closest to when Regulatory Amendment 20 would be expected to implemented. Values for 2015 are more conservative than those in 2016-2019.

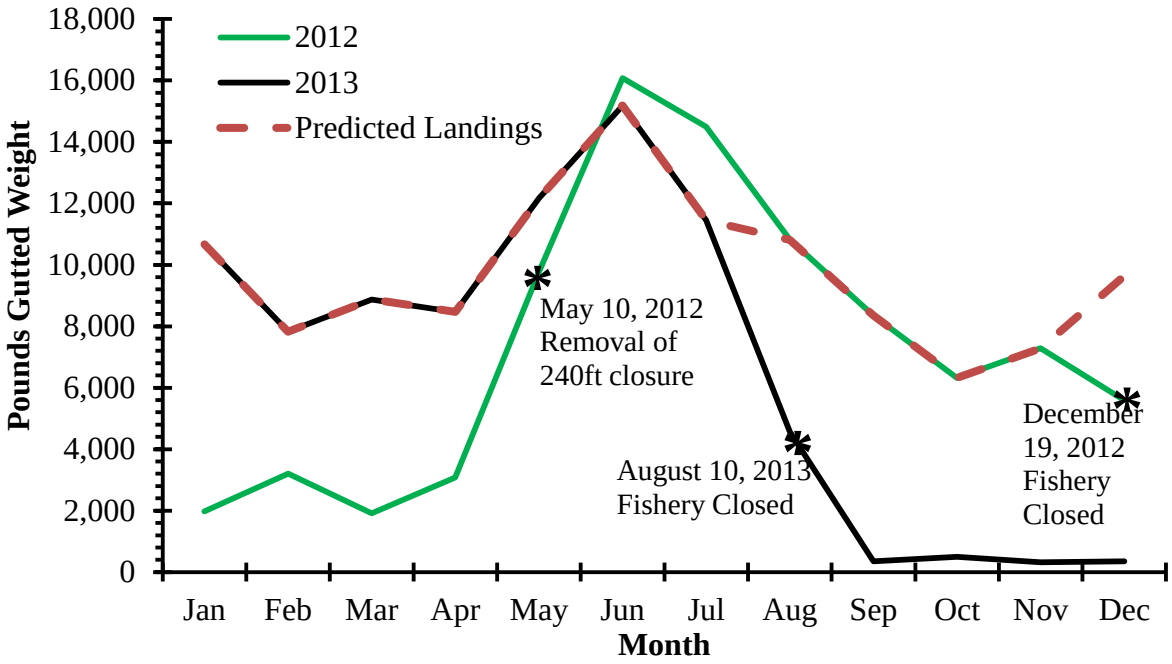


Figure 4.4.1. Monthly commercial snowy grouper landings in the South Atlantic for 2012 and 2013, and predicted landings for 2014. The predicted landings follow the months when the fishery was open and not impacted by the 240 ft closure implemented by Amendment 17B (SAFMC 2010b). The predicted landings for the month of December were generated by adjusting the December 2012 landings, since the fishery was not open for this entire month.

Table 4.4.1a. Monthly commercial snowy grouper landings in the South Atlantic for 2012 and 2013, and predicted landings for 2014. The predicted landings follow the months when the fishery was open and not impacted by the 240 ft closure implemented by Amendment 17B (SAFMC 2010b). The predicted landings for the month of December were generated by adjusting the December 2012 landings, since the fishery was not open for this entire month.

Month	2012	Cumulative	%Cumul.	2013	Cumulative	%Cumul.	Predicted	Cumulative	%Cumul.
Jan	1,978	1,978	2%	10,669	10,669	13%	10,669	10,669	9%
Feb	3,206	5,184	6%	7,825	18,494	23%	7,825	18,494	16%
Mar	1,909	7,093	8%	8,874	27,368	34%	8,874	27,368	23%
Apr	3,082	10,175	11%	8,469	35,837	44%	8,469	35,837	31%
May	9,776	19,951	22%	12,169	48,006	59%	12,169	48,006	41%
Jun	16,074	36,025	41%	15,186	63,192	78%	15,186	63,192	54%
Jul	14,497	50,522	57%	11,449	74,641	92%	11,449	74,641	64%
Aug	10,814	61,336	69%	4,556	79,197	98%	10,814	85,455	73%
Sep	8,351	69,687	78%	356	79,553	99%	8,351	93,806	80%
Oct	6,323	76,010	86%	501	80,054	99%	6,323	100,129	86%
Nov	7,286	83,296	94%	318	80,372	100%	7,286	107,415	92%
Dec	5,593	88,889	100%	356	80,728	100%	9,633	117,048	100%
Total	88,889			80,728			117,047		

Table 4.4.1b. Commercial and recreational landings (lbw w) of snowy grouper, by state, from 1996 to 2008 in the South Atlantic.

Commercial snowy grouper landings (lb ww).									
	FL	%FL	GA	%GA	NC	%NC	SC	%SC	Total
1996	144,904	43%	5,756	2%	123,223	36%	64,948	19%	338,831
1997	272,589	48%	10,453	2%	162,936	29%	116,607	21%	562,585
1998	151,407	44%	1,918	1%	123,210	36%	65,375	19%	341,910
1999	174,546	37%	7,429	2%	217,496	46%	73,965	16%	473,436
2000	140,261	35%	3,599	1%	186,788	46%	71,390	18%	402,038
2001	132,889	42%	4,957	2%	106,748	34%	73,488	23%	318,082
2002	127,457	44%	2,055	1%	110,614	39%	46,743	16%	286,869
2003	99,943	42%	7,585	3%	104,645	44%	27,336	11%	239,509
2004	96,120	37%	4,026	2%	97,470	37%	63,114	24%	260,730
2005	82,697	34%	2,550	1%	86,146	35%	72,440	30%	243,833
2006	69,239	27%	2,083	1%	102,567	41%	78,410	31%	252,299
2007	69,668	53%	672	1%	48,363	37%	13,450	10%	132,153
2008	46,087	54%	251	0%	26,714	31%	12,716	15%	85,768
Recreational snowy grouper landings (lb ww) excluding Monroe County.									
	FLE	%FLE	GA	%GA	NC	%NC	SC	%SC	Total
1996	732	17%	11	0%	1,213	27%	2,471	56%	4,427
1997	158,444	65%	21	0%	84,599	35%	177	1%	244,362
1998	3,750	84%		0%	563	13%		4%	4,491
1999	61,871	86%	16	0%	10,157	14%	109	0%	72,153
2000	4,056	16%		0%	22,055	84%	13	0%	26,123
2001	11,182	20%	3	0%	44,294	79%	495	1%	55,974
2002	655	3%	3	0%	20,694	96%	313	1%	21,665
2003	9,374	34%		0%	17,608	65%	245	1%	27,227
2004	47,075	65%		0%	24,824	35%	2	0%	71,901
2005	79,377	73%		0%	29,121	27%	303	0%	108,800
2006	154,839	91%		0%	14,498	9%		0%	169,337
2007	30,311	50%		0%	30,511	50%	163	0%	60,985
2008	2,184	13%		0%	14,798	87%	24	0%	17,006

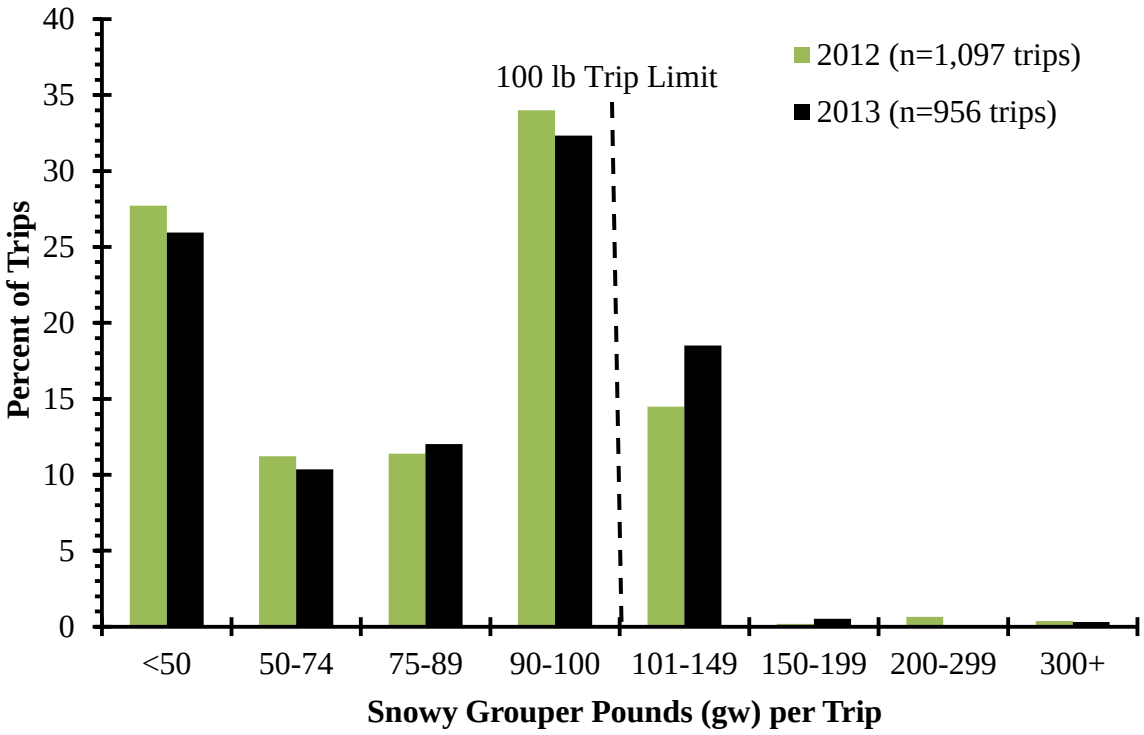


Figure 4.4.2. Frequency distribution of snowy grouper commercial landings per trip from 2012 to 2013 in the South Atlantic.

Table 4.4.1c. Percentage of South Atlantic snowy grouper commercial trips broken up into eight different trip bins for 2012 and 2013. Each trip bin represents pounds of snowy grouper landed per trip.

Trip Bin	2012	2013
	%	%
<50	27.7	25.9
50-74	11.2	10.4
75-89	11.4	12.0
90-100	34.0	32.3
101-149	14.5	18.5
150-199	0.2	0.5
200-299	0.6	0.0
300+	0.4	0.3
Total	100	100

Table 4.4.1d. Percent decreases and increases in monthly landings for various commercial snowy grouper trip limits under **Alternatives 2** and **3** in **Action 4**. The current trip limit is 100 lb gw.

Month	Trip Limit			
	50 lb gw	150 lb gw	200 lb gw	300 lb gw
Jan	-58.6	+27.1	+56.9	+117.2
Feb	-59.1	+29.0	+58.6	+118.0
Mar	-44.6	+26.6	+55.3	+113.6
Apr	-49.6	+36.1	+72.2	+144.4
May	-58.4	+35.7	+71.6	+143.4
Jun	-55.5	+34.2	+70.3	+142.7
Jul	-57.4	+30.3	+61.5	+124.1
Aug	-59.1	+27.3	+54.3	+109.5
Sep	-57.2	+31.7	+63.8	+128.9
Oct	-55.4	+32.1	+65.6	+135.2
Nov	-53.9	+28.5	+58.9	+121.2
Dec	-48.4	+31.9	+67.0	+137.3

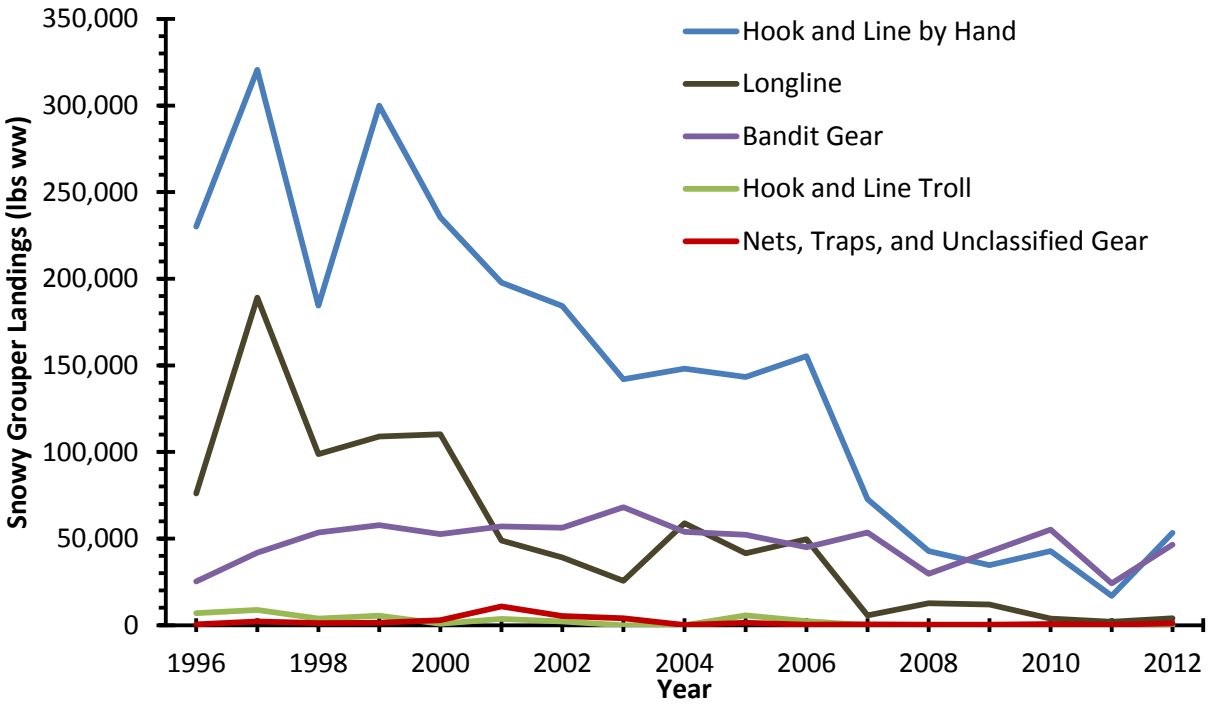


Figure 4.4.3. Annual commercial landings of snowy grouper by gear type in the South Atlantic during 1996-2012.

Table 4.4.2. Predicted closure dates for the snowy grouper commercial fishery in the South Atlantic for different proposed trip limits and ACLs included in **Actions 4** and **2** in Regulatory Amendment 20.

Action 2: ACL Alternatives	**Action 4: Trip Limit Alternatives**					
	Alt. 1	**Sub-Alt. 2a**	**Sub-Alt. 2b**	**Sub-Alt. 2c**	**Sub-Alt. 3a**	**Sub-Alt. 3b**
	100 lb gw	300 lb gw	200 lb gw	150 lb gw	150 lb gw Jan-Apr 50 lb gw May-Dec	150 lb gw Jan-Apr 100 lb gw May-Dec
Alt. 1 (current ACL = 82,900 lb gw)	24-Aug	4-May	6-Jun	30-Jun	No Closure	25-Jul
Alt. 2 (100% ABC from SEDAR 36, 75% F_{MSY}) ACL = 132,143 lb gw	No Closure	19-Jun	18-Aug	3-Nov	No Closure	No Closure
Sub-Alt. 3a (95% ABC) ACL = 125,536 lb gw)	No Closure	14-Jun	6-Aug	10-Oct	No Closure	25-Dec
Sub-Alt. 3b (90% ABC) ACL = 118,929 lb gw	No Closure	8-Jun	25-Jul	19-Sep	No Closure	3-Dec
Sub-Alt. 3c (85% ABC) ACL = 112,322 lb gw	16-Dec	3-Jun	14-Jul	1-Sep	No Closure	7-Nov

As shown in **Table 4.4.2**, under **Alternative 1 (No Action**) in **Action 4**, the commercial sector for snowy grouper would be expected to close on August 24 under the current trip limit of 100 lb gw and current ACL of 82,900 lb gw and close on December 16 under the most conservative **Sub-alternative 3c** under **Action 2** (ACL = 85% ABC, 112,322 lb gw**)**. However, there would be no closures maintaining the trip limit of 100 lb gw and increasing the ACLs under **Alternatives 2**, **Sub-alternatives 3a**, and **3b** under **Action 2**. All the sub-alternatives under **Alternative 2** in **Action 4** would be expected to result in closures before the end of December, starting as early as May 4 (current ACL of 82,900 lb gw and a trip limit of 300 lb gw) and as late as November 3 (ACL = 100% ABC under **Alternative 2** of **Action 2** (132,143 lb gw; and a trip limit of 150 lb gw under **Sub-alternative 2c** of **Action 4**). There would be no closures expected under any of the ACL alternatives considered under **Action 2**, when considered in tandem with **Sub-alternative 3a** in **Action 4** (150 lb gw from January to April and 50 lb gw from May to December). There would also be no closure of the commercial sector expected under **Alternative 2** of **Action 2** (ACL = 132,143 lb gw), when considered with **Sub-alternative 3b** in **Action 4** (150 lb gw from January to April and 100 lb gw from May to December). However, the commercial sector would be expected to close under all other ACL alternatives under **Action 2** when combined with the approach in **Sub-alternative 3b** for **Action 4**.

The biological effects of the alternatives proposed in **Action 4** would be expected to be neutral because ACLs and AMs are in place to cap harvest, and take action if ACLs are exceeded. However, alternatives with larger trip limits could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. However, improvements have been made

to the quota monitoring system, and the South Atlantic Council has approved a Dealer Reporting Amendment (effective August 7, 2014), which should enhance data reporting. Larger trip limits could also result in earlier closures of snowy grouper. Early closures can lead to regulatory discards and release mortality for snowy grouper is 100%, which would not be beneficial to the stock. SEDAR 36 (2013) indicates that snowy grouper is still overfished. An increase in trip limits to 200 lb gw or 300 lb gw may result in early closures of the commercial sector, especially since monthly landings could increase by 57-137% due to increased participation (**Table 4.4.1d)**. Early closures could result in bycatch of snowy grouper if fishermen target co-occurring species after the closure occurs. Similarly smaller trip limits could increase bycatch if fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

Regardless of the alternative selected, none of them are anticipated to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-and-line sector of the snapper-grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Regardless of the alternative selected, this action is not anticipated to increase the potential for interactions with smalltooth sawfish. **Alternative 1 (No Action)** is likely to perpetuate the existing level of risk between the fishery and sea turtles. However, the biological impact of the remaining alternatives on sea turtles is unclear. Sea turtles nest along the East Coast of the United States from April-October, with peak nesting occurring from May-July. Sea turtle nesting brings gravid females closer to shore where they are more susceptible to interaction with snapper-grouper fishing gear. Strictly based on the number of months fishing is projected to occur during sea turtle nesting season, the least biologically beneficial combination of actions and alternatives is **Action 4 Sub-alternative 3a** and any combination of alternatives or sub-alternatives under **Action 2**. Fishing under this combination of actions and alternatives would occur year round, during all of sea turtle nesting season, including peak nesting season. **Table 4.4.2** also indicates a number of other combinations that would also lead to no fishery closure. Each of those scenarios is also likely to have the smallest biological benefit to sea turtles. Conversely, **Sub-alternative 2a** under **Action 4,** would likely have the greatest biological benefit regardless of sub-alternatives under **Action 2** it is paired with because the fishery is likely to close relatively early under each combination. Of the remaining sub-alternatives under **Action 4**, the order of decreasing biological benefit would be **Sub-alternative 2b, 2c, and 3b**, respectively.

Predicted closure dates for **Revised Alternative 4** are shown in **Table 4.4.3**.

Table 4.4.3. Predicted closure dates for the South Atlantic snowy grouper commercial fishery by applying three different increased trip limits for the area north of Brevard County, Florida, under the revised **Alternative 4** in **Action 4**.

