Vision Blueprint Recreational Regulatory Amendment 26

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

The Vision Blueprint Recreational Regulatory Amendment 26 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region would address specific action items in the 2016-2020 Vision Blueprint for the Recreational Sector of the Snapper Grouper Fishery of the South Atlantic Region.

MAY 22, 2017 DRAFT

South Atlantic Fishery Management Council
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Award Number FNA15NMF4410010

Abbreviations and Acronyms Used in the FMP

ABC	acceptable biological catch
ACL	annual catch limits
AM	accountability measures
ACT	annual catch target
B	a measure of stock biomass in either weight or other appropriate unit
B_{MSY}	the stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}
B_{OY}	the stock biomass expected to exist under equilibrium conditions when fishing at F_{OY}
B_{CURR}	the current stock biomass
CPUE	catch per unit effort
DEIS	draft environmental impact statement
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
F	a measure of the instantaneous rate of fishing mortality
$F_{30\%SPR}$	fishing mortality that will produce a static SPR = 30%
F_{CURR}	the current instantaneous rate of fishing mortality
F_{MSY}	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}
F_{OY}	the rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of B_{OY}
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
RFA	Regulatory Flexibility Act
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

Vision Blueprint Recreational Regulatory Amendment 26 for the Snapper Grouper Fishery of the South Atlantic Region

Proposed action:	The actions are to modify recreational regulations such as aggregate bag limits, seasonal closures, and minimum size limits for species in the snapper grouper fishery.
Lead agency:	FMP Actions – South Atlantic Fishery Management Council Environmental Assessment – National Marine Fisheries Service (NMFS) Southeast Regional Office
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What actions are being proposed in this amendment?

Vision Blueprint Recreational Regulatory Amendment 26 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) proposes the following 7 actions for snapper grouper species in the South Atlantic Region:

1. Establish a recreational aggregate bag limit and recreational season for deep-water species

Currently: Aggregate Snapper Bag Limit: Ten (10) snapper per person/day year-round including the following species: lane, yellowtail, gray, mutton, queen, blackfin, cubera (<30 inches; max. 2 per person but no more than 2 per vessel > 30 inches total length (TL) off Florida), and silk. The following species are excluded from the aggregate: vermilion snapper and red snapper.

Aggregate Grouper Bag Limit: Three (3) groupers per person/day including: gag1, black1, snowy2, misty, red, scamp, yellowedge, yellowfin, yellowmouth, blueline tilefish3, sand tilefish, golden tilefish4, coney, graysby, red hind, and rock hind. Shallow-water grouper (gag, black, red, scamp, yellowfin, yellowmouth, red hind, rock rind, graysby, coney) harvest only allowed May 1 through December 31.

1Maximum of 1 gag or black grouper (but not both) per person/day with harvest allowed May 1 through December 31.

2Maximum of 1 snowy grouper per vessel per day; recreational harvest allowed only May 1 through August 31 (closed September 1 through April 30)

3Blueline tilefish harvest allowed only May 1 through August 31 (closed September 1 through April 30)

4Maximum of 1 golden tilefish per person per day year-round

Preferred Alternative X

2. Establish a recreational aggregate bag limit for shallow-water grouper species

Currently Aggregate Grouper Bag Limit: Three (3) groupers per person/day including: gag1, black1, snowy2, misty, red, scamp, yellowedge, yellowfin, yellowmouth, blueline tilefish3, sand tilefish, golden tilefish4, coney, graysby, red hind, and rock hind. Shallow -water grouper (gag, black, red, scamp, yellowfin, yellowmouth, red hind, rock rind, graysby, coney) harvest only allowed May 1 through December 31.

1Maximum of 1 gag or black grouper (but not both) per person/day with harvest allowed May 1 through December 31.

2Maximum of 1 snowy grouper per vessel per day; recreational harvest allowed only May 1 through August 31 (closed September 1 through April 30)

3Blueline tilefish harvest allowed only May 1 through August 31 (closed September 1 through April 30)

4Maximum of 1 golden tilefish per person per day year-round

Preferred Alternative . X

3. Modify the 10-snapper and 20-fish recreational aggregate bag limits

Currently: Aggregate Snapper Bag Limit: Ten (10) snapper per person/day year-round including the following species: lane, yellowtail, gray, mutton, queen, blackfin, cubera (<30 inches; max. 2 per person but no more than 2 per vessel > 30 inches total length (TL) off Florida), and silk. The following species are excluded from the aggregate: vermilion snapper and red snapper.