Action 2: ACL Alternatives	Revised Alternative 4		
	Sub-alt 4a	**Sub-alt 4b**	**Sub-alt 4c**
	200 lbs gw	250 lbs gw	300 lbs gw
Alt. 1 ACL (82,900 lbs gw)	21-Jul	11-Jul	3-Jul
Alt. 2 ACL (132,143 lbs gw)	22-Dec	21-Nov	12-Oct
Alt. 3a ACL (125,536 lbs gw)	1-Dec	24-Oct	15-Sep
Alt. 3b ACL (118,929 lbs gw)	3-Nov	24-Sep	28-Aug
Alt. 3c ACL (112,322 lbs gw)	3-Oct	31-Aug	17-Aug

4.4.2 Economic Effects

Commercial trip limits, in general, are not economically efficient because they limit vessels from benefiting from economies of scale. They have a tendency to increase some fishing trip costs when a trip must stop targeting a specific species because its trip limit has been reached. Unless a vessel that has reached its limit of the targeted fish can easily move into targeting a different species on the same trip, trip costs associated with the species where the limit has been reached will increase because it will require more annual trips by vessels to catch the ACL. Depending on vessel characteristics and the distance required to travel to fish, a trip limit that is too low could result in targeted trips being cancelled altogether if the vessel cannot target other species on the same trip.

Under **Alternative 1 (No Action)**, the commercial trip limit is 100 lb gw. Under this trip limit, the commercial sector was closed early in 2012 and 2013 (as referenced above) due to exceeding the snowy grouper ACL. The recent trend of exceeding the ACL and then applying AMs is expected to continue under the current trip limit as well as the proposed trip limits. This type of fluctuation in harvest amounts often results in regulatory discards and ex-vessel revenue fluctuations and leads to long-term adverse economic effects.

Alternatives 2, **3**, and **4** propose larger or alternating trip limits temporally and geographically. In general, a larger trip limit is expected to result in a shorter season for commercial fishermen, which would likely result in an increase in regulatory discards. A smaller trip limit could result in a longer season for commercial fishermen and decrease the chances of exceeding the ACL. However, a smaller trip limit could also result in regulatory discards if fishermen continue to target co-occurring species after the snowy grouper trip limit is met. A larger trip limit could result in more profitable trips because fishermen would be able to take larger amounts of fish for similar operating costs. However, these potential short-term economic benefits depend on geographic location and would likely lead to long-term adverse

economic effects. Distance to fishing grounds for snowy grouper differs depending on port. Therefore, lower trip limits would likely be more appealing to fishermen located closer to fishing grounds for snowy grouper while higher trip limits would likely appeal more to fishermen located further away from fishing grounds where snowy grouper can be accessed. **Sub-alternatives 3a** and **3b** offer temporally alternating trip limits that may appeal to fishermen located relatively near and far distances from fishing grounds while the sub-alternatives under **Alternative 2** would benefit fishermen living within the same distance from fishing grounds.

Table 4.4.2 shows the predicted closure dates for the snowy grouper commercial sector in the South Atlantic for different proposed trip limits and ACLs included in **Actions 3** and **2**. As stated above, only **Sub-alternative 3a** is expected to result in no closure under each of the **Action 2** alternatives. **Sub-alternative 3b** is expected to result in no closure under **Action 2, Alternative 2**. **Action 4, Alternative 1 (No Action)** is also not expected to result in a closure for **Action 4, Alternatives 2** and **3**.

An increase in trip limits to 200 lb gw or 300 lb gw could contribute to increased bycatch if it results in early seasonal closures of snowy grouper (**Sub-alternatives 2a and 2b**). **Table 4.3.1** notes an estimated 57-137% harvest increase under the 200 and 300 lb gw trip limit scenarios. Similarly smaller trip limits could increase bycatch if fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Continuation of overfishing would certainly lead to long-term adverse economic effects because it would result in future decreases in profitability. For these reasons, long-term economic benefits are expected to be highest under **Sub-alternative 3a** since this is the trip limit that is most conservative and is not expected to result in any closures. However, there will likely be losses in short-term profitability from targeted trip not taken and decreased profit per fish due to lower than needed trip limits to cover operating costs. The next most economically beneficial alternatives is expected to be **Alternative 1 (No Action)** followed by **Sub-alternative 3b**, and lastly, **Alternative 2**.

4.4.3 Social Effects

In general, commercial trip limits may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded. However, trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away, which could affect business decisions and fishing behavior for commercial fishermen. The costs and benefits to fishermen when considering changes in the commercial trip limit depend on if a longer season with a consistent supply of snowy grouper is more important than maximizing efficiency on fishing trips, even if the season is shorter in length. An additional consideration is the possibility that participation in the snowy grouper portion of the snapper grouper fishery may increase if the commercial trip limit is increased, because more fishermen would want to take advantage of the higher trip limit. Additional participation could increase competition, affect market supply and market prices, and contribute to a faster rate of harvest that closes snowy grouper harvest earlier than in recent years. Another consideration in the South Atlantic is the time to travel to fishing grounds to catch snowy grouper varies among the different states (**Table 4.3.1** in **Section 4.3**). Each alternative under this action affects the different states in different ways, and will be analyzed by state below.

Florida

Maintaining the current 100-lb gw trip limit under **Alternative 1 (No Action)** could contribute to a longer season, but would continue to limit trip efficiency under an increased ACL under **Action 2**. In

Florida waters (with the exception of trips south of Marathon, discussed below), trips targeting snowy grouper require much less travel than in Georgia, South Carolina, and North Carolina, but Florida fishermen would still be expected to benefit under an increase in the trip limit. Snowy grouper are only one component of trips that target multiple species but for some trips, is the most economically important part of the catch combination.

Several Florida communities are included as communities with the highest commercial landings and commercial value in region, including Cocoa, Miami, Titusville, Port Orange, Mayport, Fort Pierce, and Palm Beach Gardens (**Figure 3.3.3.1**). Additionally, Miami and Fort Pierce have high relative engagement with commercial fishing (**Figure 3.3.3.2**), which would contribute to how fishermen in these communities are affected by changes in the snowy grouper trip limit. Under **Sub-alternatives 2a-2c** in **Alternative 2**, the increased trip limit through the entire fishing year would be expected to contribute to increased trip efficiency, which would benefit fishermen and the communities listed above. **Sub-alternative 2a** (300 lb gw) would be the most beneficial, followed by **Sub-alternative 2b** (200 lb gw) and then **Sub-alternative 2c** (150 lb gw). The increase to 150 lb gw from January through April under **Alternative 3** would be beneficial for Florida fishermen also targeting golden tilefish because the golden tilefish fishing year opens on January 1, and this could help reduce snowy grouper discards. The step-down in May under **Alternative 3** could possibly affect efficiency for some trips for Florida fishermen, but because travel time to fishing grounds in Florida, and specifically in the Florida Keys, is much lower than travel time for fishermen in other South Atlantic states (**Table 4.3.1** in **Section 4.3**), the effects would likely be less on Florida fishermen than on fishermen in Georgia, South Carolina and North Carolina. Additionally, if Florida fishermen switch to shallow water grouper in May, this could help reduce negative effects on Florida fishermen due to a step-down to 50 lb gw under **Sub-alternative 3a**. The step-down to 100 lb gw under **Sub-alternative 3b** would be expected to have the same effects on Florida fishermen as **Alternative 1 (No Action)**. The benefits to Florida fishermen described above would likely not be expected for fishermen south of Marathon who make snowy grouper trips with longer travel times, out past Key West.

Georgia

No Georgia communities are included in the top 15 communities with the region's highest commercial landings and value for snowy grouper (**Figure 3.3.3.1**). However, there are individual Georgia fishermen in communities such as Savannah and Townsend who may harvest snowy grouper and these fishermen could be affected by changes in the snowy grouper trip limit. Because travel time to fishing grounds for Georgia fishermen may much higher than in Florida (**Table 4.3.1** in **Section 4.3**), a higher trip limit would be expected to be most beneficial for Georgia fishermen by improving trip efficiency. **Alternative 1 (No Action)** would likely be the least beneficial for Georgia fishermen. **Sub-alternatives 2a-2c** under **Alternative 2** would be more beneficial for Georgia fishermen by increasing the trip limit, with **Sub-alternative 2a** having the highest likelihood of resulting in the most benefits to the Georgia fleet. However, **Alternative 2** could result in a higher rate of harvest and an earlier closure due to meeting the commercial ACL, which could have negative effects on Georgia fishermen. The higher trip limit under **Alternative 3** would be more beneficial than the current trip limit from January through April, but the step-down to 100 lb gw (**Sub-alternative 3a**) or 50 lb gw (**Sub-alternative 3b**) in May could restrict the ability of Georgia fishermen to make efficient trips to catch snowy grouper.

South Carolina

Three of the top commercial communities for snowy grouper include the South Carolina communities of Murrells Inlet, Little River, and Charleston (**Figure 3.3.3.1**). Additionally, these have high relative engagement with commercial fishing (**Figure 3.3.3.2**), which would contribute to how fishermen in these communities are affected by changes in the snowy grouper trip limit. Because travel time to fishing grounds for South Carolina fishermen is longer than North Carolina and Florida (**Table 4.3.1** in **Section 4.3**), a higher trip limit would be expected to be most beneficial for South Carolina fishermen by improving trip efficiency, similar to the benefits for Georgia fishermen. **Alternative 1 (No Action)** would likely be the least beneficial for South Carolina fishermen. **Sub-alternatives 2a-2c** under **Alternative 2** would be more beneficial for South Carolina fishermen by increasing the trip limit, with **Sub-alternative 2a** having the highest likelihood of resulting in the most benefits to the South Carolina fleet. However, **Alternative 2** could result in a higher rate of harvest and an earlier closure due to meeting the commercial ACL, which could have negative effects on South Carolina fishermen. The higher trip limit under **Alternative 3** would be more beneficial than the current trip limit from January through April, but the step-down to 100 lb gw (**Sub-alternative 3a**) or 50 lb gw (**Sub-alternative 3b**) in May could restrict the ability of South Carolina fishermen to make efficient trips to catch snowy grouper.

North Carolina

Four of the top commercial communities for snowy grouper include the North Carolina communities of Beaufort, Morehead City, Shallotte, Wanchese, and New Bern (**Figure 3.3.3.1**). Additionally, Beaufort and Wanchese have high relative engagement with and reliance commercial fishing, and Morehead City has high relative engagement with commercial fishermen (**Figure 3.3.3.2**), which would contribute to how fishermen in these communities are affected by changes in the snowy grouper trip limit. Because travel time to fishing grounds for North Carolina fishermen is longer than for Florida (**Table 4.3.1** in **Section 4.3**), a higher trip limit would be expected to be most beneficial for North Carolina fishermen by improving trip efficiency, similar but slightly less than the benefits described for South Carolina and Georgia fishermen. **Alternative 1 (No Action)** would likely be the least beneficial for North Carolina fishermen. **Sub-alternatives 2a-2c** under **Alternative 2** would be more beneficial for North Carolina fishermen by increasing the trip limit, with **Sub-alternative 2a** having the highest likelihood of resulting in the most benefits to the North Carolina fleet. However, **Alternative 2** could result in a higher rate of harvest and an earlier closure due to meeting the commercial ACL, which could have negative effects on North Carolina fishermen. The higher trip limit under **Alternative 3** would be more beneficial than the current trip limit from January through April, but the step-down to 100 lb gw (**Sub-alternative 3a**) or 50 lb gw (**Sub-alternative 3b**) in May could restrict the ability of North Carolina fishermen to make efficient trips to catch snowy grouper.

4.4.4 Administrative Effects

Because there is already a trip limit in place, there would be no difference in the administrative impacts of **Alternative 1 (No Action)** and **Alternative 2** and its sub-alternatives. The administrative and law enforcement recourses currently used to implement and enforce the 100 lb gw commercial trip limit would be the same as those needed to implement and enforce the 300, 200, and 150 lb gw trip limits under **Sub-alternatives 2a, 2b,** and **2c,** respectively. Higher trip limits could have greater administrative effects because they increase the likelihood that the commercial ACL or quota would be met and a commercial closure would occur. **Alternative 3** would add to the administrative burden since it would include monitoring different trip limits during different times of the year. Therefore, administrative

effects under **Sub-alternatives 3a** and **3b** would be slightly higher than under **Alternative 1 (No Action)** and **Alternative 2** (and its sub-alternatives). **Alternatives 2** and **3** (including their respective sub-alternatives) would require notifying the commercial snapper grouper fishery and law enforcement personnel of an impending trip limit change for the snowy grouper. This type of administrative burden is considered routine, and the overall administrative effects of the alternatives considered under this action would not vary much with respect to each other.

4.5 Action 5. Modify the Recreational Bag Limit for Snowy Grouper

4.5.1 Biological Effects

A quantitative bag limit analysis for this action was not possible due to insufficient sample sizes from the Marine Recreational Information Program (MRIP) and headboat data bases. Each data source reported one to three snowy grouper per month, with some months reporting no snowy grouper catches. Recreational catches of snowy grouper are so infrequently surveyed that any analysis would result in high uncertainty. Therefore, the discussion of the biological effects in this section is qualitative.

Alternative 1 (No Action) would retain the current recreational bag limit of one snowy grouper per vessel per day within the aggregate grouper bag limit. The current recreational ACL of 523 fish was exceeded by 395% in 2012 and 411% in 2013 (**Table 4.5.1**) under the current bag limit. However, in 2013, the recreational ACL had not been exceeded when the sector was closed on May 31. Recreational landings continued despite the closure resulting in an overage of the ACL (**Table 4.5.2**). Furthermore, recreational landings estimates are very uncertain because they are infrequently encountered by MRIP and headboats.

Alternatives for Action 5
(*preferred alternatives in* ***bold)***

Alternative 1. (No Action.) The current recreational grouper bag and possession limits is ~~management measures are~~ as follows:

- Grouper and tilefish, combined--3. Within the 3-fish aggregate bag limit: No more than one fish may be gag or black grouper, combined; no more than one fish per vessel may be a snowy grouper; no more than one fish may be a golden tilefish; and no goliath grouper or Nassau grouper may be retained.~~Part of Aggregate Grouper Bag Limit of 3/person/day of: gag, black grouper, snowy grouper, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, golden tilefish, sand tile, coney, graysby, red hind and rock hind with a limit of 1 snowy grouper per vessel per day~~.

- ~~Sale of recreationally caught fish prohibited.~~

Alternative 2. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/vessel/day May through August and no retention during the rest of the year.

Alternative 3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year ~~and based on 2012 recreational harvest. However, if future catches were similar to 2013 recreational harvest (Table9) recreational landings would be below the expected recreational ACL~~.

Alternative 4. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May with no retention during the remainder of the year.

Table 4.5.1. Recreational landings (numbers of fish) and closures using numbers from the SERO-Annual Catch Limits dataset (excluding Monroe County) for 2012-2013.

Species	Year	Fishing Season	Total Landings (N)	ACL (N)	ACL %	Closure Date
Snowy Grouper*	2012	Jan 1 - Dec 31	2,065	523	395%	
	2013		2,150	523	411%	05/31/13

The accountability measure for snowy grouper required that the 2013 fishing season be shortened if the average 2010-2012 recreational landings exceeded the ACL. Note: For 2012, the average 2010-2012 should have been used and for 2011, the average of 2010 and 2011 landings should have been used.
*Recreational ACL for snowy grouper did not exist until Amendment 17B (SAFMC 2010b) was implemented on January 31, 2011. The recreational allocation was established in Amendment 15B (SAFMC 2008b) and implemented on 12/16/09; however, the recreational AM was established in Amendment 17B (SAFMC 2010b).
Source: SERO web-site: http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/recreational_sa/index.html

In 2012, recreational landings were highest in May and June, while in 2013, they were highest in September and October (**Table 4.5.2**) despite the recreational sector being closed in May that year. **Alternative 2** would modify the current recreational bag limit to one snowy grouper per vessel per day within the aggregate grouper bag limit from May through August, and prohibit the recreational harvest during the rest of the year. **Alternative 3** would allow the same bag limit for two months (May and June) during the year, while **Alternatives 4** and **5** would allow one snowy grouper per vessel per day within the aggregate bag limit for the month of May and June, respectively. **Alternative 1 (No Action)** would provide the least biological benefit since the recreational ACL has been exceeded by 400% in the recent years under the status quo. However, the ACL was exceeded in 2013 because recreational fishing did not stop after the recreational sector had been closed. **Alternatives 4** and **5** would be expected to have higher biological benefits than **Alternatives 2** and **3**, since they would allow the recreational harvest of snowy grouper for just one month versus two months under **Alternative 3** and four months under **Alternative 2**. However, the biological effects of **Alternatives 1-5** would be similar if a recreational closure does not slow the rate of fishing.

The spawning season for snowy grouper in the Carolinas is from April through September with no obvious peak period (Wyanski et al. 2000, 2013). In the Florida Keys, Moore and Labinsky (1984) reported snowy grouper in spawning condition from April through July. Wyanski et al. (2000) also suggested that snowy grouper may form spawning aggregations as 1,160 specimens (some of which were assessed macroscopically as spawning) were reported from four trawl collections in June 1978. Wyanski et al. (2013) report a lower proportion of spawning female snowy grouper at the beginning and end of the spawning season of April through September. **Alternative 4**, which would allow for recreational harvest of snowy grouper in May, may be expected to have a higher biological benefit of all the alternatives considered in **Action 5**.

Table 4.5.2. Recreational landings (numbers of fish) by wave (two-month intervals) of snowy grouper in the South Atlantic (excluding Monroe County, Florida).

Year	Jan/Feb (Wave 1)	Mar/Apr (Wave 2)	May/June (Wave 3)	July/Aug (Wave 4)	Sept/Oct (Wave 5)	Nov/Dec (Wave 6)	Total
2012	2	1	1,049	651	330	32	2,065
2013	77	238	112	330	1,332	62	2,150

Source: SERO-ACL dataset.

Depending on the preferred alternative selected in **Action 2**, the recreational ACL could increase (at a maximum) from the current 523 fish to 834 fish in 2015; and up to 1,112 fish in 2019 (**Tables 4.2.1** and **4.2.2**). If the recreational ACLs continue to be exceeded at the levels of 2012 and 2013 (almost 400%), none of the proposed increases in the recreational ACL under **Action 2** would keep the recreational ACL from being exceeded, particularly if fishing for snowy grouper continues after a closure occurs. The recreational AM, implemented in 2011 along with the ACL, has a payback provision to reduce the length of the following fishing season by the amount necessary, if the recreational ACL is exceeded in the current year. For 2012 and beyond, the most recent three-year running average is used to determine if the recreational ACL was exceeded. Current recreational AMs have not been able to prevent the recreational ACLs from being exceeded. However, recreational harvest is largely dominated by the commercial sector. Despite the recreational ACL overages, the recent stock assessment for snowy grouper indicates the stock is rebuilding and overfishing is no longer occurring. However, ACL overages can reduce the probability of rebuilding according to the schedule. Therefore, an in-season closure of the recreational sector for snowy grouper may be warranted regardless of the alternative selected as a preferred in **Action 5**. The South Atlantic Council is developing an amendment (Snapper Grouper Amendment 34 and Golden Crab Amendment 9), which considers alternatives for AMs that include an in-season closure for the snowy grouper recreational sector.

Note: Snowy grouper landings from Monroe County, Florida.

SEDAR 4 (2004) commercial landings included Monroe County, Florida, however, the recreational data were not post-stratified from the rest of the West Florida landings. Therefore, a decision was made to exclude all of Monroe County recreational landings when SEDAR 4 (2004) was conducted. Thus, the current recreational ACL (523 fish) is based on landings that do not include Monroe County recreational landings. When SEDAR 36 (2013) was conducted, a method for extracting Monroe County recreational landings from the rest of West Florida had been developed. Therefore, the decision was made to include Monroe County recreational landings in SEDAR 36 (2013). Therefore, the new ABC and ACL that would be based on the results of SEDAR 36 (2013) would include Monroe County, Florida. SEDAR 36 (2013) attributed all landings from Monroe County, Florida to the South Atlantic. The reasoning was that snowy grouper is a deep water species and the only deep water in Monroe County, Florida is in the Florida Keys under the jurisdiction of the South Atlantic Council. **Table 4.5.3** shows the estimated recreational harvest of snowy grouper for 2012 and 2013 including Monroe County.

In the future, changes in recreational ACLs would include landings from Monroe County, Florida.

Table 4.5.3. Recreational landings (numbers of fish) by wave (two-month intervals) of snowy grouper in the South Atlantic. Snowy grouper landings with (Total SA Landings) and without (Current SA Landings) landings from Monroe County are included. Specific Monroe County Headboat landings were not provided to protect confidentiality of the data.

Year	Source	Jan/Feb	Mar/Apr	May/June	July/Aug	Sept/Oct	Nov/Dec	Total
2012	MRFSS	0	0	1,039	644	322	0	2,005
	Headboat	2	1	10	7	8	32	60
	Current SA Landings	2	1	1,049	651	330	32	2,065
	Monroe MRFSS	0	82	15,200	0	0	0	15,282
	Monroe Headboat	0	0	0	<10	0	<10	<20
	Total SA Landings	2	83	16,249	661	330	42	17,367
2013	MRFSS	67	226	107	330	972	0	1,701
	Headboat	10	12	5	0	360	62	449
	Current SA Landings	77	238	112	330	1,332	62	2,150
	Monroe MRFSS	0	0	1,247	0	0	0	1,247
	Monroe Headboat	0	0	0	0	<400	<100	<500
	Total SA Landings	77	238	1,359	330	1,732	162	3,897

Table 4.5.4. Actual snowy grouper harvest by sector from 2005 through 2012 from the SERO-Annual Catch Limits dataset. Current allocation = 95% commercial, 5% recreational.

	Commercial	% Harvested	Recreational	% Harvested	Total
Year	(ww)	by Comm	(ww)	by Rec	(ww)
2005	243,833	69%	108,800	31%	352,633
2006	252,299	60%	169,337	40%	421,636
2007	132,154	68%	60,985	32%	193,139
2008	85,768	83%	17,006	17%	102,775
2009	89,225	54%	77,173	46%	166,398
2010	102,245	68%	48,123	32%	150,368
2011	43,473	97%	1,496	3%	44,969
2012	104,889	69%	46,176	31%	151,065

Each alternative, regardless of the one selected, is unlikely to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-

and-line sector of the snapper-grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. For the species that may interact with the fishery (i.e., sea turtles and smalltooth sawfish), there is likely to be no additional biological benefit from **Alternative 1 (No Action)** because it would perpetuate the existing level of risk for interactions between these ESA-listed species and the fishery. While it will perpetuate the existing level of risk of interaction, **Alternative 1 (No Action)** is likely to be the least biologically beneficial. The biological benefits to sea turtles and smalltooth sawfish are likely to be greatest from **Alternatives 4 or 5** since they both prohibit harvest for all but one month. **Alternative 3** is likely to have the next greatest biological benefit to sea turtles and smalltooth sawfish followed by **Alternative 2.**

4.5.2 Economic Effects

The current recreational bag limit for snowy grouper is limited to one fish per vessel per day (**Alternative 1**). This minimal allowance has resulted in the recreational ACL being exceeded by approximately 400% in 2012 and 2013. However, the recreational ACL had not been exceeded when the recreational sector was closed in 2013. The overage occurred due to continued fishing after the closure had occurred. **Alternatives 2**, **3**, **4**, and **5** propose various alternatives that reduce the number of months when snowy grouper can be taken. While **Alternative 2** proposes a four-month season (May-August) with no retention allowed during the rest of the year, **Alternative 3** proposes a two-month season (May and June) with no retention for the rest of the year. **Alternatives 4** and **5** propose retention for one month, in May and June only, respectively. Based simply on the amount of time allowed for retention of snowy grouper, it is likely that **Alternatives 4** and **5** would provide the highest long-run economic benefits because those have the least risk associated with exceeding the ACL due to a one-month season only. **Alternative 1 (No Action)** would be the least preferred of the five alternatives because it has the longest amount of time when retention is allowed and is therefore likely most harmful to the biological health of the stock and unlikely, assuming current harvest trends, to result in higher future landings and likely higher for-hire vessel revenues and consumer surplus. Over the short term, however, this alternative would provide for the highest for-hire vessel revenues and consumer surplus due to overages. To the extent that overages are likely to result in derailing the recovery of the stock, future ACLs would likely be lower. This would affect both the commercial and recreational sectors by reducing commercial vessel revenues and profits, for-hire revenues and profits, and consumer surplus.

If any of the alternatives under Action 5 are chosen other than **Alternative 1 (No Action)** and it is effective in controlling recreational landings to at or below the status quo ACL, short-term economic benefits to the recreational sector would be lower relative than those being achieved right now based on recent historical landings because they have exceeded the current ACL by such a large amount. Although, these economic benefits would be greater than those that would occur under a situation where there is no increase in the ACL (**Alternative 1** under **Action 2**). That is, the recreational fishery would benefit in the long-term from **Alternative 2, 3, 4, or 5** if they are effective. The short-term benefits would vary depending on whether an increase in the ACL occurs under **Action 2**.

The biological effects section notes that the majority of landings in 2012 occurred during May and June. While these are popular months for recreational fishing, snowy grouper spawning takes place April through September in the Carolinas and April through July in the Florida Keys and may have led to

higher landings during these months. Wyanski et al. (2013) report a lower proportion of spawning female snowy grouper at the beginning and end of the spawning season of April through September.This information implies that **Alternative 4** that allows for the earliest retention (May) and for only one month could result in the least amount of harvest followed by **Alternative 5**, then **Alternative 3**, **Alternative 2** and **Alternative 1 (No Action)**. However, as has been noted under other actions in this document, snowy grouper has a release mortality rate of 100%. Therefore, a decrease in the season length may decrease the retention of snowy grouper but not the fishing and release mortality. It would likely be up to private anglers and for-hire captains and crew to attempt to avoid catches of snowy grouper by fishing at different depths and decreasing release mortality. If the release mortality can be decreased or snowy grouper can be avoided, then there is the possibility of future increases in long-term economic benefits. Any future economic benefits would be as a result of an increase in stock health leading to future increased harvest.

4.5.3 Social Effects

In general, the social effects of modifying the snowy grouper bag limit or specifying when snowy grouper can be recreationally landed would be associated with the biological costs of each alternative (see **Section 4.5.1**), but also considering the times of year recreational anglers are targeting snowy grouper and how a designated recreational fishing season would affect current recreational fishing opportunities. Although recreational landings make up only a small portion of the overall landings of snowy grouper, there has been an overage of almost or over 400% in recent years for recreational ACL. The lack of in-season closure and a continual overage of the recreational sector could result in negative effects on the snowy grouper stock, particularly in combination with other factors that could affect the stock. However, despite the recent overages in the recreational sector, SEDAR 36 (2013) indicates that overfishing is no longer occurring and the snowy grouper stock is rebuilding.

The restrictive existing bag limit (**Alternative 1 (No Action)** could be limiting recreational opportunities. **Alternative 1 (No Action)**, **Alternative 2**, and **Alternative 3** would be expected to result in negative effects on resource users if negative biological effects on the stock occur due to continued overages of the recreational ACL. Allowing a one-fish bag limit for only one month under **Alternative 4** and **5** would minimize negative effects on fishermen due to any resulting biological costs of recreational overages, but would further restrict recreational access to snowy grouper.

4.5.4 Administrative Effects

The administrative effects between **Alternative 1 (No Action)** and **Alternatives 2** through **5** would not be considered to very different from one another. Bag limits are already monitored and enforced currently under **Alternative 1 (No Action)**. **Alternatives 2** through **5** would not add to the administrative burden in the form of cost, time, or law enforcement efforts, except for incorporating changes to the bag limits and time of year they would apply, which are considered routine.

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

Will be updated

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 1997) cumulative effects guidance states that this step is done through three activities. The three activities and the location in the document are as follows:

I. The direct and indirect effects of the proposed actions **(Chapter 4)**;
II. Which resources, ecosystems, and human communities are affected **(Chapter 3)**; and
III. Which effects are important from a cumulative effects perspective **(information revealed in this Cumulative Effects Analysis (CEA)**

2. Establish the geographic scope of the analysis.

The immediate impact area is 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. In light of the available information, the extent of the boundaries would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. The ranges of affected species are described in **Section 3.2**. **Section 3.1.3** describes the essential fish habitat designation and requirements for species affected by this amendment.

3. Establish the timeframe for the analysis.

The timeframe for information used for this CEA begins with the establishment of the FMP in 1983 through 2013, when the most recent Southeast Data, Assessment, and Review (SEDAR 36, 2013) stock assessments for species affected by this amendment were completed. Additionally, actions expected to affect the snapper grouper fishery in the future (within 2-3 years), are also considered.

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

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

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

A. Past

Several past amendments to the Snapper Grouper FMP have been implemented that directly and indirectly affected the snapper grouper fishery including the species and communities impacted by Regulatory Amendment 20. A list of those past fishery-related actions can be found in **Appendix D** of this amendment.

B. Present

The Joint Generic Dealer Reporting Amendment requires that all dealers report landings information electronically on a weekly basis to improve the timeliness and accuracy of landings data. This amendment will apply to all fishery management plans (FMPs) with the exception of the Gulf of Mexico and South Atlantic Shrimp FMPs. The Notice of Availability for the amendment published on December 19, 2013, and the comment period ended on February 18, 2014. The proposed rule published on January 2, 2014, and comment period ended on February 3, 2014.

The South Atlantic Headboat Reporting Amendment, which was implemented on January 27, 2014, requires that all federally permitted headboats on the South Atlantic report their landings information electronically, and on a weekly basis in order to improve the timeliness and accuracy of harvest data.

Amendment 27 to the Snapper Grouper FMP, which was implemented on January 27, 2014, allows captains and crew of for-hire vessels to retain bag limit quantities of all snapper grouper species, updates the Snapper Grouper Framework Process to allow for expedited changes to harvest levels, and accountability measures (AMs).

Regulatory Amendment 14 to the FMP Snapper Grouper would modify the commercial and recreational fishing years for greater amberjack and black sea bass; modify trip limits for gag; and revise the recreational AMs for black sea bass and vermilion snapper. The South Atlantic Council sent Regulatory Amendment 14 to NMFS for formal review on January 15, 2014. The proposed rule published on April 25, 2014, and comment period ends on May 27, 2014.

An Emergency rule effective April 17, 2014, addressed the 2013 overfishing and overfished determination for blueline tilefish. The emergency rule temporarily set the blueline tilefish ACL at the equilibrium yield at 75%F_{MSY} = 224,100 pounds whole weight (lb ww); applied the allocations for blueline tilefish to the 224,100 lb ww ACL (commercial = 112,207 lb ww and recreational = 111,893 lb ww); and adjusted the deep-water complex ACLs accordingly.

C. Reasonably Foreseeable Future

Regulatory Amendment 17 is currently under development and this amendment would modify existing or establish new marine protected areas to enhance protection for speckled hind and warsaw grouper as well as other snapper grouper species.

Amendment 32 to the FMP would establish a rebuilding plan and modify harvest levels and management measures for blueline tilefish. This amendment would also remove blueline tilefish from the deep-water complex.

Amendment 29 to the FMP would update the ABC control rule for snapper grouper species using the only reliable catch stocks (ORCS) methodology, and update management measures for gray triggerfish to lengthen the fishing season.

Amendment 33 to the FMP would require fillets of snapper grouper species lawfully harvested from the Bahamas to be brought into the United States through the Atlantic EEZ, to have the skin intact.

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

A. Past
B. Present
C. Reasonably foreseeable future

In terms of natural disturbances, it is difficult to determine the effect of non-Council and non-fishery related actions on stocks of snapper grouper species. Annual variability in natural conditions such as water temperature, currents, food availability, predator abundance, etc. can affect the abundance of young fish, which survive the egg and larval stages each year to become juveniles (i.e., recruitment). This natural variability in year class strength is difficult to predict 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.

How global climate changes will affect 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 carbon dioxide 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, did not impact fisheries operating the South Atlantic. Oil from the spill site was not detected in the South Atlantic region, and did not likely pose a threat to the South Atlantic snapper grouper species addressed in this amendment.

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

Information on species most affected by this framework action are provided in **Section 3.2** of this document. The Snapper Grouper FMP managed species are part of a vast marine ecological environment, the health of which is dependent upon strong predator-prey relationships, habitat availability and health, fishing pressure, and natural variables such as current and temperature. Actions implemented under the Snapper Grouper FMP are intended to fortify the role of snapper grouper species within the larger ecosystem and maintain the ecological balance that would enable those species to thrive. Such Snapper Grouper FMP actions may help to increase snapper grouper species' ability to withstand stress from natural and anthropogenic sources.

The cumulative effects of the actions in this amendment and those past, present and future action affecting the snapper grouper fishery, are not expected to be significant. The actions in this amendment, combined with the actions in past and future amendments to the Snapper Grouper FMP are intended to not only support biological resiliency of snapper grouper stocks but also aid the fishing industry in their ability to withstand stress caused by market and ecological fluctuations.

The species most likely to be impacted by alternatives considered in this amendment are blueline tilefish, yellowedge grouper, Warsaw grouper, and silk snapper. Trends in the condition of these species are determined through the SEDAR process. Stock status information for the species affected by this amendment is found in **Section 3.2** of this document, and in **Appendix E (Bycatch Practicability Analysis)**.

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

Fish populations

A complete discussion of fish populations including stock status may be found in **Section 3.2** of this document. Definitions of overfishing and overfished for snapper grouper species affected by this amendment can be found in the most recent stock assessment sources, which may be found at http://www.sefsc.noaa.gov/sedar/.

Stock assessments take into account the past and current regulatory environment and establish sustainability thresholds based on how stocks respond to those management measures as well as biological and environmental factors affecting each species. Stock assessments and stock assessment updates are completed periodically dependent upon the amount and type of information available for the species and their commercial importance. Detailed discussions of

the science and processes used to determine the stock status of assessed snapper grouper species is contained in the SEDAR stock assessment and assessment updates completed for snapper grouper species and are hereby incorporated by reference.

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 (IPCC 2007; 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 or may not significantly impact snapper grouper species in the future, but the level of impacts cannot be quantified at this time.

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

The purpose of defining a baseline condition for the resource and ecosystems in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. The SEDAR assessments show trends in biomass, fishing mortality, fish weight, and fish length going back to the earliest periods of data collection. For some species such as snowy grouper, assessments reflect initial periods when the stock was above B_{MSY} and fishing mortality was fairly low. However, some species 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 blueline tilefish, yellowedge grouper, Warsaw grouper, and silk snapper, the species most likely to be impacted by this amendment, the reader is referred to **Section 3.2** of this amendment.

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

Appendix D. History of Management, includes a description of the regulatory actions affecting the snapper grouper resource, the South Atlantic marine ecosystem, and the human communities that rely on the snapper grouper resource. Many actions such as adjustments to harvest limits, implementation of AMs, and protections of habitat and spawning stocks are

needed to protect the fishing resource from human activities, which can degrade or deplete the resource. In compliance with the Magnuson-Stevens Act, all actions promulgated to protect the snapper grouper resource and support sustainable fishing practices are also intended to minimize adverse socioeconomic impacts to the maximum extent practicable.

9. Determine the magnitude and significance of cumulative effects.

The actions contained in Regulatory Amendment 20, in combination with actions that have been implemented in the past, or will be implemented in the future, are not expected to result in any significant cumulative impacts. Regulatory Amendment 20 is necessary to prevent overfishing and continue rebuilding the snowy grouper stock while minimizing, to the extent practicable, adverse social and economic effects. Modifying the rebuilding strategy and adjusting the ABC, ACLs, and management measures for snowy grouper as a result of the most recent stock assessment for the species would be expected to help achieve the goals of this amendment.

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

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 National Marine Fisheries Service, states, stock assessments and stock assessment updates, life history studies, and other scientific observations.

6.2 Socioeconomic Cumulative Impacts

A description of the human environment, including a description of the snapper grouper fishery and the snowy grouper component, as well as associated key fishing communities is contained in **Section 3.3.3** and a description of the history of management of snowy groupers contained in **Appendix D**. A detailed description of the expected social and economic impacts of the action in this document is contained in **Section 4**.

Participation in and the economic performance of the snowy grouper fishery has been affected by a combination of regulatory, biological, social, and external economic factors. Regulatory measures have obviously affected the quantity and composition of harvests of snowy grouper, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. The limited access program for snapper grouper implemented in 1998/1999 substantially affected the number of participants in the snapper grouper fishery. Entry into the snapper grouper commercial fishery requires access to additional capital and two available permits to purchase (due to the passive reduction that requires two permits be eliminated for each new permit), which may limit opportunities for new entrants. Additionally, almost all fishermen or businesses with a snapper grouper commercial or for-hire permit also hold at least one (and usually multiple) additional commercial or for-hire permit to maintain the opportunity to participate in other fisheries. Commercial fishermen, for-hire vessel owners and crew, and private recreational anglers commonly participate in multiple fisheries throughout the year. Even within the snapper grouper fishery, effort can shift from one species to another due to environmental, economic, or regulatory changes. Overall, changes in management of one species in the snapper grouper fishery can impact effort and harvest of another species (in the snapper grouper fishery or in another fishery) because of multi-fishery participation that is characteristic in the South Atlantic region.

Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have likely played a role in determining the changing composition of the fisheries addressed by this document. Additional factors, such as changing career or lifestyle preferences, stagnant to declining prices due to imports, increased operating costs (gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for other than fishery uses have impacted both the commercial and recreational fishing sectors. In general, the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing the pressure on economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and businesses. Some reverse of this trend is possible and expected through management. 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.

The proposed actions in this amendment are part of the larger management program for snapper grouper, with primary management working through annual catch limits (ACLs) and AMs. The actions in the Comprehensive ACL Amendment (SAFMC 2011c) established ACLs and AMs for species that are not experiencing overfishing. Actions in the Comprehensive ACL Amendment, however, are expected to have different effects in different areas. At any rate, the actions contained in this document are expected to prevent overfishing from occurring and to

support the achievement of optimum yield for the respective species over time, resulting in social and economic gains. In addition to the species included in the Comprehensive ACL Amendment, the ACLs, AMs, and management measures have been developed and revised in multiple amendments in recent years (see **Appendix D**).

The cumulative social and economic effects of past, present, and future amendments may be described as limiting fishing opportunities in the short-term, with some exceptions of actions that alleviate some negative social and economic impacts. The intent of these amendments is to improve prospects for sustained participation in the respective fisheries over time and the proposed actions in this amendment are expected to result in some important long-term benefits to the commercial and for-hire fishing fleets, fishing communities and associated businesses, and private recreational anglers. The proposed changes in this amendment could affect access to snowy grouper---an economically and socially important species in the South Atlantic region---and may contribute to changes in the snapper grouper fishery within the context of the current economic and regulatory environment at the local and regional level.

Chapter 7. List of Preparers

Table 7.1.1. List of preparers of the document.

Name	SAFMC	Title
Myra Brouwer	SAFMC	Fishery Scientist
Brian Cheuvront	SAFMC	Economist
Mike Errigo	SAFMC	Fishery Biologist
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Scott Sandorf	NMFS/SF	Technical Writer Editor
Monica Smit-Brunello	NOAA/GC	Attorney
Gregg Waugh	SAFMC	IPT Lead /Deputy Executive Director

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

Table 7.1.2. List of interdisciplinary plan team members for the document.

Name	Organization	Title
Myra Brouwer	SAFMC	Fishery Scientist
Brian Cheuvront	SAFMC	Economist
David Dale	NMFS/HC	EFH Specialist
Nikhil Mehta	NMFS/SF	IPT Lead/Fishery Biologist
Mike Errigo	SAFMC	Fishery Biologist
Mike Larkin	NMFS/SF	Data Analyst
Andrew Herndon	NMFS/PR	Fishery Biologist
Christina Package-Ward	NMFS/SF	Social Scientist
Kyle Shertzer	NMFS/SEFSC	Fishery Biologist
David Keys	NMFS/SER	Regional NEPA Coordinator
Tony Lamberte	NMFS/SF	Economist
Kari MacLauchlin	SAFMC	Social Scientist
Anna Martin	SAFMC	Fishery Scientist
Jack McGovern	NMFS/SF	Fishery Biologist
Scott Crosson	NMFS/SEFSC	Economist
Roger Pugliese	SAFMC	Fishery Biologist
Jeff Radonski	NMFS/OLE	Special Agent
Scott Sandorf	NMFS/SF	Technical Writer Editor
Monica Smit-Brunello	NOAA/GC	Attorney
Gregg Waugh	SAFMC	IPT Lead/Deputy Executive Director

NMFS = National Marine Fisheries Service, SAFMC = South Atlantic Fishery Management Council, SF = Sustainable Fisheries Division, PR = Protected Resources Division, SERO = Southeast Regional Office, HC = Habitat Conservation Division, EFH = Essential Fish Habitat, GC = General Counsel, Eco=Economics, NEPA = National Environmental Policy Act, SEFSC=Southeast Fisheries Science Center, OLE = Office of Law Enforcement

Chapter 8. Agencies and Persons Consulted

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

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

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Appendix A. Alternatives Considered but Eliminated from Detailed Analysis

I. ACTION 1. Adjust the Rebuilding Schedule for Snowy Grouper

Alternative 1. (No Action.) The current rebuilding schedule is specified as the maximum recommended period to rebuild if T_{MIN} > 10 years. The maximum recommended period equals T_{MIN} + one generation time = 34 years for snowy grouper. 2006 was Year 1.