Aggregate for Species Without Bag Limit: Twenty (20) fish per person/day year-round including: whitebone porgy, jolthead porgy, knobbed porgy, saucereye porgy, scup, gray triggerfish, bar jack, almaco jack, banded rudderfish, lesser amberjack, white grunt, margate, sailor's choice, and spadefish.

Preferred Alternative X

4. Modify the seasonal prohibition on recreational harvest and possession of shallow-water groupers

Currently: Recreational harvest and possession of shallow-water groupers (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) is prohibited annually in the South Atlantic EEZ from January 1 through April 30.

Preferred Alternative . X

5. Remove the recreational minimum size limit for deep-water snapper species

Currently: The recreational minimum size limit for queen snapper, silk snapper, and blackfin snapper in South Atlantic federal waters is 12 inches total length (TL).

Preferred Alternative . X

6. Reduce the recreational minimum size limit for black sea bass

Currently: The recreational minimum size limit for black sea bass in South Atlantic federal waters is 13 inches total length (TL).

Preferred Alternative X

7. Reduce the recreational minimum size limit for gray triggerfish in federal waters off East Florida

Currently: The recreational minimum size limit for gray triggerfish in South Atlantic federal waters off the east coast of Florida is 14 inches fork length (FL). The recreational minimum size limit for gray triggerfish in federal waters off Georgia, South Carolina, and North Carolina is 12 inches FL.

Preferred Alternative . X

Purpose for Actions

The purpose of this amendment is to modify recreational regulations such as aggregate bag limits, seasonal closures, and minimum size limits for species in the snapper grouper fishery.

Need for Actions

The need for this amendment is to simplify and promote compatible regulations; improve access to the snapper grouper resource; improve protection for spawning fish; and reduce discards of deep-water snapper grouper species, black sea bass, and gray triggerfish while minimizing, to the extent practicable, adverse socio-economic effects for recreational fishermen in the South Atlantic region.

Chapter 1. Introduction

1.1 What actions are being proposed in this amendment?

Vision Blueprint Recreational Regulatory Amendment 26 (Regulatory Amendment 26) to the Snapper Grouper fishery management plan (FMP) proposes to modify recreational regulations for species in the snapper grouper complex, including aggregate bag limits, seasonal closures, and minimum size limits.

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks in the South Atlantic Region
- Consists of 13 voting members who are 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; recommends actions to NMFS for implementation
- Management area is from 3 to 200 nautical 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

1.2 Who is proposing the amendment?

The South Atlantic Fishery Management Council (South Atlantic Council) develops the regulatory amendment and submits it to the National Marine Fisheries Service (NMFS). NMFS is an office of the National Oceanic and Atmospheric Administration. The Secretary of Commerce ultimately approves, disapproves, or partially approves the amendment, and NMFS implements the actions in the amendment through the development of regulations. The South Atlantic Council and NMFS are also responsible for making this document available for public comment. The draft environmental assessment (EA) was made available to the public during the scoping process, public hearings, and in South Atlantic Council meeting briefing books. The final EA/ regulatory amendment will be published for public comment during the notice of availability and proposed rule stages of the rulemaking process. The public hearing draft and final EA/amendment may be found online at: http://sero.nmfs.noaa.gov/sustainable_fisheries/s_atl/sg/XXX/index.html and on the South Atlantic Council website at http://www.safmc.net.

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 is conducted under the Snapper Grouper FMP (SAFMC 1983) (**Figure 1.3.1).** There are 55 species managed by the South Atlantic Council under the Snapper Grouper FMP.