Alternative 2. Modify the rebuilding schedule for snowy grouper and restart the rebuilding timeline:
Sub-Alternative 2a. Define a rebuilding schedule for snowy grouper as the shortest possible period to rebuild in the absence of fishing mortality (T_{MIN}). This would equal xx years (SEDAR 36 2013). 2015 is Year 1.
Sub-Alternative 2b. Define a rebuilding schedule for snowy grouper as the mid-point between the shortest possible and maximum period to rebuild. This would equal yy years (SEDAR 36 2013). 2015 is Year 1.
Sub-Alternative 2c. Define a rebuilding schedule for snowy grouper as the maximum recommended period to rebuild if T_{MIN} > 10 years. This would equal zz years (SEDAR 36 2013). 2015 is Year 1.
Sub-Alternative 2d. Others??

Discussion
For most species, the Council has chosen not to change the rebuilding schedule during the rebuilding period. One concern with restarting the rebuilding schedule with each subsequent analysis is that, eventually, the stock will cross a point where you can rebuild in 10 years at F=0 and the Council would be forced to take that extreme moratorium action.

Staff Recommendation: Move Action 1 to considered but eliminated from detailed consideration (**Appendix A**).

COMMITTEE ACTION: Recommend how to proceed for the rebuilding schedule.

MOTION: MOVE ACTION 1 (REBUILDING SCHEDULE) TO THE CONSIDERED BUT REJECTED APPENDIX.
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

II. ACTION 2. Adjust the Rebuilding Strategy for Snowy Grouper

MOTION: MOVE ALTERNATIVE 2, ACTION 2 (REBUILDING STRATEGY) TO THE CONSIDERED BUT REJECTED APPENDIX.
Alternative 2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate (F=FMSY) throughout the rebuilding timeframe. Year 1 remains

2006 and the yield at FMSY and ABC projections will change with each assessment.
Retain the requirement of at least a 50% probability of rebuilding the stock to BMSY.
ABC would change each year until 20xx; the ABC for 20xx would remain in effect until modified.
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Discussion
This clarifies that the F_{MSY} and ABC change with each stock assessment and that the Council is retaining the requirement of at least a 50% probability of success. ABC values are shown in **Table 1**. The probability of rebuilding by the end of 2039 is 26.4%. The rebuilding probability associated with fishing at F_{MSY} is considerably less than 50%, indicating that the rebuilding parameters of F_{MSY} and 50% probability of success are not compatible for this stock at this time.

In the previous SEDAR assessment, the stock was projected to achieve rebuilding at F_{MSY}. That is unusual, and was addressed in the projections document (SEFSC 2005): "*****Note: In the constant-F projection, the median estimate of F/FMSY was 1.06. This is an unusual result, because in general, F < FMSY is required to bring a depressed population to BMSY. However, this population is estimated to have experienced above-average recruitment in recent years (Fig. 20). This results in an age structure skewed towards younger fish, not vulnerable to fishing. Thus, a slightly higher F than expected can still lead to BMSY in this time frame, although the higher F would not be sustainable indefinitely without a stock decline."

III. ACTION 4. Modify the Commercial Trip Limit for Snowy Grouper

MOTION: MOVE ALTERNATIVES 2 & 3 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

MOTION: MOVE ALTERNATIVES 4-7 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 2. Establish a 250 pound whole weight (lb ww) commercial snowy grouper trip limit May through August from North Carolina through Georgia; no possession allowed the rest of the year. Retain the 100 pound whole weight (lb ww) commercial trip limit in Florida all year.

Alternative 3. Establish a 300 pound whole weight (lb ww) commercial snowy grouper trip limit May through August from North Carolina through Georgia; no possession allowed the rest of the year. Retain the 100 pound whole weight (lb ww) commercial trip limit in Florida all year.

Alternative 4. Establish a 250 pound whole weight (lb ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida; no possession allowed the rest of

the year. Retain the 100 pound whole weight (lb ww) commercial trip limit south of Cape Canaveral, Florida all year.

Alternative 5. Establish a 300 pound whole weight (lb ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida; no possession allowed the rest of the year. Retain the 100 pound whole weight (lb ww) commercial trip limit south of Cape Canaveral, Florida all year.

Alternative 6. Establish a 250 pound whole weight (lb ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida; no possession allowed the rest of the year. Retain the 100 pound whole weight (lb ww) commercial trip limit south of Cape Canaveral, Florida to Marathon, Florida all year.

Alternative 7. Establish a 300 pound whole weight (lb ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida; no possession allowed the rest of the year. Retain the 100 pound whole weight (lb ww) commercial trip limit south of Cape Canaveral, Florida to Marathon, Florida all year.
MOTION: MOVE ALTERNATIVE 8 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 8. Establish a 50 pound whole weight (lb ww) commercial trip limit in all areas once 90% of the commercial ACL has been projected to have been met. Clarify whether this applies to all areas or only the area with the 100 pound whole weight (lb ww) trip limit.

IV. ACTION 5. Modify the Recreational Bag Limit for Snowy Grouper

MOTION: MOVE ALTERNATIVES 3 & 4 UNDER ACTION 5 (RECREATIONAL BAG LIMIT) TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 3. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/person/day May through August and no retention during the rest of the year.
Discussion
Alternative 3 would not be expected to keep recreational landings below the expected recreational ACL based on past catches as shown in Tables 7-10.

Alternative 4. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/person/day.
Discussion
Alternative 4 would not be expected to keep recreational landings below the expected recreational ACL based on past catches as shown in Tables 7-10.

MOTION: MOVE ALTERNATIVE 8 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE

APPROVED BY COUNCIL

Alternative 8. Modify the recreational snowy grouper bag limit as shown above and modify the AM for the snowy grouper recreational sector, such that NMFS will annually announce the recreational fishing season start and end dates in the *Federal Register* and by other methods, as deemed appropriate. The fishing season will start on _____ and end on the date NMFS projects the recreational ACL will be met.

Discussion

Alternative 8 would be expected to keep recreational landings below the expected recreational ACL. However, given that the ACLs are so small and data are so uncertain this would be a very difficult task and uncertain as to whether catches could be held below the recreational ACL.

Appendix B. Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

Discards: Fish captured, but released at sea.

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

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

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

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

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

F: Fishing mortality.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

P*: 'Acceptable' probability of overfishing; an uncertainty buffer between OFL and ABC.

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

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

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

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

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

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

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

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

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

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

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

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

Appendix C. Other Applicable Law

Need to update

1.1 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, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the Federal Register and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it takes effect, with some exceptions. 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.

1.2 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, Regulatory Amendment 21 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 21) and Environmental Assessment are in compliance with the IQA.

1.3 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 actions in Section 4.0, the South Atlantic Council has concluded this amendment would improve federal management of the of the snapper grouper fishery and is consistent to the maximum extent practicable with the Coastal Zone Management Plans of Florida, Georgia, South Carolina, and North Carolina. This determination will be

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.

1.4 Endangered Species Act

The ESA of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies must ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NMFS to consult with the appropriate administrative agency (itself for most marine species, and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They are concluded informally when proposed actions may affect but are "not likely to adversely affect" threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" threatened or endangered species or adversely modify designated critical habitat. NMFS completed a biological opinion (NMFS 2006) in 2006 evaluating the impacts of the continued authorization of the South Atlantic snapper grouper fishery under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) and Amendment 13C to the Snapper Grouper FMP on ESA-listed species (see **Chapter 3**). The opinion stated the fishery was not likely to adversely affect North Atlantic right whale critical habitat, seabirds, or marine mammals (see NMFS 2006 for discussion on these species). However, the opinion did state that the snapper grouper fishery would adversely affect sea turtles and smalltooth sawfish, but would not jeopardize their continued existence. An incidental take statement was issued for green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles, as well as smalltooth sawfish. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them. See NMFS (2006) for a full discussion of impacts to smalltooth sawfish.

Table C-1. Three-year South Atlantic anticipated takes sea turtles in the snapper grouper fishery.

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

Source: NMFS 2006. NMFS (National Marine Fisheries Service). 2006. Endangered Species Act Section 7 consultation on the continued authorization of snapper grouper fishing under the Snapper Grouper FMP and Proposed Amendment 13C. Biological Opinion. June 7.

Sea turtles are vulnerable to capture by bottom longline and vertical hook-and-line gear. The magnitude of the interactions between sea turtles and the South Atlantic snapper grouper fishery was

evaluated in NMFS (2006) using data from the Supplementary Discard Data Program (SDDP). Three loggerheads and three unidentified sea turtles were caught on vertical lines; one leatherback and one loggerhead were caught on bottom longlines, all were released alive. The effort reported in the program represented between approximately 5% and 14% of all South Atlantic snapper-grouper fishing effort. These data were extrapolated in NMFS (2006) to better estimate the number of interactions between the entire snapper-grouper fishery and ESA-listed sea turtles. The extrapolated estimate was used to project future interactions (**Table C-1**).

The SDDP does not provide data on recreational fishing interactions with ESA-listed sea turtle species. However, anecdotal information indicates that recreational fishermen occasionally take sea turtles with hook-and-line gear. The biological opinion also used the extrapolated data from the SDDP to estimate the magnitude of recreational fishing on sea turtles (**Table C-1**).

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

Subsequent to the June 7, 2006, biological opinion, elkhorn and staghorn coral (*Acropora cervicornis* and *Acropora palmata*) were listed as threatened. In a consultation memorandum dated July 9, 2007, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect these *Acropora* species. On November 26, 2008, an *Acropora* critical habitat was designated. In a consultation memorandum dated December 2, 2008, NMFS concluded the continued authorization of the snapper grouper fishery is not likely to adversely affect *Acropora* critical habitat.

Additionally, on September 22, 2011, NMFS and the U.S. Fish and Wildlife Service determined the loggerhead sea turtle population consists of nine distinct population segments (DPSs) (76 FR 58868). Previously, loggerhead sea turtles were listed as threatened species throughout their global range. The snapper-grouper fishery interacts with loggerhead sea turtles from what is now considered the Northwest Atlantic (NWA) DPS, which remains listed as threatened. Five DPSs of Atlantic sturgeon were also listed since the completion of the 2006 biological opinion. In a consultation memorandum dated February 15, 2012, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect the Atlantic sturgeon. The February 15, 2012, memorandum also stated that because the 2006 biological opinion had evaluated the impacts of the fishery on the loggerhead subpopulations now wholly contained within the NWA DPS, the opinion's conclusion that the fishery is not likely to jeopardize the continued existence of loggerhead sea turtles remains valid.

1.5 Executive Order 12612: Federalism

E.O. 12612 requires agencies to be guided by the fundamental federalism principles when formulating and implementing policies that have federalism implications. The purpose of the Order is to guarantee the division of governmental responsibilities between the federal government and the States, as intended by the framers of the Constitution. No federalism issues have been identified relative to the actions proposed

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

1.6 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 fishery management plan (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 Regulatory Flexibility Act. 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. The RIR is included as **Appendix H**.

In accordance with E.O. 12866, the following is set forth by the South Atlantic Council: (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.

1.7 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 South Atlantic 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.

1.8 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.

1.9 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.

1.10 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 NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs.

Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted." A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

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

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are required to obtain a marine mammal authorization by registering with the Marine Mammal Authorization Program (50 CFR

229.4). They are also required to accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans.

The snapper grouper fishery in the South Atlantic is listed as a Category III fishery in the 2014 List of Fisheries (79 FR 14418, March 14, 2014). No incidentally, killed or injured marine mammal species has been documented in this fishery.

1.11 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 listed above, 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 it.

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, NMFS 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 NEPA analyses evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

An MOU was signed on August 15, 2012, which will address the incidental take of migratory birds in commercial fisheries under the jurisdiction of NMFS. NMFS 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.

1.12 National Environmental Policy Act

Regulatory Amendment 21 has been written and organized in a manner that meets National Environmental Policy Act (NEPA) requirements, and thus is a consolidated NEPA document, including a draft 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 Chapter 2.

Affected Environment

The affected environment is described in Chapter 3.

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

1.14 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act (PRA) is to minimize the burden on the public. The PRA is intended to ensure that the information collected under the proposed action is needed and is collected in an efficient manner (44 U.S.C. 3501 (1)). The authority to manage information collection and record keeping requirements is vested with the Director of the Office of OMB. This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications. PRA requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public.

1.15 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, NMFS must determine whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities. If not, a certification to this effect must be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration (SBA). 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 SBA recently modified the small entity size criteria for all major industry sectors in the U.S., including fish harvesters. A business involved in finfish harvesting is classified as a small business if independently owned and operated, is not dominant in its field of operation (including its affiliates), and its combined annual receipts are not in excess of $19.0 million (NAICS code 114111, finfish fishing) for all of its affiliated operations worldwide. For for-hire vessels, all qualifiers apply except that the annual receipts threshold is $7.0 million (NAICS code 487210, recreational industries). The SBA periodically reviews and changes, as appropriate, these size criteria. On June 20, 2013, the SBA issued a final rule revising the small business size standards for several industries effective July 22, 2013 (78 FR 37398). This rule increased the size standard for commercial finfish harvesters from $4.0 million to $19.0 million. Neither this rule, nor other recent SBA rules, changed the size standard for for-hire vessels. The RFA analysis is included as **Appendix H**.

1.16 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, NMFS, in implementing regulations, must make an assessment of how those regulations will affect small businesses.

1.17 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Fishery Conservation and Management Act to require that a 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.

Appendix D. History of Management

Need to update

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

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
FMP (1983)	08/31/83	PR: 48 FR 26843 FR: 48 FR 39463	-12" total length (TL) limit – red snapper, yellowtail snapper, red grouper, Nassau grouper -8" limit – black sea bass -4" trawl mesh size -Gear limitations – poisons, explosives, fish traps, trawls -Designated modified habitats or artificial reefs as Special Management Zones (SMZs)
Regulatory Amendment #1 (1987)	03/27/87	PR: 51 FR 43937 FR: 52 FR 9864	-Prohibited fishing in SMZs except with hand-held hook-and-line and spearfishing gear. -Prohibited harvest of goliath grouper in SMZs.
Amendment #1 (1988a)	01/12/89	PR: 53 FR 42985 FR: 54 FR 1720	-Prohibited trawl gear to harvest fish south of Cape Hatteras, NC and north of Cape Canaveral, FL. -Directed fishery defined as vessel with trawl gear and ≥200 lb s-g on board. -Established rebuttable assumption that vessel with s-g on board had harvested such fish in the exclusive economic zone (EEZ).
Regulatory Amendment #2 (1988b)	03/30/89	PR: 53 FR 32412 FR: 54 FR 8342	-Established 2 artificial reefs off Ft. Pierce, FL as SMZs.
Notice of Control Date	09/24/90	55 FR 39039	-Anyone entering federal wreckfish fishery in the EEZ off S. Atlantic states after 09/24/90 was not assured of future access if limited entry program developed.
Regulatory Amendment #3 (1989)	11/02/90	PR: 55 FR 28066 FR: 55 FR 40394	-Established artificial reef at Key Biscayne, FL as SMZ. Fish trapping, bottom longlining, spear fishing, and harvesting of Goliath grouper prohibited in SMZ.
Amendment #2 (1990a)	10/30/90	PR: 55 FR 31406 FR: 55 FR 46213	-Prohibited harvest/possession of goliath grouper in or from the EEZ -Defined overfishing for goliath grouper and other species

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Emergency Rule	8/3/90	55 FR 32257	-Added wreckfish to the fishery management unit (FMU) -Fishing year beginning 4/16/90 -Commercial quota of 2 million pounds -Commercial trip limit of 10,000 pounds per trip
Fishery Closure Notice	8/8/90	55 FR 32635	- Fishery closed because the commercial quota of 2 million pounds was reached
Emergency Rule Extension	11/1/90	55 FR 40181	-extended the measures implemented via emergency rule on 8/3/90
Amendment #3 (1990b)	01/31/91	PR: 55 FR 39023 FR: 56 FR 2443	-Added wreckfish to the FMU -Defined optimum yield and overfishing -Required permit to fish for, land or sell wreckfish -Required catch and effort reports from selected, permitted vessel; -Established control date of 03/28/90 -Established a fishing year for wreckfish starting April 16 -Established a process to set annual quota, with initial quota of 2 million pounds; provisions for closure -Established 10,000 pound trip limit -Established a spawning season closure for wreckfish from January 15 to April 15 -Provided for annual adjustments of wreckfish management measures
Notice of Control Date	07/30/91	56 FR 36052	-Anyone entering federal snapper grouper fishery (other than for wreckfish) in the EEZ off S. Atlantic states after 07/30/91 was not assured of future access if limited entry program developed.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #4 (1991)	01/01/92	PR: 56 FR 29922 FR: 56 FR 56016	-Prohibited gear: fish traps except black sea bass traps north of Cape Canaveral, FL; entanglement nets; longline gear inside 50 fathoms; bottom longlines to harvest wreckfish; powerheads and bangsticks in designated SMZs off S. Carolina -defined overfishing/overfished and established rebuilding timeframe: red snapper and groupers ≤ 15 years (year 1 = 1991); other snappers, greater amberjack, black sea bass, red porgy ≤ 10 years (year 1 = 1991) -Required permits (commercial & for-hire) and specified data collection regulations -Established an assessment group and annual adjustment procedure (framework) -Permit, gear, and vessel id requirements specified for black sea bass traps -No retention of snapper grouper spp. caught in other fisheries with gear prohibited in snapper grouper fishery if captured snapper grouper had no bag limit or harvest was prohibited. If had a bag limit, could retain only the bag limit -8" TL limit – lane snapper -10" TL limit – vermilion snapper (recreational only) -12" TL limit – red porgy, vermilion snapper (commercial only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany, and silk snappers -20" TL limit – red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers. -28" fork length (FL) limit – greater amberjack (recreational only) -36" FL or 28" core length – greater amberjack (commercial only) -bag limits – 10 vermilion snapper, 3 greater amberjack -aggregate snapper bag limit – 10/person/day, excluding vermilion snapper and allowing no more than 2 red snappers -aggregate grouper bag limit – 5/person/day, excluding Nassau and goliath grouper, for which no retention (recreational & commercial) is allowed -spawning season closure – commercial harvest greater amberjack > 3 fish bag prohibited in April south of Cape Canaveral, FL -spawning season closure – commercial harvest mutton snapper >snapper aggregate prohibited during May and June -charter/headboats and excursion boat possession limits extended

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Amendment #5 (1992a)	04/06/92	PR: 56 FR 57302 FR: 57 FR 7886	-Wreckfish: established limited entry system with individual transferable quotas (ITQs); required dealer to have permit; rescinded 10,000 lb. trip limit; required off-loading between 8 am and 5 pm; reduced occasions when 24-hour advance notice of offloading required for off-loading; established procedure for initial distribution of percentage shares of total allowable catch (TAC)
Emergency Rule	8/31/92	57 FR 39365	-Black Sea Bass (bsb): modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Emergency Rule Extension	11/30/92	57 FR 56522	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #4 (1992b)	07/06/93	FR: 58 FR 36155	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #5 (1992c)	07/31/93	PR: 58 FR 13732 FR: 58 FR 35895	-Established 8 SMZs off S. Carolina, where only hand-held, hook-and-line gear and spearfishing (excluding powerheads) was allowed
Amendment #6 (1993)	07/27/94	PR: 59 FR 9721 FR: 59 FR 27242	-Set up separate commercial TAC levels for golden tilefish and snowy grouper -Established commercial trip limits for snowy grouper, golden tilefish, speckled hind, and warsaw grouper -Included golden tilefish in grouper recreational aggregate bag limits -Prohibited sale of warsaw grouper and speckled hind -100% logbook coverage upon renewal of permit -Creation of the *Oculina* Experimental Closed Area -Data collection needs specified for evaluation of possible future individual fishing quota system
Amendment #7 (1994a)	01/23/95	PR: 59 FR 47833 FR: 59 FR 66270	-12" FL – hogfish -16" TL – mutton snapper -Required dealer, charter and headboat federal permits -Allowed sale under specified conditions -Specified allowable gear and made allowance for experimental gear -Allowed multi-gear trips in NC -Added localized overfishing to list of problems and objectives -Adjusted bag limit and crew specs. for charter and head boats -Modified management unit for scup to apply south of Cape Hatteras, NC -Modified framework procedure
Regulatory Amendment #6 (1994b)	05/22/95	PR: 60 FR 8620 FR: 60 FR 19683	-Established actions which applied only to EEZ off Atlantic coast of FL: Bag limits – 5 hogfish/person/day (recreational only), 2 cubera snapper/person/day > 30" TL; 12" TL – gray triggerfish
Notice of Control Date	04/23/97	62 FR 22995	-Anyone entering federal bsb pot fishery off S. Atlantic states after 04/23/97 was not assured of future access if limited entry program developed

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #8 (1997)	12/14/98	PR: 63 FR 1813 FR: 63 FR 38298	-Established program to limit initial eligibility for snapper grouper fishery: Must demonstrate landings of any species in the snapper grouper (SG) FMU in 1993, 1994, 1995 or 1996; and have held valid SG permit between 02/11/96 and 02/11/97 -Granted transferable permit with unlimited landings if vessel landed ≥ 1,000 pounds (lb) of snapper grouper species in any of the years -Granted non-transferable permit with 225 lb trip limit to all other vessels -Modified problems, objectives, optimum yield (OY), and overfishing definitions -Expanded Council's habitat responsibility -Allowed retention of snapper grouper species in excess of bag limit on permitted vessel with a single bait net or cast nets on board -Allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.
Regulatory Amendment #7 (1998a)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.
Interim Rule Request	1/16/98		-Council requested all Amendment 9 measures except black sea bass pot construction changes be implemented as an interim request under the Magnuson-Stevens Act
Action Suspended	5/14/98		-NMFS informed the Council that action on the interim rule request was suspended
Emergency Rule Request	9/24/98		-Council requested Amendment 9 be implemented via emergency rule
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule

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Amendment #9 (1998b)	2/24/99	PR: 63 FR 63276 FR: 64 FR 3624	-Red porgy: 14" TL (recreational and commercial); 5 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, in March and April -Black sea bass: 10" TL (recreational and commercial); 20 fish rec. bag limit; required escape vents and escape panels with degradable fasteners in bsb pots -Greater amberjack: 1 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, during April; quota = 1,169,931 lb; began fishing year May 1; prohibited coring -Specified size limits for several snapper grouper species (indicated in parentheses in inches TL): including yellowtail snapper (12), mutton snapper (16), red snapper (20); red grouper, yellowfin grouper, yellowmouth grouper, and scamp (20) -Vermilion snapper: 11" TL (recreational), 12" TL commercial -Gag: 24" TL (recreational); no commercial harvest or possession > bag limit, and no purchase or sale, during March and April -Black grouper: 24" TL (recreational and commercial); no harvest or possession > bag limit, and no purchase or sale, during March and April -Gag and Black grouper: within 5 fish aggregate grouper bag limit, no more than 2 fish may be gag or black grouper (individually or in combination) -All snapper grouper without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runner -Vessels with longline gear aboard may only possess snowy, warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish
Amendment #9 (1998b) resubmitted	10/13/00	PR: 63 FR 63276 FR: 65 FR 55203	-Commercial trip limit for greater amberjack
Emergency Interim Rule	09/08/99, expired 08/28/00	64 FR 48324 and 65 FR 10040	-Prohibited harvest or possession of red porgy
Emergency Action	9/3/99	64 FR 48326	-Reopened the Amendment 8 permit application process
Amendment #10 (1998c)	07/14/00	PR: 64 FR 37082 and 64 FR 59152 FR: 65 FR 37292	-Identified essential fish habitat (EFH) and established habitat areas of particular concern (HAPC) for species in the snapper grouper FMU

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Amendment #11 (1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	-Maximum sustainable yield (MSY) proxy: goliath and Nassau grouper = 40% static spawning potential ratio (SPR); all other species = 30% static SPR -OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR -Overfished/overfishing evaluations: BSB: overfished (minimum stock size threshold (MSST)=3.72 mp, 1995 biomass=1.33 mp); undergoing overfishing (maximum fishing mortality threshold (MFMT)=0.72, F1991-1995=0.95) Vermilion snapper: overfished (static SPR = 21-27%). Red porgy: overfished (static SPR = 14-19%). Red snapper: overfished (static SPR = 24-32%) Gag: overfished (static SPR = 27%) Scamp: no longer overfished (static SPR = 35%) Speckled hind: overfished (static SPR = 8-13%) Warsaw grouper: overfished (static SPR = 6-14%) Snowy grouper: overfished (static SPR = 5-15%) White grunt: no longer overfished (static SPR = 29-39%) Golden tilefish: overfished (couldn't estimate static SPR) Nassau grouper: overfished (couldn't estimate static SPR) Goliath grouper: overfished (couldn't estimate static SPR) -overfishing level: goliath and Nassau grouper = F>F40% static SPR; all other species: = F>F30% static SPR Approved definitions for overfished and overfishing. MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. MFMT = F_{MSY}
Regulatory Amendment #8 (2000a)	11/15/00	PR: 65 FR 41041 FR: 65 FR 61114	-Established 12 SMZs at artificial reefs off Georgia; revised boundaries of 7 existing SMZs off Georgia to meet CG permit specs; restricted fishing in new and revised SMZs
Amendment #12 (2000b)	09/22/00	PR: 65 FR 35877 FR: 65 FR 51248	-Red porgy: MSY=4.38 mp; OY=45% static SPR; MFMT=0.43; MSST=7.34 mp; rebuilding timeframe=18 years (1999=year 1); no sale of red porgy during Jan-April; 1 fish bag limit; 50 lb. bycatch comm. trip limit May-December; modified management options and list of possible framework actions
Amendment #13A (2003)	04/26/04	PR: 68 FR 66069 FR: 69 FR 15731	-Extended for an indefinite period the regulation prohibiting fishing for and possessing snapper grouper spp. within the *Oculina* Experimental Closed Area
Notice of Control Date	10/14/05	70 FR 60058	-The Council is considering management measures to further limit participation or effort in the commercial fishery for snapper grouper species (excluding wreckfish)
Amendment #13C (2006)	10/23/06	PR: 71 FR 28841 FR: 71 FR 55096	- End overfishing of snowy grouper, vermilion snapper, black sea bass, and golden tilefish. Increase allowable catch of red porgy. Year 1 = 2006. 1. Snowy Grouper Commercial: Quota = 151,000 lb gutted

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			weight (gw) in year 1, 118,000 lb gw in year 2, and 84,000 lb gw in year 3 onwards. Trip limit = 275 lb gw in year 1, 175 lb gw in year 2, and 100 lb gw in year 3 onwards Recreational: Limit possession to one snowy grouper in 5 grouper per person/day aggregate bag limit. 2. Golden Tilefish Commercial: Quota of 295,000 lb gw, 4,000 lb gw trip limit until 75% of the quota is taken when the trip limit is reduced to 300 lb gw. Do not adjust the trip limit downwards unless 75% is captured on or before September 1. Recreational: Limit possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit. 3. Vermilion Snapper Commercial: Quota of 1,100,000 lb gw. Recreational: 12" TL size limit. 4. Black Sea Bass Commercial: Commercial quota of 477,000 lb gw in year 1, 423,000 lb gw in year 2, and 309,000 lb gw in year 3 onwards. Require use of at least 2" mesh for the entire back panel of black sea bass pots effective 6 months after publication of the final rule. Require black sea bass pots be removed from the water when the quota is met. Change fishing year from calendar year to June 1 – May 31. Recreational: Recreational allocation of 633,000 lb gw in year 1, 560,000 lb gw in year 2, and 409,000 lb gw in year 3 onwards. Increase minimum size limit from 10" to 11" in year 1 and to 12" in year 2. Reduce recreational bag limit from 20 to 15 per person per day. Change fishing year from the calendar year to June 1 through May 31. 5. Red Porgy Commercial and recreational: 1. Retain 14" TL size limit and seasonal closure (retention limited to the bag limit); 2. Specify a commercial quota of 127,000 lb gw and prohibit sale/purchase and prohibit harvest and/or possession beyond the bag limit when quota is taken and/or during January through April; 3. Increase commercial trip limit from 50 lb ww to 120 red porgy (210 lb gw) during May through December; 4. Increase recreational bag limit from one to three red porgy per person per day.
Notice of Control Date	3/8/07	72 FR 60794	-The Council may consider measures to limit participation in the snapper grouper for-hire sector
Amendment #14 (2007)	2/12/09	PR: 73 FR 32281 FR: 74 FR 1621	-Establish eight deepwater Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deepwater snapper grouper species
Amendment #15A (2008a)	3/14/08	73 FR 14942	- Establish rebuilding plans and status determination criteria for snowy grouper, black sea bass, and red porgy
Amendment #15B (2008b)	2/15/10	PR: 74 FR 30569 FR: 74 FR 58902	-Prohibit the sale of bag-limit caught snapper grouper species -Reduce the effects of incidental hooking on sea turtles and smalltooth sawfish -Adjust commercial renewal periods and transferability

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			requirements -Implement plan to monitor and assess bycatch -Establish reference points for golden tilefish -Establish allocations for snowy grouper (95% com & 5% rec) and red porgy (50% com & 50% rec)
Amendment #16 (SAFMC 2009a)	7/29/09	PR: 74 FR 6297 FR: 74 FR 30964	-Specify status determination criteria for gag and vermilion snapper -For gag: Specify interim allocations 51% com & 49% rec; rec & com shallow water grouper spawning closure January through April; directed com quota= 352,940 lb gw; -reduce 5-fish aggregate grouper bag limit, including tilefish species, to a 3-fish aggregate -Captain and crew on for-hire trips cannot retain the bag limit of vermilion snapper and species within the 3-fish grouper aggregate -For vermilion snapper: Specify interim allocations 68% com & 32% rec; directed com quota split Jan-June=315,523 lb gw and 302,523 lb gw July-Dec; reduce bag limit from 10 to 5 and a rec closed season November through March -Require dehooking tools
Amendment #19 (Comprehensive Ecosystem-Based Amendment 1; SAFMC 2009b)	7/22/10	PR: 75 FR 14548 FR: 75 FR 35330	-Provide presentation of spatial information for EFH and EFH-HAPC designations under the Snapper Grouper FMP - Designation of deepwater coral HAPCs
Amendment #17A (SAFMC 2010a)	12/3/10 red snapper closure; circle hooks March 3, 2011	PR: 75 FR 49447 FR: 75 FR 76874	-Required use of non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear north of 28 deg. N latitude in the South Atlantic EEZ -Specify an ACL and an AM for red snapper with management measures to reduce the probability that catches will exceed the stocks' ACL -Specify a rebuilding plan for red snapper -Specify status determination criteria for red snapper -Specify a monitoring program for red snapper
Emergency Rule	12/3/10	75 FR 76890	- Delay the effective date of the area closure for snapper grouper species implemented through Amendment 17A
Amendment #17B (SAFMC 2010b)	January 31, 2011	PR: 75 FR 62488 FR: 75 FR 82280	-Specify ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing -Modify management measures as needed to limit harvest to the ACL or ACT -Update the framework procedure for specification of total allowable catch -Prohibited harvest of 6 deepwater species seaward of 240 feet to curb bycatch of speckled hind and warsaw grouper
Notice of Control Date	12/4/08	74 FR 7849	-Establishes a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic

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Notice of Control Date	12/4/08	74 FR 7849	-Establishes control date for black sea bass pot sector in the South Atlantic
Regulatory Amendment #10 (SAFMC 2010c)	5/31/11	PR: 76 FR 9530 FR: 76 FR 23728	-Eliminate closed area for snapper grouper species approved in Amendment 17A
Regulatory Amendment #9 (SAFMC 2011a)	Bag limit: 6/22/11 Trip limits: 7/15/11	PR: 76 FR 23930 FR: 76 FR 34892	- Establish trip limits for vermilion snapper and gag, increase trip limit for greater amberjack, and reduce bag limit for black sea bass
Regulatory Amendment #11 (2011b)	5/10/12	PR: 76 FR 78879 FR: 77 FR 27374	- Eliminate 240 ft harvest prohibition for six deepwater species
Amendment # 25 (Comprehensive ACL Amendment) (SAFMC 2011c)	4/16/12	PR: 76 FR 74757 Amended PR: 76 FR 82264 FR: 77 FR 15916	-Establish acceptable biological catch (ABC) control rules, establish ABCs, annual catch limits (ACLs), and accountability measures (AMs) for species not undergoing overfishing -Remove some species from South Atlantic FMU and designate others as ecosystem component species -Specify allocations between the commercial and, recreational sectors for species not undergoing overfishing -Limit the total mortality for federally managed species in the South Atlantic to the ACLs
Amendment #24 (SAFMC 2011d)	7/11/12	PR: 77 FR 19169 FR: 77 FR 34254	-Specify MSY, rebuilding plan (including ACLs, AMs, and OY), and allocations for red grouper
Amendment #23 (Comprehensive Ecosystem-based Amendment 2; SAFMC 2011e)	1/30/12	PR: 76 FR 69230 FR: 76 FR 82183	- Designate the Deepwater MPAs as EFH-HAPCs - Limit harvest of snapper grouper species in SC SMZs to the bag limit - Modify sea turtle release gear
Amendment #20B	TBD	TBD	-Update wreckfish ITQ according to reauthorized Magnuson-Stevens Act
Amendment #18A (SAFMC 2012a)	7/1/12	PR: 77 FR 16991 FR: 77FR3 2408	- Limit participation and effort in the black sea bass sector - Modifications to management of the black sea bass pot sector - Improve the accuracy, timing, and quantity of fisheries statistics
Amendment #20A (SAFMC 2012b)	10/26/12	PR: 77 FR 19165 FR: 77 FR 59129	-Redistribute latent shares for the wreckfish ITQ program.

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Regulatory Amendment #12 (SAFMC 2012c)	10/9/12	FR: 77 FR 61295	-Adjust the ACL and OY for golden tilefish -Consider specifying a commercial Annual Catch Target (ACT) -Revise recreational AMs for golden tilefish
Amendment #18B (SAFMC 2013a)	5/23/13	PR: 77 FR 75093 FR: 77 FR 23858	-Limit participation and effort in the golden tilefish commercial sector through establishment of a longline endorsement -Modify trip limits -Specify allocations for gear groups (longline and hook and line)
Amendment # 26 (Comprehensive Ecosystem-Based Amendment 3)	TBD	TBD	-Modify bycatch and discard reporting for commercial and for-hire vessels
Regulatory Amendment #13 (SAFMC 2013b)	7/17/13	PR: 78 FR 17336 FR: 78 FR 36113	-Revise the ABCs, ACLs (including sector ACLs), and ACTs implemented by the Comprehensive ACL Amendment (SAFMC 2011c). The revisions may prevent a disjunction between the established ACLs and the landings used to determine if AMs are triggered.
Regulatory Amendment #14	TBD	TBD	-Modify the fishing year for greater amberjack -Modify the fishing year for black sea bass -Revise the AMs for vermilion snapper and black sea bass -Modify the trip limit for gag
Regulatory Amendment #15 (SAFMC 2013c)	9/12/13	PR: 78 FR 31511 FR: 78 FR 49183	-Modify the existing specification of OY and ACL for yellowtail snapper in the South Atlantic -Modify the existing gag commercial ACL and AM for gag that requires a closure of all other shallow water groupers (black grouper, red grouper, scamp, red hind, rock hind, graysby, coney, yellowmouth grouper, and yellowfin grouper) in the South Atlantic when the gag commercial ACL is met or projected to be met
Regulatory Amendment #16	TBD	TBD	-Consider removal of the November-April prohibition on the use of black sea bass pots
Amendment #27	TBD	TBD	-Establish the South Atlantic Council as the responsible entity for managing Nassau grouper throughout its range including federal waters of the Gulf of Mexico -Modify the crew member limit on dual-permitted snapper grouper vessels -Modify the restriction on retention of bag limit quantities of some snapper grouper species by captain and crew of for-hire vessels -Minimize regulatory delay when adjustments to snapper

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
			grouper species' ABC, ACLs, and ACTs are needed as a result of new stock assessments -Address harvest of blue runner by commercial fishermen who do not possess a South Atlantic Snapper Grouper Permit
Amendment #28 (SAFMC 2013d)	8/23/13	PR: 78 FR 25047 FR: 78 FR 44461	-Establish regulations to allow harvest of red snapper in the South Atlantic
Regulatory Amendment #18 (SAFMC 2013e)	9/5/13	PR: 78 FR 26740 FR: 78 FR 47574	-Adjust ACLs for vermilion snapper and red porgy, and remove the 4-month recreational closure for vermilion snapper
Regulatory Amendment #19 (SAFMC 2013f)	ACL: 9/23/13 Pot closure: 10/23/13	PR: 78 FR 39700 FR: 78 FR 58249	-Adjust the ACL for black sea bass and implement an annual closure on the use of black sea bass pots from November 1 to April 30
Regulatory Amendment #17	TBD	TBD	-Adjust or establish new MPAs to enhance protection of speckled hind and warsaw grouper
Amendment #22	TBD	TBD	-Establish a recreational tagging program for snapper grouper species with small ACLs

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Need to update

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Appendix E. Bycatch Practicability Analysis

Need to update

1 Population Effects for the Bycatch Species

1.1 Background

Regulatory Amendment 21 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 21) would modify the definition of minimum stock size threshold (MSST) for select snapper grouper species with low natural mortality rates. The MSST is a biomass threshold to determine if a stock is overfished and a rebuilding plan is needed. This action is intended to prevent identified snapper grouper stocks with low natural mortality rates from frequently alternating between overfished and rebuilt conditions (SSB_{MSY}) due to natural variation in recruitment and other environmental factors.

The current overfished definition for snapper grouper species addressed by this Regulatory Amendment 21 specified MSST as equal to SSB_{MSY}*(1-M or 0.5, whichever is greater). If the value of the natural mortality for a species is very small, then there is very little difference between the biomass threshold for being overfished (MSST) and the biomass threshold for being rebuilt (SSB_{MSY}). The estimate of natural mortality for species addressed by Regulatory Amendment 21 is very small ranging from 0.08 to 0.23. Therefore, even small fluctuations in biomass due to natural variations not related to fishing related mortality may cause a stock with a low natural mortality estimate to be classified as being overfished. When a species is identified as being overfished, the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that a rebuilding plan be implemented to rebuild the stock biomass to levels above the overfished threshold associated with the biomass at the maximum sustainable yield (SSB_{MSY}).

A number of snapper grouper species with low natural mortality rates have a MSST definition that may cause them to be classified as being overfished when the overfished designation may not be appropriate. Redefining MSST for these species would help prevent overfished designations when small decreases in biomass are due to natural variation in recruitment or other environmental variables, and ensure that rebuilding plans are applied to stocks for which they are truly appropriate.

1.2 Finfish Bycatch Mortality

Release mortality rates are unknown for most managed species. Recent Southeast Data, Assessment, and Review (SEDAR) assessments include estimates of release mortality rates based on published studies. Stock assessment reports can be found at http://www.sefsc.noaa.gov/sedar/.