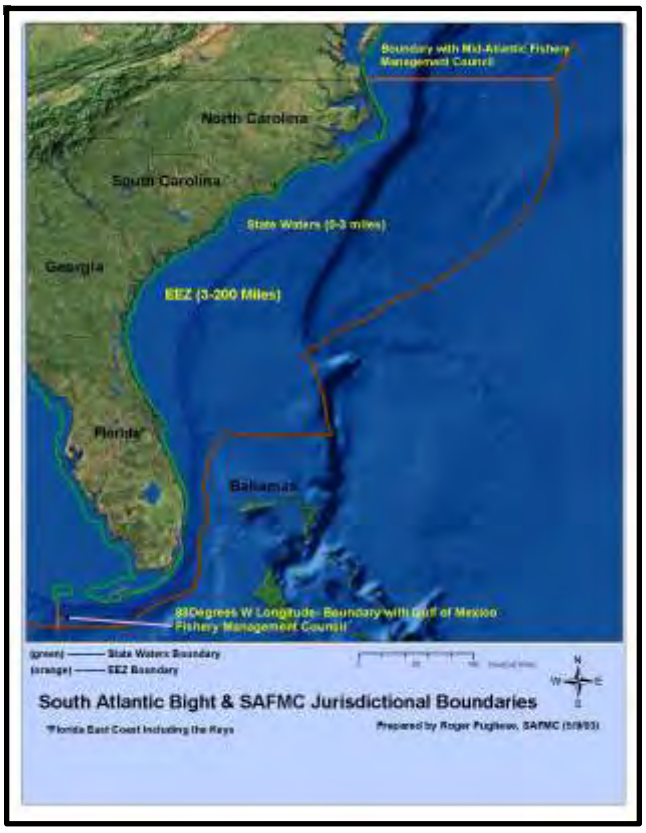


Figure 1.3.1. Jurisdictional boundaries of the South Atlantic Council.

1.4 Purpose and need statement

Purpose for Actions

The purpose of this amendment is to modify recreational regulations such as aggregate bag limits, seasonal closures, and minimum size limits for species in the snapper grouper fishery.

Need for Actions

The need for this amendment is to simplify and promote compatible regulations; improve access to the snapper grouper resource; improve protection for spawning fish; and reduce discards of deep-water species, black sea bass, and gray triggerfish while minimizing, to the extent practicable, adverse socio-economic effects for recreational fishermen in the South Atlantic region.

Definitions

Annual Catch Limits (ACL)
The level of annual catch (pounds or numbers) that triggers accountability measures to ensure that overfishing is not occurring.

Annual Catch Targets (ACT)
The level of annual catch (pounds or numbers) that is the management target of the fishery, and accounts for management uncertainty in controlling the actual catch at or below the ACL.

Accountability Measures (AM)
Management controls to prevent ACLs, including sector ACLs, from being exceeded, and to correct or mitigate overages of the ACL if they occur.

Allocations
A division of the overall ACL among sectors (e.g., recreational and commercial) to create sector ACLs.

Maximum Sustainable Yield (MSY)
Largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions.

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.

Minimum Stock Size Threshold (MSST)
A status determination criterion. If current stock size is below MSST, the stock is overfished.

1.5 What is the history of management for snapper grouper species?

Snapper grouper regulations in the South Atlantic were first implemented in 1983. Refer to **Appendix C** for the management history of the snapper grouper fishery.

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1. Modify the recreational grouper and 10-snapper aggregate bag limits and establish a recreational aggregate bag limit and recreational season for deep-water species

Alternative 1 (No Action). The following recreational aggregate bag limits and recreational seasons are in place in the South Atlantic Region:

Aggregate Snapper Bag Limit: Ten (10) snapper per person per day year-round for the following species: lane, yellowtail, gray, mutton, queen, blackfin, cubera[1], and silk. The following species are excluded from the aggregate: vermilion snapper and red snapper.

[1] Less than 30 inches; maximum two fish per person but no more than two fish per vessel less than 30 inches total length off Florida

Aggregate Grouper Bag Limit: Three (3) groupers per person per day including: gag[1], black[1], snowy[2], misty, red, scamp, yellowedge, yellowfin, yellowmouth, blueline tilefish[3], sand tilefish, golden tilefish[4], coney, graysby, red hind, and rock hind. Shallow-water grouper (gag, black, red, scamp, yellowfin, yellowmouth, red hind, rock rind, graysby, coney) harvest only allowed May 1 through December 31.

[1]Maximum of ~~1~~ one gag or black grouper (but not both) per person per day with harvest allowed May 1 through December 31.

[2]Maximum of ~~1~~ one snowy grouper per *vessel* per day; recreational harvest allowed only May 1 through August 31 (closed September 1 through April 30)

[3]Blueline tilefish harvest allowed only May 1 through August 31 (closed September 1 through April 30)

[4]Maximum of ~~1~~ one golden tilefish per person per day year-round

Alternative 2. Modify the current species composition of the 3-fish aggregate grouper bag limit and the 10-snapper aggregate bag limit. Establish a 2-fish per person per day deep-water species aggregate bag limit including species in the Deep-water Complex (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, and blackfin snapper), golden tilefish, snowy grouper, and blueline tilefish.