SEDAR 17 (2008) recommended a release mortality rate for vermilion snapper of 41% for the commercial sector and 38% for the recreational sector. The recent stock assessment for yellowtail snapper chose a rate of 10% release mortality as an approximation for the lower bound on release mortality for yellowtail snapper (FWRI 2012). SEDAR 10 (2006) estimated release mortality rates of 40% and 25% for gag taken by commercial and recreational fishermen, respectively. SEDAR 24 (2010) used release mortality rates of 48% commercial; 41% for-hire, and 39% private recreational for red snapper. Commercial and recreational release mortality rates were estimated as 20% for black grouper

and red grouper in SEDAR 19 (2010). SEDAR 15 (2008) estimated a 20% release mortality rate for greater amberjack. SEDAR 32, which is under development assumes a 12.5% release mortality rate for gray triggerfish. Snowy grouper are primarily caught in water deeper than 300 feet and golden tilefish are taken at depths greater than 540 feet; therefore, release mortality of the species are probably near 100% (SEDAR 4 2004, SEDAR 25 2011).

Release mortality of black sea bass is considered to be low (7% for the recreational sector and 1% for the commercial sector) (SEDAR 25; 2011) indicating minimum size limits are probably an effective management tool for black sea bass. Collins et al. (1999) reported venting of the swim bladder yielded reductions in release mortality of black sea bass, and the benefits of venting increased with capture depth. The same study was analyzed by Wilde (2009) to suggest that venting increased the survival of black sea bass, although this was an exception to the general findings of Wilde's (2009) study. Commercial sector discard mortality for red porgy is 35%, and 8% for the recreational sector (2012 SEDAR 1 Update). SEDAR 32 (2013), estimates discard mortality for blueline tilefish is 100%, consistent with other deepwater species (i.e., snowy grouper, and golden tilefish); however, if new management is implemented to reduce the discard mortality rate, it might be appropriate for population projections to consider something lower than 100% (SEDAR 32 2013).

According to SEDAR 23 (2011), several data workshop participants observed that goliath grouper in the southeastern US (i.e., South Atlantic and Gulf of Mexico waters) are subject to unknown but significant levels of release mortality, especially adult specimens brought up from depth. Fishing mortality due to release mortality also occurs when goliath grouper are caught as incidental catch (i.e., when other species are targeted) and when fishers target (some repeatedly) goliath grouper for catch-and release fishing. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2012b) states that there is very little information on bycatch in the wreckfish portion of the snapper grouper fishery; however, the mortality rate of any released wreckfish is likely to be 100%, because the fish are typically harvested in waters deeper than 300 m (Machias et al. 2003; SAFMC 1991).

1.3 Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality

Expected Impacts on Bycatch for the Regulatory Amendment 21 Action

The preferred alternative and sub-alternative for the action in Regulatory Amendment 21 is not likely to change the current level of bycatch of target or non-target species in the South Atlantic. Modifying the definition of MSST for species with low natural mortality rates is likely to reduce the frequency with which those species are determined to be overfished. Therefore, regulatory discards of the affected species are expected to be reduced in the long-term because the need to implement harvest restrictions in compliance with rebuilding plans triggered by overfished designations may occur less frequently.

An example of the effects this amendment may have on specific stocks is illustrated by the recent overfished designation of blueline tilefish. SEDAR 32 (2013), which assessed blueline tilefish in the South Atlantic, indicates the species is currently overfished when applying the current MSST defined as SSB_{MSY}*(1-M or 0.5, whichever is greater). The National Marine Fisheries Service (NMFS) informed the South Atlantic Fishery Management Council (South Atlantic Council) of the overfished/overfishing

determination in a letter dated December 6, 2013. This notification initiated the development of a rebuilding plan (Amendment 32 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region [Amendment 32]) required by the Magnuson-Stevens Act for overfished species.

The South Atlantic Council's Scientific and Statistical Committee (SSC) has reviewed the blueline tilefish assessment, and though the SSC cannot change the current overfished designation for the species, they did recommend that MSST for blueline tilefish and other species with similarly low natural mortality rates should be redefined as 75%SSB_{MSY}. The SSC made their recommendation based on the premise that the current overfished threshold is slightly below the rebuilt threshold (SSB_{MSY}), which may cause the stock to fluctuate between an overfished and rebuilt condition frequently due to natural environmental conditions. The SSC expressed support for modifying the MSST definition during their October 2013 meeting, and voiced no concern regarding the adoption of this updated management reference point.

During the December 2013 South Atlantic Council meeting, potential impacts of maintaining the status quo definition of MSST were discussed again. South Atlantic Council members agreed that modifying the MSST definition for select species, consistent with the SSC's recommendation, would prevent the previously mentioned fluctuation between overfished and rebuilt conditions while eliminating the need to develop rebuilding plans when they may not be necessary.

This amendment offers two alternatives for a new MSST definition including 75% of SSB_{MSY} (Alternative 2) and 50% of SSB_{MSY} (Alternative 3). If a species is determined to be overfished, and more restrictive harvest limits and management measures are implemented to rebuild the stock, bycatch of the target species may increase as effort may shift to other co-occurring species, while bycatch of non-target species may decrease due to reduced directed fishing effort applied to the overfished stock. The current MSST definition of SSB_{MSY}*(1-M or 0.5, whichever is greater) has the greatest chance of triggering a rebuilding plan, whereas a MSST set at 50% of SSB_{MSY} is least likely to result in an overfished determination. Overall, bycatch of target and non-target species is not expected to significantly increase or decrease under either alternative.

1.4 Past, Current, and Future Actions to Prevent Bycatch and Improve Monitoring of Harvest, Discards, and Discard Mortality.

The Comprehensive Ecosystem-Based Amendment 2 (CE-BA 2; SAFMC 2011c) included actions that removed harvest of octocorals off Florida from the Coral, Coral Reefs, and Live/Hard Bottom Habitat FMP (Coral FMP); set the octocoral annual catch limit (ACL) for Georgia, South Carolina, and North Carolina equal to 0; modified management of special management zones (SMZs) off South Carolina; revised sea turtle release gear requirements for the snapper grouper fishery that were established in Amendment 15B to the Snapper Grouper FMP (SAFMC 2008); and designated new essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern in the South Atlantic. There is no bycatch associated with ocotocoral harvest within the management area of the Coral FMP since harvest is prohibited. CE-BA 2 also included an action that limited harvest and possession of snapper grouper and coastal migratory pelagics (CMP) species to the bag limit in SMZs off South Carolina. This action could reduce bycatch of regulatory discards around SMZs by restricting commercial harvest in the area, but it would probably have very little effect on the magnitude of overall bycatch of snapper grouper species in the South Atlantic.

Other actions have been taken in recently implemented amendments that could reduce bycatch of and bycatch mortality of federally managed species in the South Atlantic. Amendment 13C to the FMP for Snapper Grouper in the South Atlantic Region (Snapper Grouper FMP; SAFMC 2006) required the use of 2-inch mesh in the back panel of black sea bass pots, which has likely reduced the magnitude of regulatory discards. Amendment 16 to the Snapper Grouper FMP (SAFMC 2009) required the use of dehooking devices, which could help reduce bycatch mortality of vermilion snapper, black sea bass, gag, red grouper, black grouper, and red snapper. Dehooking devices can allow fishermen to remove hooks with greater ease and more quickly from snapper grouper species without removing the fish from the water. If a fish does need to be removed from the water, dehookers could still reduce handling time in removing hooks, thus increasing survival (Cooke et al. 2001). Furthermore, Amendment 17A to the Snapper Grouper FMP (SAFMC 2010a) required circle hooks for snapper grouper species north of 28 degrees latitude, which is expected to reduce bycatch mortality of snapper grouper species. Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) established ACLs and accountability measures (AMs) and addressed overfishing for the following species in the snapper grouper management complex that were listed as undergoing overfishing: golden tilefish, snowy grouper, speckled hind, warsaw grouper, black sea bass, gag, red grouper, black grouper, and vermilion snapper. Golden tilefish, black sea bass, red grouper, black grouper, and vermilion snapper are no longer experiencing overfishing.

The Comprehensive ACL Amendment (SAFMC 2011a) implemented ACLs and AMs for species not undergoing overfishing in the FMPs for snapper grouper, dolphin and wahoo, golden crab, and Sargassum, in addition to other actions such as allocations and establishing annual catch targets for the recreational sector. The Comprehensive ACL Amendment (SAFMC 2011a) also established additional measures to reduce bycatch in the snapper grouper fishery with the establishment of species complexes based on biological, geographic, economic, taxonomic, technical, social, and ecological factors. ACLs were assigned to these species complexes, and when the ACL for the complex is met or projected to be met, fishing for species included in the entire species complex is prohibited for the fishing year. ACLs and AMs likely has reduced bycatch of target species and species complexes as well as incidentally caught species.

Amendment 18A to the Snapper grouper FMP (SAFMC 2012a), included actions that could reduce bycatch of black sea bass and the potential for interactions with protected species. Actions in Amendment 18A limits the number of participants in the black sea bass pot sector, requires fishermen bring pots back to port at the completion of a trip, and limits the number of pots a fishermen can deploy. Amendment 24 to the Snapper grouper FMP (SAFMC 2011b) established a rebuilding plan for red grouper, which was overfished and undergoing overfishing. Red grouper is no longer overfished or undergoing overfishing. Amendment 24 (SAFMC 2011b) also established ACLs and AMs for red grouper, which could help to reduce bycatch of red grouper and co-occurring species.

Other amendments are currently under development, which could reduce bycatch of snapper grouper species. The final rule (78 FR 23858; April 23, 2013) for Amendment 18B to the Snapper grouper FMP (SAFMC 2013a), established an endorsement program for the commercial golden tilefish longline sector, which could have positive effects for habitat and protected species. Regulatory Amendment 14 to the Snapper Grouper FMP (SAFMC 2014) includes actions that could adjust management measures for a number of snapper grouper species, some of which could reduce the magnitude of discards. The final rule (78 FR 49183; September 12, 2013) for Regulatory Amendment 15 to the Snapper Grouper FMP (SAFMC 2013b) included actions for yellowtail snapper and gag that are expected to reduce bycatch of

snapper grouper species. Regulatory Amendment 17 to the Snapper Grouper FMP includes actions that affect marine protected areas, and could reduce bycatch of many snapper grouper species, especially speckled hind and warsaw grouper.

The South Atlantic Council's For-Hire Reporting Amendment has changed the reporting frequency by headboats from monthly to weekly, and requires that reports be submitted electronically. The action is expected to provide more timely information on landings and discards. Improved information on landings would help ensure ACLs are not exceeded. Furthermore, more timely and accurate information would be expected to provide a better understanding of the composition and magnitude of catch and bycatch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, and lead to better decisions regarding additional measures to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

The South Atlantic Council will develop a joint amendment with the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council) to require that all federally permitted charter vessels report landings information weekly to the Southeast Fisheries Science Center (SEFSC) electronically. Additionally, the Gulf of Mexico and South Atlantic Councils will also begin development of a joint amendment to require that all federally permitted commercial fishing vessels in the southeast also report their logbook landings information electronically. These future actions will help to improve estimates on the composition and magnitude of catch and bycatch of snapper grouper species affected by Regulatory Amendment 21, as well as all other federally managed species in the southeast region.

Based on the outcome of the new 2013 SEDAR stock assessment for blueline tilefish, and the subsequent determination that the stock is overfished and undergoing overfishing, the South Atlantic Council has requested an emergency rule to remove blueline tilefish from the deepwater complex and modify the commercial and recreational ACLs consistent with the equilibrium yield at $75\%F_{MSY}$. Additionally, long-term management measures for blueline tilefish and a rebuilding plan are being developed in Amendment 32. These actions may reduce harvest of blueline tilefish and, therefore, may also reduce bycatch of non-target species most often harvested with blueline tilefish.

Additional information on fishery related actions from the past, present, and future considerations can be found in Chapter 6 (Cumulative effects) of Regulatory Amendment 21.

1.5 Ecological Effects Due to Changes in the Bycatch

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing efforts. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level. As mentioned in the above section, the South Atlantic For-Hire Reporting Amendment includes an action to enhance landings data reporting in the headboat sector. Better bycatch and discard data would provide a better understanding of the composition and magnitude of catch and bycatch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, and lead to better decisions regarding additional measures to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be

used in multi-species assessments. These improvements in harvest monitoring efforts in the headboat sector, will also be extended to the charter and commercial sectors of all fisheries in the southeast region.

Modifying the definition of MSST for species in the snapper grouper fishery is unlikely to result in significant ecological effects, positive or negative, due to changes in bycatch. Bycatch of target and non-target species is not likely to change unless a snapper grouper species is determined to be overfished under the new MSST definition, which is less likely compared to the status quo. Required reductions in harvest, and subsequent bycatch, of the affected snapper grouper species may not occur as often compared to the status quo because they would be less likely to be designated as overfished when minor shifts in biomass are due to natural environmental fluctuations. Bycatch of target or non-target species would not increase as a result of the action in this amendment.

1.6 Changes in the Bycatch of Other Fish Species and Resulting Population and Ecosystem Effects

Regulatory Amendment 21 is not expected to result in major changes in bycatch of other fish species. The discard mortality rates of various snapper grouper species are discussed in Section 1.2 of this bycatch practicability analysis. Alternatives 2 and 3 would allow biomass to decrease to 75% and 50% of SSB_{MSY}, respectively, before an overfished determination is made. Therefore, these alternatives would be expected to result in maintaining the status quo level of bycatch of non-target species until an overfished determination is made when harvest limits may need to be reduced under a rebuilding plan. Unless the new MSST is met, changes in bycatch of other fish species associated with harvest of the affected snapper grouper species are not expected to change as a result of the action in this amendment.

Effects on Marine Mammals and Birds

Under Section 118 of the Marine Mammal Protection Act (MMPA), NMFS must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishery. Of the gear utilized within the snapper grouper fishery, only the black sea bass pot is considered to pose an entanglement risk to marine mammals. The southeast U.S. Atlantic black sea bass pot sector is included in the grouping of the Atlantic mixed species trap/pot fisheries, which the 2013 LOF classifies as a Category II (78 FR 53336, August 29, 2013). Gear types used in these fisheries are determined to have occasional incidental mortality and serious injury of marine mammals. For the South Atlantic snapper grouper fishery, the best available data on protected species interactions are from the SEFSC Supplementary Discard Data Program (SDDP) initiated in July of 2000. The SDDP sub-samples 20% of the vessels with an active permit. Since August 2001, only three interactions with marine mammals have been documented; each was taken by handline gear and each released alive (McCarthy SEFSC database). The longline and hook-and-line gear components of the snapper grouper in the South Atlantic are classified in the 2013 LOF as Category III fisheries.

Although the black sea bass pot sector can pose an entanglement risk to large whales due to their distribution and occurrence, sperm, fin, sei, and blue whales are unlikely to overlap with the black sea bass pot sector operated within the snapper grouper fishery since it is executed primarily off North Carolina and South Carolina in waters ranging from 70-120 feet deep (21.3-36.6 meters). There are no known interactions between the black sea bass pot sector and large whales. NMFS' biological opinion on

the continued operation of the South Atlantic snapper grouper fishery determined the possible adverse effects resulting from the fishery are extremely unlikely. Thus, the continued operation of the snapper grouper fishery in the southeast U.S. Atlantic exclusive economic zone is not likely to adversely affect sperm, fin, sei, and blue whales (NMFS 2006).

North Atlantic right and humpback whales may overlap both spatially and temporally with the black sea bass pot sector. The 2007 revisions to the Atlantic Large Whale Take Reduction Plan folded the Atlantic mixed species trap/pot fisheries into the plan (72 FR 193; October 5, 2007). The new requirements (78 FR 58249; September 23, 2013) to prohibit the use of black sea bass pots during November through April each year will help further reduce the likelihood of North Atlantic right and humpback whale entanglement in black sea bass pot gear.

The Bermuda petrel and roseate tern occur within the action area. Bermuda petrels are occasionally seen in the waters of the Gulf Stream off the coasts of North Carolina and South Carolina during the summer. Sightings are considered rare and only occurring in low numbers (Alsop 2001). Roseate terns occur widely along the Atlantic coast during the summer but in the southeast region, they are found mainly off the Florida Keys (unpublished US Fish and Wildlife Service data). Interaction with fisheries has not been reported as a concern for either of these species.

Fishing effort reductions have the potential to reduce the amount of interactions between the fishery and marine mammals and birds. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the snapper grouper fishery. Thus, it is believed that the snapper grouper fishery is not likely to negatively affect the Bermuda petrel and the roseate tern.

1.7 Changes in Fishing, Processing, Disposal, and Marketing Costs

The preferred alternative for the action in Regulatory Amendment 21 would redefine MSST for assessed snapper grouper species with low natural mortality rates as 75%SSB_{MSY}. This action is not expected to significantly alter fishing practices, processing, disposal, or marketing costs in the short term. In the long term, it is more likely that current fishing, processing, disposal, and marketing costs would be maintained at their status quo levels, since this action may reduce the instances where species are determined to be overfished. When an overfished determination is made, the Magnuson-Stevens Act requires that a rebuilding plan be implemented within two years of the determination. Rebuilding plans are often associated with reduced harvest levels, and more stringent management measures that could affect fishing, processing, disposal, and marketing costs. The action in this amendment may help to avert such effects on those key elements of the snapper grouper fishery.

Changes in Fishing Practices and Behavior of Fishermen

The Action proposed in Regulatory Amendment 21 is not expected to change fishing practices or fishing behavior, and is likely to have little effect on the overall magnitude of discards. Redefining MSST for select species would be more likely than the no action alternative to maintain the status quo in terms of fishing practices and fishing behavior, because a redefined MSST of 75%SSB_{MSY} would make it less likely that implementation of a rebuilding plan, and subsequent harvest reductions, would be required.

1.8 Social effects of the action proposed in Regulatory Amendment 21 are addressed in Chapter 4 of the amendment.

Social effects of the action proposed in Regulatory Amendment 21 are addressed in Chapter 4 of the amendment.

1.9 Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

The preferred alternative and sub-alternative for the action in Regulatory Amendment 21 is not likely to change the current level of bycatch of target or non-target species in the South Atlantic. Research and monitoring is ongoing to understand the effectiveness of implemented management measures from other snapper grouper amendments and their effect on bycatch. In 1990, the SEFSC initiated a logbook program for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic. In 1999, logbook reporting was initiated for vessels catching king and Spanish mackerel (Gulf of Mexico and South Atlantic Fishery Management Councils). Approximately 20% of commercial fishermen from snapper grouper, dolphin wahoo, and Coastal Migratory Pelagics (CMP) fisheries are asked to fill out discard information in logbooks; however, a greater percentage of fishermen could be selected with emphasis on individuals that dominate landings. Recreational discards are obtained from the MRIP and logbooks from the NMFS headboat program. The preferred alternative in Regulatory Amendment 21 would not change any ongoing or require any new research, administrative, or enforcement costs.

Additional data collection activities for the recreational sector of the snapper grouper, dolphin wahoo, and CMP fisheries are being considered by the South Atlantic Council that could allow for a better monitoring of bycatch in the future. The South Atlantic Council is also developing an amendment to improve commercial logbook reporting for these fisheries. Some observer information for the snapper grouper fishery has been provided by the SEFSC, Marine Fisheries Initiative, and Cooperative Research Programs (CRP), but more is desired for the snapper grouper, dolphin wahoo, and CMP fisheries. Currently, for the snapper grouper fishery, headboats are required to carry observers, if selected.

Cooperative research projects between science and industry are being used to a limited extent to collect bycatch information on the snapper grouper fishery in the South Atlantic. For example, Harris and Stephen (2005) characterized the entire (retained and discarded) catch of reef fishes from a selected commercial fisherman in the South Atlantic including total catch composition and disposition of fishes that were released. The Gulf and South Atlantic Fisheries Foundation, Inc. (Foundation) conducted a fishery observer program within the snapper grouper vertical hook-and-line (bandit rig) fishery of the South Atlantic United States. Through contractors they randomly placed observers on cooperating vessels to collect a variety of data quantifying the participation, gear, effort, catch, and discards within the fishery.

In the spring 2010, Archipelago Marine Research Ltd. worked with North Carolina Sea Grant and several South Atlantic Unlimited Snapper grouper Permit holders to test the effectiveness of electronic video monitoring to measure catch and bycatch. A total of 93 trips were monitored with video monitoring, 34 by self-reported fishing logbooks, and 5 by observers. Comparisons between electronic

video monitoring data and observer data showed that video monitoring was a reliable source of catch and bycatch data.

Research funds for observer programs, as well as gear testing and testing of electronic devices are also available each year in the form of grants from the Foundation, Marine Fisheries Initiative, Saltonstall-Kennedy program, and the CRP. Efforts are made to emphasize the need for observer and logbook data in requests for proposals issued by granting agencies. A condition of funding for these projects is that data are made available to the Councils and NMFS upon completion of a study.

Stranding networks have been established in the Southeast Region. The NMFS SEFSC is the base for the Southeast United States Marine Mammal Stranding Program (http://sero.nmfs.noaa.gov/pr/strandings.htm). NMFS authorizes organizations and volunteers under the MMPA to respond to marine mammal strandings throughout the United States. These organizations form the stranding network whose participants are trained to respond to, and collect samples from live and dead marine mammals that strand along southeastern United State beaches. The SEFSC is responsible for: coordinating stranding events; monitoring stranding rates; monitoring human caused mortalities; maintaining a stranding database for the southeast region; and conducting investigations to determine the cause of unusual stranding events including mass strandings and mass mortalities (http://www.sefsc.noaa.gov/species/mammals/strandings.htm).

The Southeast Regional Office and the SEFSC participate in a wide range of training and outreach activities to communicate bycatch related issues. The NMFS Southeast Regional Office issues public announcements, Southeast Fishery Bulletins, or News Releases on different topics, including use of turtle exclusion devices, bycatch reduction devices, use of methods and devices to minimize harm to turtles and sawfish, information intended to reduce harm and interactions with marine mammals, and other methods to reduce bycatch for the convenience of constituents in the southern United States. These are mailed out to various organizations, government entities, commercial interests, and recreational groups. This information is also included in newsletters and publications that are produced by NMFS and the various regional fishery management councils. Announcements and news releases are also available on the internet and broadcasted over NOAA weather radio.

NMFS established the South East Fishery-Independent Survey in 2010 to strengthen fishery-independent sampling efforts in southeast U.S. waters, addressing both immediate and long-term fishery-independent data needs, with an overarching goal of improving fishery-independent data utility for stock assessments. Meeting these data needs is critical to improving scientific advice to the management process, ensuring overfishing does not occur, and successfully rebuilding overfished stocks on schedule.

1.10 Changes in the Economic, Social, or Cultural Value of Fishing Activities and Non-Consumptive Uses of Fishery Resources

The preferred definition of MSST and the associated natural mortality threshold, and any changes in economic, social, or cultural values are discussed in Chapter 4 of Regulatory Amendment 21.

Changes in the Distribution of Benefits and Costs

The distribution of benefits and costs expected from actions in Regulatory Amendment 21 are discussed in Chapter 3. Economic and social effects of the action proposed in Regulatory Amendment 21 are addressed in Chapter 4 of this document.

1.11 Social Effects

The social effects of all the measures are described in Chapter 4 of Regulatory Amendment 21.

1.12 Conclusion

This section evaluates the practicability of taking additional action to minimize bycatch and bycatch mortality using the ten factors provided at 50 CFR section 600.350(d)(3)(i). In summary, the preferred alternative in Regulatory Amendment 21 is not likely to significantly contribute or detract from the current level of bycatch in the snapper grouper fishery. The South Atlantic Council, NMFS, and the SEFSC have implemented and plan to implement numerous management measures and reporting requirements that have improved, or are likely to improve monitoring efforts of discards and discard mortality.

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Need to update

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Appendix F. Data Analysis to Support Actions and Alternatives

Appendix G. Regulatory Impact Review (economic analysis of preferred alternatives)

Appendix H. Regulatory Flexibility Act Analysis (economic analysis of proposed regulations)

Appendix I. Essential Fish Habitat and Move to Ecosystem Based Management

Need to update

South Atlantic Fishery Management Council Habitat Conservation, Ecosystem Coordination and Collaboration

The Council, using the Essential Fish Habitat Plan as the cornerstone, adopted a strategy to facilitate the move to an ecosystem-based approach to fisheries management in the region. This approach required a greater understanding of the South Atlantic ecosystem and the complex relationships among humans, marine life, and the environment including essential fish habitat. To accomplish this, a process was undertaken to facilitate the evolution of the Habitat Plan into a Fishery Ecosystem Plan (FEP), thereby providing a more comprehensive understanding of the biological, social, and economic impacts of management necessary to initiate the transition from single species management to ecosystem-based management in the region.

Moving to Ecosystem-Based Management

The Council adopted broad goals for Ecosystem-Based Management to include maintaining or improving ecosystem structure and function; maintaining or improving economic, social, and cultural benefits from resources; and maintaining or improving biological, economic, and cultural diversity. Development of a regional FEP (SAFMC 2009a) provided an opportunity to expand the scope of the original Council Habitat Plan and compile and review available habitat, biological, social, and economic fishery and resource information for fisheries in the South Atlantic ecosystem. The South Atlantic Council views habitat conservation as the core of the move to EBM in the region. Therefore, development of the FEP was a natural next step in the evolution and expands and significantly updates the SAFMC Habitat Plan (SAFMC 1998a) incorporating comprehensive details of all managed species (SAFMC, South Atlantic States, ASMFC, and NOAA Fisheries Highly Migratory Species and Protected Species) including their biology, food web dynamics, and economic and social characteristics of the fisheries and habitats essential to their survival. The FEP therefore serves as a source document and presents more complete and detailed information describing the South Atlantic ecosystem and the impact of fisheries on the environment. This FEP updated information on designated Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern; expanded descriptions of biology and status of managed species; presented information that will support ecosystem considerations for managed species; and described the social and economic characteristics of the fisheries in the region. In addition, it expanded the discussion and description of existing research programs and needs to identify biological, social, and economic research needed to fully address ecosystem-based management in the region. It is anticipated that the FEP will provide a greater degree of guidance by fishery, habitat, or major ecosystem consideration of bycatch reduction, prey-predator interactions, maintaining biodiversity, and spatial management needs. This FEP serves as a living source document of biological, economic, and social information for all Fishery Management Plans (FMP). Future Environmental Assessments and Environmental Impact Statements associated with subsequent amendments to Council FMPs will draw from or cite by reference the FEP.

The Fishery Ecosystem Plan for the South Atlantic Region encompasses the following volume structure:
FEP Volume I - Introduction and Overview of FEP for the South Atlantic Region
FEP Volume II - South Atlantic Habitats and Species
FEP Volume III - South Atlantic Human and Institutional Environment
FEP Volume IV - Threats to South Atlantic Ecosystem and Recommendations
FEP Volume V - South Atlantic Research Programs and Data Needs
FEP Volume VI - References and Appendices

Comprehensive Ecosystem-Based Amendment (CE-BA) 1 (SAFMC 2009b) is supported by this FEP and updated EFH and EFH-HAPC information and addressed the Final EFH Rule (e.g., GIS presented for all EFH and EFH-HAPCs). Management actions implemented in CE-BA 1 established deepwater Coral HAPCs to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine, deepwater coral ecosystems in the world.

The Fishery Ecosystem Plan, slated to be revised every 5 years, will again be the vehicle to update and refine information supporting designation and future review of EFH and EFH-HAPCs for managed species. Planning for the update is being conducted in cooperation with the Habitat Advisory Panel during the fall and winter of 2013 with initiation during 2014.

Ecosystem Approach to Deepwater Ecosystem Management

The South Atlantic Council manages coral, coral reefs and live/hard bottom habitat, including deepwater corals, through the Fishery Management Plan for Coral, Coral Reefs and Live/Hard Bottom Habitat of the South Atlantic Region (Coral FMP). Mechanisms exist in the FMP, as amended, to further protect deepwater coral and live/hard bottom habitats. The SAFMC's Habitat and Environmental Protection Advisory Panel and Coral Advisory Panel have supported proactive efforts to identify and protect deepwater coral ecosystems in the South Atlantic region. Management actions in Comprehensive Ecosystem-Based Amendment (CE-BA 1) (SAFMC 2009b) established deepwater coral HAPCs (C- HAPCs) to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine deepwater coral ecosystems in the world. In addition, CE-BA 1 established areas within the CHAPC, which provide for traditional fishing in limited areas, which do not impact deepwater coral habitat. CE-BA 1, supported by the FEP, also addressed non-regulatory updates for existing EFH and EFH- HAPC information and addressed the spatial requirements of the Final EFH Rule (i.e., GIS presented for all EFH and EFH-HAPCs). Actions in this amendment included modifications in the management of the following: octocorals; special management zones (SMZs) off the coast of South Carolina; and sea turtle release gear requirements for snapper grouper fishermen. The amendment also designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPCs).

CE-BA 2 established annual catch limits (ACL) for octocorals in the South Atlantic as well as modifying the Fishery Management Unit (FMU) for octocorals to remove octocorals off the

coast of Florida from the FMU (SAFMC 2011). The amendment also limited the possession of managed species in the SMZs off South Carolina to the recreational bag limit for snapper grouper and coastal migratory pelagic species; modified sea turtle release gear requirements for the snapper grouper fishery based upon freeboard height of vessels; amends Council fishery management plans (FMPs) to designate or modify EFH and EFH-HAPCs, including the FMP for Pelagic Sargassum Habitat; amended the Coral FMP to designate EFH for deepwater Coral HAPCs designated under CE-BA 1; and amended the Snapper Grouper FMP to designate EFH-HAPCs for golden and blueline tilefish and the deepwater Marine Protected Areas. The final rule was published in the federal register on December 30, 2011, and regulations became effective on January 30, 2012.

Building from a Habitat to an Ecosystem Network to Support the Evolution
Starting with our Habitat and Environmental Protection Advisory Panel, the Council expanded and fostered a comprehensive Habitat network in our region to develop the Habitat Plan of the South Atlantic Region completed in 1998 to support the EFH rule. Building on the core regional collaborations, the Council facilitated an expansion to a Habitat and Ecosystem network to support development of the FEP and CE-BA as well as coordinate with partners on other regional efforts.

Integrated Ocean Observing System (IOOS) and Southeast Coastal and Ocean Observing Regional Association (SECOORA)

The Integrated Ocean Observing System (IOOS®) is a partnership among federal, regional, academic, and private sector parties that works to provide new tools and forecasts to improve safety, enhance the economy, and protect our environment. IOOS supplies critical information about our Nation's oceans, coasts, and Great Lakes. Scientists working to understand climate change, governments adapting to changes in the Arctic, municipalities monitoring local water quality, and industries affected by coastal and marine spatial planning all have the same need: reliable, timely, and sustained access to data and information that inform decision making. Improving access to key marine data and information supports several purposes. IOOS data sustain national defense, marine commerce, and navigation safety. Scientists use these data to issue weather, climate, and marine forecasts. IOOS data are also used to make decisions for energy siting and production, economic development, and ecosystem-based resource management. Emergency managers and health officials need IOOS information to make decisions about public safety. Teachers and government officials rely on IOOS data for public outreach, training, and education.

SECOORA is one of 11 Regional Associations established nationwide through the US Integrated Ocean Observing System (IOOS) whose primary source of funding is via US IOOS through a 5-year cooperative agreement titled Coordinated Monitoring, Prediction, and Assessment to Support Decision-Makers Needs for Coastal and Ocean Data and Tools, but was recently awarded funding via a NOAA Regional Ocean Partnership grant through the Governors' South Atlantic Alliance. SECOORA is the regional solution to integrating coastal and ocean observing data in the Southeast United States to inform decision makers and the general public. The SECOORA region encompasses 4 states, over 42 million people, and spans the coastal ocean

from North Carolina to the west Coast of Florida and is creating customized products to address these thematic areas: Marine Operations; Coastal Hazards; Ecosystems, Water Quality, Living Marine Resources; and Climate Change. The Council is a voting member and Council staff was recently re-elected to serve on the Board of Directors for the Southeast Coastal Regional Ocean Observing Association (SECOORA) to guide and direct priority needs for observation and modeling to support fisheries oceanography and integration into stock assessments through SEDAR. Cooperation through SECOORA is envisioned to facilitate the following:

- Refining current or water column designations of EFH and EFH-HAPCs (e.g., Gulf Stream and Florida Current).
- Providing oceanographic models linking benthic, pelagic habitats, and food webs.
- Providing oceanographic input parameters for ecosystem models.
- Integration of OOS information into Fish Stock Assessment process in the SA region.
- Facilitating OOS system collection of fish and fishery data and other research necessary to support the Council's use of area-based management tools in the SA Region including but not limited to EFH, EFH-HAPCs, Marine Protected Areas, Deepwater Coral Habitat Areas of Particular Concern, Special Management Zones, and Allowable Gear Areas.
- Integration of OOS program capabilities and research Needs into the South Atlantic Fishery Ecosystem Plan.
- Collaboration with SECOORA to integrate OOS products with information included in the Council's Habitat and Ecosystem Web Services and Atlas to facilitate model and tool development.
- Expanding Map Services and the Regional Habitat and Ecosystem Atlas in cooperation with SECOORAs Web Services that will provide researchers access to data or products including those collected/developed by SA OOS partners.

SECOORA researchers are developing a comprehensive data portal to provide discovery of, access to, and metadata about coastal ocean observations in the southeast US. Below are various ways to access the currently available data.

One project recently funded by SECOORA initiated development of species specific habitat models that integrate remotely sensed and in situ data to enhance stock assessments for species managed by the Council. The project during 2013/2014 was initiated to address red porgy, gray triggerfish, black seabass, and vermilion snapper. Gray triggerfish and red porgy are slated for assessment through SEDAR in 2014/15 and 2015/16 respectively.

National Fish Habitat Plan and Southeast Aquatic Resource Partnership (SARP)

In addition, the Council serves on the National Habitat Board and, as a member of the Southeast Aquatic Resource Partnership (SARP), has highlighted this collaboration by including the Southeast Aquatic Habitat Plan (SAHP) and associated watershed conservation restoration targets into the FEP. Many of the habitat, water quality, and water quantity conservation needs identified in the threats and recommendations Volume of the FEP are directly addressed by on-the-ground projects supported by SARP. This cooperation results in funding fish habitat restoration and conservation intended to increase the viability of fish populations and fishing opportunity, which also meets the needs to conserve and manage

Essential Fish Habitat for Council managed species or habitat important to their prey. To date, SARP has funded 53 projects in the region through this program. This work supports conservation objectives identified in the SAHP to improve, establish, or maintain riparian zones, water quality, watershed connectivity, sediment flows, bottoms and shorelines, and fish passage, and addresses other key factors associated with the loss and degradation of fish habitats. SARP also developed the Southern Instream Flow Network (SIFN) to address the impacts of flow alterations in the Southeastern US aquatic ecosystems which leverages policy, technical experience, and scientific resources among partners based in 15 states. Maintaining appropriate flow into South Atlantic estuarine systems to support healthy inshore habitats essential to Council managed species is a major regional concern and efforts of SARP through SIFN are envisioned to enhance state and local partners ability to maintain appropriate flow rates.

Governor's South Atlantic Alliance (GSAA)

Initially discussed as a South Atlantic Eco-regional Compact, the Council has also cooperated with South Atlantic States in the formation of a Governor's South Atlantic Alliance (GSAA). This will also provide regional guidance and resources that will address State and Council broader habitat and ecosystem conservation goals. The GSAA was initiated in 2006. An Executive Planning Team (EPT), by the end of 2007, had created a framework for the Governors South Atlantic Alliance. The formal agreement between the four states (NC, SC, GA, and FL) was executed in May 2009. The Agreement specifies that the Alliance will prepare a "Governors South Atlantic Alliance Action Plan" which will be reviewed annually for progress and updated every five years for relevance of content. The Alliance's mission and purpose is to promote collaboration among the four states, and with the support and interaction of federal agencies, academe, regional organizations, non-governmental organizations, and the private sector, to sustain and enhance the region's coastal and marine resources. The Alliance proposes to regionally implement science-based actions and policies that balance coastal and marine ecosystems capacities to support both human and natural systems. The GSAA Action Plan was released in December 2010 and describes the four Priority Issue Areas that were identified by the Governors to be of mutual importance to the sustainability of the region's resources: Healthy Ecosystems; Working Waterfronts; Clean Coastal and Ocean Waters; and Disaster-Resilient Communities. The goals, objectives, actions, and implementation steps for each of these priorities were further described in the GSAA Implementation Plan released in July 2011. The final Action Plan was released on December 1, 2010 and marked the beginning of intensive work by the Alliance Issue Area Technical Teams (IATTs) to develop implementation steps for the actions and objectives. The GSAA Implementation Plan was published July 6, 2011, and the Alliance has been working to implement the Plan through the IATTs and two NOAA-funded Projects. The Alliance also partners with other federal agencies, academia, non-profits, private industry, regional organizations, and others. The Alliance supports both national and state-level ocean and coastal policy by coordinating federal, state, and local entities to ensure the sustainability of the region's economic, cultural, and natural resources. The Alliance has organized itself around the founding principles outlined in the GSAA Terms of Reference and detailed in the GSAA Business Plan. A team of natural resource managers, scientists, and information management system experts have partnered to develop a Regional Information Management System (RIMS) and recommend decision support tools that will support regional

collaboration and decision-making. In addition to regional-level stakeholders, state and local coastal managers and decision makers will also be served by this project, which will enable ready access to new and existing data and information. The collection and synthesis of spatial data into a suite of visualization tools is a critical step for long-term collaborative planning in the South Atlantic region for a wide range of coastal uses. The Council's Atlas presents the spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it can be linked to or drawn on as a critical part of the collaboration with the RIMS.

South Atlantic Landscape Conservation Cooperative

One of the more recent collaborations is the Council's participation as Steering Committee member for the newly establish South Atlantic Landscape Conservation Cooperative (SALCC). Landscape Conservation Cooperatives (LCCs) are applied conservation science partnerships focused on a defined geographic area that informs on-the-ground strategic conservation efforts at landscape scales. LCC partners include DOI agencies, other federal agencies, states, tribes, non-governmental organizations, universities, and others. The newly formed Department of Interior Southeast Climate Services Center (CSC) has the LCCs in the region as their primary clients. One of the initial charges of the CSCs is to downscale climate models for use at finer scales.

The SALCC developed a Strategic Plan through an iterative process that began in December 2011. The plan provides a simple strategy for moving forward over the next few years. An operations plan was developed under direction from the SALCC Steering Committee to redouble efforts to develop version 1.0 of a shared conservation blueprint by spring-summer of 2014. The SALCC is developing the regional blueprint to address the rapid changes in the South Atlantic including but not limited to climate change, urban growth, and increasing human demands on resources which are reshaping the landscape. While these forces cut across political and jurisdictional boundaries, the conservation community does not have a consistent cross-boundary, cross-organization plan for how to respond. The South Atlantic Conservation Blueprint will be that plan. The blueprint is envisioned to be a spatially-explicit map depicting the places and actions need to sustain South Atlantic LCC objectives in the face of future change. The steps to creating the blueprint include development of: indicators and targets (shared metrics of success); the State of the South Atlantic (past, present, and future condition of indicators); and a Conservation Blueprint. Potential ways the blueprint could be used include: finding the best places for people and organizations to work together; raising new money to implement conservation actions; guiding infrastructure development (highways, wind, urban growth, etc.); creating incentives as an alternative to regulation; bringing a landscape perspective to local adaptation efforts; and locating places and actions to build resilience after major disasters (hurricanes, oil spills, etc.). Integration of connectivity, function, and threats to river, estuarine and marine systems supporting Council managed species is supported by the SALCC and enhanced by the Council being a voting member of its Steering Committee.

In addition, the Council's Regional Atlas presents spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it be linked to or drawn on as a critical part of the collaboration with the recently developed SALCC Conservation Planning Atlas.