Sub-alternative 2a. Establish a May 1 through August 31 recreational season for the deep-water species aggregate.

Sub-alternative 2b. Only ~~1~~ one fish per person per day within the deep-water species aggregate can be of any one species.

Alternative 3. Modify the current species composition of the 3-fish aggregate grouper bag limit and the 10-snapper aggregate bag limit. Establish a 3-fish per person per day deep-water species aggregate bag limit including species in the Deep-water Complex (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, and blackfin snapper), golden tilefish, snowy grouper, and blueline tilefish.

Sub-alternative 3a. Establish a May 1 through August 31 recreational season for the deep-water species aggregate.

Sub-alternative 3b. Only one fish per person per day within the deep-water species aggregate can be of any one species.

Alternative 4. Modify the current species composition of the 3-fish aggregate grouper bag limit and the 10-snapper aggregate bag limit. Establish a 4-fish per person per day deep-water species aggregate bag limit including species in the Deep-water Complex (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, and blackfin snapper), golden tilefish, snowy grouper, and blueline tilefish.

Sub-alternative 4a. Establish a May 1 through August 31 recreational season for the deep-water species aggregate.

Sub-alternative 4b. Only one fish per person per day within the deep-water species aggregate can be of any one species.

IPT input:

- *A golden tilefish stock assessment may be undertaken in late 2017. The current assessment indicates the stock is undergoing overfishing. The Council needs to take action in 2017 to end overfishing of golden tilefish.*
- *Snowy grouper is under a rebuilding plan. Some of the alternatives under this action would increase the retention limit substantially for this species.*
- *Add alternative for single-hook rig requirement when in possession of and/or fishing for deep-water species? Separate action??*
- *Consider that this action is going to establish a new DW aggregate, modify the bag limit for those species, and also the season, so it may be best to separate into 3 actions (act 1: modify aggregate bag limits, act 2: modify bag limits; act 3: modify seasons).*
- *Need to explain/account for what happens to species that are not being considered in the DW complex.*

Snapper Grouper AP input:

- *Concern that alternatives for 1-fish of any one species would significantly increase discards.*
- *Concern that available recreational data are minimal.*
- *Season for deep-water species is a good idea.*
- *Include information on PSEs for deep-water species.*
- *Concern that ACLs are being exceeded and will continue to be.*
- *Need for better region-wide survey to get information on deep-water species.*
- *Recreational effort for deep-water species in south Florida has increased.*
- *Recommend excluding sand tilefish from deep-water species aggregate.*

MOTION: AP RECOMMENDS THAT THE COUNCIL CONSIDER A SUB-ALTERNATIVE FROM MAY 1- JUNE 30 AS A SEASON FOR DEEP-WATER SPECIES. (2 OPPOSED/1 ABSTENTION)

Comparison of Alternatives:

Additional restrictions are in place for some species within aggregate bag limits, as shown in **Tables 2.1.1 and 2.1.2**.

Table 2.1.1. Current recreational aggregate snapper bag limits in Federal waters of the South Atlantic

Species	Aggregate 10-Snapper Bag Limit	Season
Shallow-water species		
Lane	10/pp/day	Year-round
Yellowtail	10/pp/day	Year-round
Gray	10/pp/day	Year-round
Mutton	10/pp/day	Year-round
Cubera	(<30 in max. 2 pp but no more than 2 pv> 30 inTL off Florida	Year-round
Deep water species		
Queen	10/pp/day	Year-round
Blackfin	10/pp/day	Year-round
Silk	10/pp/day	Year-round

Table 2.1.2. Current recreational aggregate grouper bag limits in Federal waters of the South Atlantic.

Species	Aggregate 3-Grouper Bag Limit	Season
Shallow-water species		
Gag	1 gag or 1 black grouper/pp/day	May-Dec
Black Grouper	1 gag or 1 black grouper/pp/day	May-Dec
Red Grouper	3/pp/day	May-Dec
Scamp	3/pp/day	May-Dec
Red Hind	3/pp/day	May-Dec
Rock Hind	3/pp/day	May-Dec
Yellowmouth Grouper	3/pp/day	May-Dec
Yellowfin Grouper	3/pp/day	May-Dec
Graysby	3/pp/day	May-Dec
Coney	3/pp/day	May-Dec
Deep water Species		
Yellowedge Grouper	3/pp/day	Year-round

Misty Grouper	3/pp/day	Year-round
Sand Tilefish	3/pp/day	Year-round
Golden Tilefish	1/pp/day	Year-round
Snowy Grouper	1 pv/day	May-Aug
Blueline Tilefish	3/pp/day	May-Aug

2.2 Action 2. ~~Establish a~~ Modify the recreational grouper aggregate bag limit and establish a recreational aggregate bag limit for shallow-water grouper species

Alternative 1 (No Action). The following recreational aggregate bag limit is in place in the South Atlantic Region:

Aggregate Grouper Bag Limit: Three (3) groupers per person per day including: gag[1], black[1], snowy[2], misty, red, scamp, yellowedge, yellowfin, yellowmouth, blueline tilefish[3], sand tilefish, golden tilefish[4], coney, graysby, red hind, and rock hind. Shallow-water grouper (gag, black, red, scamp, yellowfin, yellowmouth, red hind, rock rind, graysby, coney) harvest only allowed May 1 through December 31.

[1]Maximum of one gag or black grouper (but not both) per person day day with harvest allowed May 1 through December 31.

[2]Maximum of one snowy grouper per *vessel* per day; recreational harvest allowed only May 1 through August 31 (closed September 1 through April 30)

[3]Blueline tilefish harvest allowed only May 1 through August 31 (closed September 1 through April 30)

[4]Maximum of one golden tilefish per person per day year-round

Alternative 2. Modify the current species composition of the 3-fish aggregate grouper bag limit. Establish a shallow-water grouper aggregate bag limit including species in the Shallow-Water Grouper complex (red hind, rock hind, coney, graysby, yellowfin grouper, yellowmouth grouper), scamp, gag, black grouper, and red grouper.

Sub-alternative 2a. One fish per person per day.

Sub-alternative 2b. Two fish per person per day with no more than 1 fish of any one species.

Sub-alternative 2c. Three fish per person per day with no more than 1 fish of any one species.

IPT Input:

- *Golden tilefish stock assessment to be completed in 2018(?)*
- *Red grouper assessment in June (OF and undergoing OF). May require rebuilding plan.*
- *Black grouper stock assessment on hold*
- *Similarly to Action 1 & 3, is this action retaining or modifying the aggregates?*
- *Need to explain/account for what happens to species that are not being considered in the DW complex. The Council needs to make sure that Action 1-3 goes hand-in-hand.*

Snapper Grouper AP Input:

- *Need information on whether limits are being met, how many fishermen are meeting the aggregate bag limits.*
- *Council staff conducted some preliminary analyses indicating very few fishermen were meeting aggregate bag limit.*

- *In the Florida Keys, fishermen are seeing abundance of black grouper.*
- *Concern about red grouper becoming a "choke species."*

Comparison of Alternatives:

2.3 Action 3. Modify the 10-snapper and 20-fish recreational aggregate bag limits

Alternative 1 (No Action). The following recreational aggregate bag limits are in place in the South Atlantic Region:

Aggregate Snapper Bag Limit: Ten (10) snapper per person per day year-round including the following species: lane, yellowtail, gray, mutton, queen, blackfin, cubera[1], and silk. The following species are excluded from the aggregate: vermilion snapper and red snapper.

[1] Less than 30 inches; maximum two fish per person but no more than two fish per vessel less than 30 inches total length off Florida

Aggregate for Species Without Bag Limit: Twenty (20) fish per person/day year-round including: whitebone porgy, jolthead porgy, knobbed porgy, saucereye porgy, scup, gray triggerfish, bar jack, almaco jack, banded rudderfish, lesser amberjack, white grunt, margate, sailor's choice, and Atlantic spadefish.

Alternative 2. Modify the current species composition of the 10-snapper aggregate grouper bag limit and the 20-fish aggregate bag limit. Establish a 20-fish aggregate limit including species in the current 20-fish aggregate in addition to those in the current 10-snapper aggregate: whitebone porgy, jolthead porgy, knobbed porgy, saucereye porgy, scup, gray triggerfish, bar jack, almaco jack, banded rudderfish, lesser amberjack, white grunt, margate, sailor's choice, Atlantic spadefish, lane snapper, yellowtail snapper, gray snapper, mutton snapper, and cubera snapper (<30 inches; max. 2 per person but no more than 2 per vessel > 30 inches TL off Florida).

Sub-alternative 2a. Within the 20-fish aggregate, no more than 10 fish can be gray triggerfish.

Sub-alternative 2b. Within the 20-fish aggregate, no more than 10 fish can be Atlantic spadefish.