Building Tools to support EBM in the South Atlantic Region

The Council has developed a Habitat and Ecosystem Section of the website http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx and, in cooperation with the Florida Wildlife Research Institute (FWRI), developed a Habitat and Ecosystem Internet Map Server (IMS). The IMS was developed to support Council and regional partners' efforts in the transition to EBM. Other regional partners include NMFS Habitat Conservation, South Atlantic States, local management authorities, other Federal partners, universities, conservation organizations, and recreational and commercial fishermen. As technology and spatial information needs evolved, the distribution and use of GIS demands greater capabilities. The Council has continued its collaboration with FWRI in the now evolution to Web Services provided through the regional SAFMC Habitat and Ecosystem Atlas (http://ocean.floridamarine.org/safmc_atlas/) and the SAFMC Digital Dashboard (http://ocean.floridamarine.org/safmc_dashboard/). The Atlas integrates services for the following:

Species distribution and spatial presentation of regional fishery independent data from the SEAMAP-SA, MARMAP, and NOAA SEFIS systems; SAFMC Fisheries: (http://ocean.floridamarine.org/SA_Fisheries/)

Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern; SAFMC EFH: (http://ocean.floridamarine.org/sa_efh/)

Spatial presentation of managed areas in the region; SAFMC Managed Areas: (http://ocean.floridamarine.org/safmc_managedareas/)

An online life history and habitat information system supporting Council managed, State managed, and other regional species was developed in cooperation with FWRI. The Ecospecies system is considered dynamic and presents, as developed, detailed individual species life history reports and provides an interactive online query capability for all species included in the system: http://atoll.floridamarine.org/EcoSpecies

Web Services System Updates:
Essential Fish Habitat (EFH) – displays EFH and EFH-HAPCS for SAFMC managed species and NOAA Fisheries Highly Migratory Species.
Fisheries - displays Marine Resources Monitoring, Assessment, and Prediction (MARMAP) and Southeast Area Monitoring and Assessment Program South Atlantic (SEAMAP-SA) data.
Managed Areas - displays a variety of regulatory boundaries (SAFMC and Federal) or management boundaries within the SAFMC's jurisdiction.
Habitat – displays habitat data collected by SEADESC, Harbor Branch Oceanographic Institute (HBOI), and Ocean Exploration dives, as well as the SEAMAP shallow and ESDIM deepwater bottom mapping projects, multibeam imagery, and scientific cruise data.

Multibeam Bathymetry - displays a variety of multibeam data sources and scanned bathymetry charts.
Nautical Charts – displays coastal, general, and overview nautical charts for the SAFMC's jurisdictional area.

Ecosystem Based Action, Future Challenges and Needs

The Council has implemented ecosystem-based principles through several existing fishery management actions including establishment of deepwater Marine Protected Areas for the Snapper Grouper fishery, proactive harvest control rules on species (e.g., dolphin and wahoo) which are not overfished, implementing extensive gear area closures which in most cases eliminate the impact of fishing gear on Essential Fish Habitat, and use of other spatial management tools including Special Management Zones. Pursuant to development of the Comprehensive Ecosystem-Based Amendment, the Council has taken an ecosystem approach to protect deepwater ecosystems while providing for traditional fisheries for the Golden Crab and Royal Red shrimp in areas where they do not impact deepwater coral habitat. The stakeholder based process taps in on an extensive regional Habitat and Ecosystem network. Support tools facilitate Council deliberations and with the help of regional partners, are being refined to address long-term ecosystem management needs.

One of the greatest challenges to the long-term move to EBM in the region is funding high priority research, including but not limited to, comprehensive benthic mapping and ecosystem model and management tool development. In addition, collecting detailed information on fishing fleet dynamics including defining fishing operation areas by species, species complex, and season, as well as catch relative to habitat is critical for assessment of fishery, community, and habitat impacts and for Council use in place based management measures. Additional resources need to be dedicated to expand regional coordination of modeling, mapping, characterization of species use of habitats, and full funding of regional fishery independent surveys (e.g., MARMAP, SEAMAP, and SEFIS) which are linking directly to addressing high priority management needs. Development of ecosystem information systems to support Council management should build on existing tools (e.g., Regional Habitat and Ecosystem GIS and Arc Services) and provide resources to regional cooperating partners for expansion to address long-term Council needs.

The FEP and CE-BA 1 complement, but do not replace, existing FMPs. In addition, the FEP serves as a source document to the CE-BAs. NOAA should support and build on the regional coordination efforts of the Council as it transitions to a broader management approach. Resources need to be provided to collect information necessary to update and refine our FEP and support future fishery actions including but not limited to completing one of the highest priority needs to support EBM, the completion of mapping of near-shore, mid-shelf, shelf edge, and deepwater habitats in the South Atlantic region. In developing future FEPs, the Council will draw on SAFEs (Stock Assessment and Fishery Evaluation reports) which NMFS is required to provide the Council for all FMPs implemented under the Magnuson-Stevens Act. The FEP,

which has served as the source document for CE-BAs, could also meet some of the NMFS SAFE requirements if information is provided to the Council to update necessary sections.

EFH and EFH-HAPC Designations Translated to Cooperative Habitat Policy Development and Protection

The Council actively comments on non-fishing projects or policies that may impact fish habitat. Appendix A of the Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (SAFMC 1998b) outlines the Council's comment and policy development process and the establishment of a four-state Habitat Advisory Panel. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. AP members bring projects to the Council's attention, draft comment letters, and attend public meetings. With guidance from the Advisory Panel, the Council has developed and approved policies on:

1. Energy exploration, development, transportation, and hydropower re-licensing;
2. Beach dredging and filling and large-scale coastal engineering;
3. Protection and enhancement of submerged aquatic vegetation;
4. Alterations to riverine, estuarine, and nearshore flows;
5. Marine aquaculture;
6. Marine Ecosystems and Non-Native and Invasive Species: and
7. Estuarine Ecosystems and Non-Native and Invasive Species.

NOAA Fisheries, State and other Federal agencies apply EFH and EFH-HAPC designations and protection policies in the day-to-day permit review process. The revision and updating of existing habitat policies and the development of new policies is being coordinated with core agency representatives on the Habitat and Coral Advisory Panels. Existing policies are included at the end of this Appendix.

The Habitat and Environmental Protection Advisory Panel, as part of their role in providing continued policy guidance to the Council, is during 2013/14, reviewing and proposing revisions and updates to the existing policy statements and developing new ones for Council consideration. The effort is intended to enhance the value of the statements and support cooperation and collaboration with NOAA Fisheries Habitat Conservation Division and State and Federal partners in better addressing the Congressional mandates to the Council associated with designation and conservation of EFH in the region.

South Atlantic Bight Ecopath Model

The Council worked cooperatively with the University of British Columbia and the Sea Around Us project to develop a straw-man and preliminary food web models (Ecopath with Ecosim) to characterize the ecological relationships of South Atlantic species, including those managed by the Council. This effort was envisioned to help the Council and cooperators in identifying available information and data gaps while providing insight into ecosystem function. More importantly, the model development process provides a vehicle to identify research necessary to better define populations, fisheries, and their interrelationships. While individual efforts are still

underway in the South Atlantic, only with significant investment of new resources through other programs will a comprehensive regional model be further developed.

The latest collaboration builds on the previous Ecopath model developed through the Sea Around Us project for the South Atlantic Bight with a focus on beginning a dialogue on the implications of potential changes in forage fish populations in the region that could be associated with environmental or climate change or changes in direct exploitation of those populations.

Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern
Following is a summary of the current South Atlantic Council's EFH and EFH-HAPCs. Information supporting their designation was updated (pursuant to the EFH Final Rule) in the Council's Fishery Ecosystem Plan and Comprehensive Ecosystem Amendment:

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

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

Areas which meet the criteria for EFH-HAPCs for species in the snapper-grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the *Oculina* Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs). In addition, the Council through CEBA 2

(SAFMC 2011) designated the deepwater snapper grouper MPAs and golden tilefish and blueline tilefish habitat as EFH-HAPCs under the Snapper Grouper FMP as follows:

EFH-HAPCs for golden tilefish to include irregular bottom comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom. Mud-clay bottoms in depths of 150-300 meters are HAPC. Golden tilefish are generally found in 80-540 meters, but most commonly found in 200-meter depths.

EFH-HAPC for blueline tilefish to include irregular bottom habitats along the shelf edge in 45-65 meters depth; shelf break or upper slope along the 100-fathom contour (150-225 meters); hardbottom habitats characterized as rock overhangs, rock outcrops, manganese-phosphorite rock slab formations, or rocky reefs in the South Atlantic Bight; and the Georgetown Hole (Charleston Lumps) off Georgetown, SC.

EFH-HAPCs for the snapper grouper complex to include the following deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.

Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 are designated as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

Shrimp FMP

For penaeid shrimp, Essential Fish Habitat includes inshore estuarine nursery areas, offshore marine habitats used for spawning and growth to maturity, and all interconnecting water bodies as described in the Habitat Plan. Inshore nursery areas include tidal freshwater (palustrine), estuarine, and marine emergent wetlands (e.g., intertidal marshes); tidal palustrine forested areas; mangroves; tidal freshwater, estuarine, and marine submerged aquatic vegetation (e.g., seagrass); and subtidal and intertidal non- vegetated flats. This applies from North Carolina through the Florida Keys.

For rock shrimp, essential fish habitat consists of offshore terrigenous and biogenic sand bottom habitats from 18 to 182 meters in depth with highest concentrations occurring between 34 and 55 meters. This applies for all areas from North Carolina through the Florida Keys. Essential fish habitat includes the shelf current systems near Cape Canaveral, Florida, which provide major transport mechanisms affecting planktonic larval rock shrimp. These currents keep larvae on the Florida Shelf and may transport them inshore in spring. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse rock shrimp larvae.

Essential fish habitat for royal red shrimp include the upper regions of the continental slope from 180 meters (590 feet) to about 730 meters (2,395 feet), with concentrations found at depths of between 250 meters (820 feet) and 475 meters (1,558 feet) over blue/black mud, sand, muddy

sand, or white calcareous mud. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse royal red shrimp larvae.

Areas which meet the criteria for EFH-HAPCs for penaeid shrimp include all coastal inlets, all state-designated nursery habitats of particular importance to shrimp (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas), and state-identified overwintering areas.

Coastal Migratory Pelagics FMP

Essential fish habitat for coastal migratory pelagic species includes sandy shoals of capes and offshore bars, high profile rocky bottom, and barrier island ocean-side waters, from the surf to the shelf break zone, but from the Gulf Stream shoreward, including *Sargassum*. In addition, all coastal inlets and all state-designated nursery habitats of particular importance to coastal migratory pelagics (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas).

For Cobia essential fish habitat also includes high salinity bays, estuaries, and seagrass habitat. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse coastal migratory pelagic larvae.

For king and Spanish mackerel and cobia essential fish habitat occurs in the South Atlantic and Mid-Atlantic Bights.

Areas which meet the criteria for EFH-HAPCs include sandy shoals of Capes Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf stream; The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the ELMR Program. Estuaries meeting this criteria for Spanish mackerel include Bogue Sound and New River, North Carolina; Bogue Sound, North Carolina (Adults May-September salinity >30 ppt); and New River, North Carolina (Adults May-October salinity >30 ppt). For Cobia they include Broad River, South Carolina; and Broad River, South Carolina (Adults & juveniles May-July salinity >25ppt).

Golden Crab FMP

Essential fish habitat for golden crab includes the U.S. Continental Shelf from Chesapeake Bay south through the Florida Straits (and into the Gulf of Mexico). In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse golden crab larvae. The detailed description of seven essential fish habitat types (a flat foraminferan ooze habitat; distinct mounds, primarily of dead coral; ripple habitat; dunes; black pebble habitat; low outcrop; and soft-bioturbated habitat) for golden crab is provided in Wenner et al. (1987). There is insufficient

knowledge of the biology of golden crabs to identify spawning and nursery areas and to identify HAPCs at this time. As information becomes available, the Council will evaluate such data and identify HAPCs as appropriate through the framework.

Spiny Lobster FMP
Essential fish habitat for spiny lobster includes nearshore shelf/oceanic waters; shallow subtidal bottom; seagrass habitat; unconsolidated bottom (soft sediments); coral and live/hard bottom habitat; sponges; algal communities (*Laurencia*); and mangrove habitat (prop roots). In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse spiny lobster larvae.

Areas which meet the criteria for EFH-HAPCs for spiny lobster include Florida Bay, Biscayne Bay, Card Sound, and coral/hard bottom habitat from Jupiter Inlet, Florida through the Dry Tortugas, Florida.

Coral, Coral Reefs, and Live/Hard Bottom Habitats FMP
Essential fish habitat for corals (stony corals, octocorals, and black corals) incorporate habitat for over 200 species. EFH for corals include the following:

A. Essential fish habitat for hermatypic stony corals includes rough, hard, exposed, stable substrate from Palm Beach County south through the Florida reef tract in subtidal waters to 30 m depth; subtropical (15°-35° C), oligotrophic waters with high (30-35$^{o}/_{oo}$) salinity and turbidity levels sufficiently low enough to provide algal symbionts adequate sunlight penetration for photosynthesis. Ahermatypic stony corals are not light restricted and their essential fish habitat includes defined hard substrate in subtidal to outer shelf depths throughout the management area.

B. Essential fish habitat for *Antipatharia* (black corals) includes rough, hard, exposed, stable substrate, offshore in high (30-35$^{o}/_{oo}$) salinity waters in depths exceeding 18 meters (54 feet), not restricted by light penetration on the outer shelf throughout the management area.

C. Essential fish habitat for octocorals excepting the order Pennatulacea (sea pens and sea pansies) includes rough, hard, exposed, stable substrate in subtidal to outer shelf depths within a wide range of salinity and light penetration throughout the management area.

D. Essential fish habitat for Pennatulacea (sea pens and sea pansies) includes muddy, silty bottoms in subtidal to outer shelf depths within a wide range of salinity and light penetration.

Areas which meet the criteria for EFH-HAPCs for coral, coral reefs, and live/hard bottom include: The 10-Fathom Ledge, Big Rock, and The Point (North Carolina); Hurl Rocks and The Charleston Bump (South Carolina); Gray's Reef National Marine Sanctuary (Georgia); The *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; Oculina Banks off the east coast of Florida from Ft. Pierce to Cape Canaveral; nearshore (0-4 meters; 0-12 feet) hard bottom off the east coast of Florida from Cape Canaveral to Broward County); offshore (5-30 meter; 15-90 feet) hard bottom off the east coast of Florida from Palm Beach County to Fowey

Rocks; Biscayne Bay, Florida; Biscayne National Park, Florida; and the Florida Keys National Marine Sanctuary. In addition, the Council through CEBA 2 (SAFMC 2011) designated the Deepwater Coral HAPCs as EFH-HAPCs under the Coral FMP as follows:

Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

Dolphin and Wahoo FMP

EFH for dolphin and wahoo is the Gulf Stream, Charleston Gyre, Florida Current, and pelagic *Sargassum*. This EFH definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (SAFMC 1998b) (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

Areas which meet the criteria for EFH-HAPCs for dolphin and wahoo in the Atlantic include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet (Florida); The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; and Pelagic *Sargassum*. This EFH-HAPC definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

Pelagic *Sargassum* Habitat FMP

The Council through CEBA 2 (SAFMC 2011) designated the top 10 meters of the water column in the South Atlantic EEZ bounded by the Gulfstream, as EFH for pelagic Sargassum.

Actions Implemented That Protect EFH and EFH-HAPCs

Snapper Grouper FMP

- Prohibited the use of the following gears to protect habitat: bottom longlines in the EEZ inside of 50 fathoms or anywhere south of St. Lucie Inlet, Florida; bottom longlines in the wreckfish fishery; fish traps; bottom tending (roller- rig) trawls on live bottom habitat; and entanglement gear.
- Established the *Oculina* Experimental Closed Area where the harvest or possession of all species in the snapper grouper complex is prohibited.

Established deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.

Shrimp FMP

- Prohibition of rock shrimp trawling in a designated area around the *Oculina* Bank,
- Mandatory use of bycatch reduction devices in the penaeid shrimp fishery,
- Mandatory Vessel Monitoring System (VMS) in the Rock Shrimp Fishery.
- A mechanism that provides for the concurrent closure of the EEZ to penaeid shrimping if environmental conditions in state waters are such that the overwintering spawning stock is severely depleted.

Pelagic *Sargassum* Habitat FMP

- Prohibited all harvest and possession of *Sargassum* from the South Atlantic EEZ south of the latitude line representing the North Carolina/South Carolina border (34° North Latitude).
- Prohibited all harvest of *Sargassum* from the South Atlantic EEZ within 100 miles of shore between the 34° North Latitude line and the Latitude line representing the North Carolina/Virginia border.
- Harvest of *Sargassum* from the South Atlantic EEZ is limited to the months of November through June.
- Established an annual Total Allowable Catch (TAC) of 5,000 pounds landed wet weight.
- Required that an official observer be present on each *Sargassum* harvesting trip. Require that nets used to harvest *Sargassum* be constructed of four inch stretch mesh or larger fitted to a frame no larger than 4 feet by 6 feet.

Coastal Migratory Pelagics FMP

- Prohibited of the use of drift gillnets in the coastal migratory pelagic fishery.

Golden Crab FMP

- In the northern zone, golden crab traps can only be deployed in waters deeper than 900 feet; in the middle and southern zones traps can only be deployed in waters deeper than 700 feet.

Northern zone - north of the 28°N. latitude to the North Carolina/Virginia border;
Middle zone - 28°N. latitude to 25° N. latitude; and
Southern zone - south of 25°N. latitude to the border between the South Atlantic and Gulf of Mexico Fishery Management Councils.

Coral, Coral Reefs and Live/Hard Bottom FMP

- Established an optimum yield of zero and prohibiting all harvest or possession of these resources which serve as essential fish habitat to many managed species.
- Designated the *Oculina* Bank Habitat Area of Particular Concern.
- Expanded the *Oculina* Bank Habitat Area of Particular Concern (HAPC) to an area bounded to the west by 80°W. longitude, to the north by 28°30' N. latitude, to the south by 27°30' N. latitude, and to the east by the 100 fathom (600 feet) depth contour.
- Established the following two Satellite *Oculina* HAPCs: (1) Satellite *Oculina* HAPC #1 is bounded on the north by 28°30'N. latitude, on the south by 28°29'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude; and (2) Satellite *Oculina* HAPC #2 is bounded on the north by 28°17'N. latitude, on the south by 28°16'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude.

- Prohibited the use of all bottom tending fishing gear and fishing vessels from anchoring or using grapples in the *Oculina* Bank HAPC.
- Established a framework procedure to modify or establish Coral HAPCs.
- Established the following five deepwater CHAPCs:

Cape Lookout Lophelia Banks CHAPC;
Cape Fear Lophelia Banks CHAPC;
Stetson Reefs, Savannah and East Florida Lithoherms, and Miami Terrace (Stetson- Miami Terrace) CHAPC;
Pourtales Terrace CHAPC; and
Blake Ridge Diapir Methane Seep CHAPC.

- Within the deepwater CHAPCs, the possession of coral species and the use of all bottom damaging gear are prohibited including bottom longline, trawl (bottom and mid-water), dredge, pot or trap, or the use of an anchor, anchor and chain, or grapple and chain by all fishing vessels.

South Atlantic Council Policies for Protection and Restoration of Essential Fish Habitat
SAFMC Habitat and Environmental Protection Policy

In recognizing that species are dependent on the quantity and quality of their essential habitats, it is the policy of the SAFMC to protect, restore, and develop habitats upon which fisheries species depend; to increase the extent of their distribution and abundance; and to improve their productive capacity for the benefit of present and future generations. For purposes of this policy, "habitat" is defined as the physical, chemical, and biological parameters that are necessary for continued productivity of the species that is being managed. The objectives of the SAFMC policy will be accomplished through the recommendation of no net loss or significant environmental degradation of existing habitat. A long-term objective is to support and promote a net-gain of fisheries habitat through the restoration and rehabilitation of the productive capacity of habitats that have been degraded, and the creation and development of productive habitats where increased fishery production is probable. The SAFMC will pursue these goals at state, Federal, and local levels. The Council shall assume an aggressive role in the protection and enhancement of habitats important to fishery species, and shall actively enter Federal, decision making processes where proposed actions may otherwise compromise the productivity of fishery resources of concern to the Council.

SAFMC EFH Policy Statements

In addition to implementing regulations to protect habitat from fishing related degradation, the Council in cooperation with NOAA Fisheries, actively comments on non-fishing projects or policies that may impact fish habitat. The Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. With guidance from the Advisory Panel, the Council has developed and approved a number of habitat policy statements which are available on the Habitat and Ecosystem section of the Council website (http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx).

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SAFMC (South Atlantic Fishery Management Council). 2009b. Comprehensive Ecosystem-Based Amendment 1 for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201; North Charleston, SC 29405.

SAFMC (South Atlantic Fishery Management Council). 2011. Comprehensive Ecosystem-Based Amendment 2 for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201; North Charleston, SC 29405.

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