Sub-alternative 2c. Within the 20-fish aggregate, no more than 10 fish can be of any one species.

Sub-alternative 2d. Within the 20-fish aggregate, no more than 5 fish can be of any one species.

IPT Input:

- *Mutton snapper will be 5 fish, pending approval of Amendment 41*

Snapper Grouper AP Input:

- *Concern about making regulations too complicated. Sub-alternatives 2c and 2d (2c: Within the 20-fish aggregate, no more than 10 fish can be of any one species; 2d: Within the 20-fish aggregate, no more than 5 fish can be of any one species) may be enough to capture the need to reduce take for some species.*
- *Five yellowtail within the aggregate may be too low for fishermen in the Keys.*
- *Consider adding flexibility in aggregate bag limits since fishery is so diverse and certain species are not available in some areas.*

MOTION: AP RECOMMENDS ALTERNATIVE 1, NO ACTION, FOR ACTION 3. APPROVED BY AP (11 IN FAVOR/6 OPPOSED/ 1 ABSTENTION)

MOTION: RECOMMEND THAT THE COUNCIL EXPLORE BAG LIMIT OF PORGIES (3 FISH, 5 FISH) WITHIN THE 20-FISH AGGREGATE
APPROVED BY AP (1 OPPOSED)

MOTION: RECOMMEND THE COUNCIL EXPLORE A 20 FISH AGGREGATE OF SPECIES CURRENTLY IN THE 10-SNAPPER AGGREGATE AND THE 20-FISH AGGREGATE
APPROVED BY AP (1 OPPOSED/1 ABSTENTION)

INTENT TO MAINTAIN THE CURRENT BAG LIMITS WITHIN THE AGGREGATE (I.E., GRAY SNAPPER IS 10)*

Comparison of Alternatives:

2.4 Action 4. Modify the seasonal prohibition on recreational harvest and possession of shallow-water groupers

Alternative 1 (No Action). Recreational harvest and possession of shallow-water groupers (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) is prohibited annually in the South Atlantic Exclusive Economic Zone from January 1 through April 30.

Alternative 2. Prohibit recreational harvest and possession of shallow-water grouper species (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) ~~annually~~ seasonally by area:

Sub-alternative 2a. In federal waters off East Florida from the Georgia/Florida state boundary south to the end of the South Atlantic Fishery Management Council's jurisdiction, the closure applies (month) to (month).

Sub-alternative 2b. In federal waters off Georgia and the Carolinas from the Georgia/South Carolina border north to the North Carolina/Virginia border, the closure applies (month) to (month)

Alternative 3. Prohibit recreational harvest and possession of shallow-water grouper species (gag, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) (excluding black grouper) south of 28° North latitude (approximately off Palm Bay, Florida):

Sub-alternative 3a. January – March (three months)
Sub-alternative 3b. February – March (two months)
Sub-alternative 3c. February – April (three months)
Sub-alternative 3d. February – May (four months)

Alternative 4. Prohibit recreational harvest and possession of black grouper in federal waters off (specify area based on Alternative 2a above)

Sub-alternative 4a. January – March (three months)
Sub-alternative 4b. January
Sub-alternative 4c. February
Sub-alternative 4d. March

Alternative 5. Prohibit recreational harvest and possession of red grouper in federal waters off (specify area based on Alternative 2b above)

Sub-alternative 5a. January – May (five months)
Sub-alternative 5b. February – May (four months)
Sub-alternative 5c. March – June (four months)

IPT Input:

- *Red grouper assessment will be presented to Council in June 2017*
- *The most recent black grouper stock assessment data workshop noted issues with species ID between gag and black grouper off South Florida. This could have implications for*

analyses.

Snapper Grouper IPT Input:

- *Concern about not having results of stock assessment on red grouper. May be premature until it is known whether a reduction in harvest, and if so how much, is needed.*
- *Concern that after closure having been in place for many years there is no apparent increase in population.*
- *Existing closure already covers the bulk of spawn for these species.*

MOTION: AP RECOMMENDS NO ACTION ON MODIFYING THE SHALLOW WATER GROUPER CLOSURE
APPROVED BY AP (UNANIMOUSLY)

Comparison of Alternatives

Seasonal closures are time-based closures to fishing effort to conserve or protect fish stocks from harvest during periods of increased vulnerability, such as during spawning seasons. Shallow-water groupers (SWG) (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) are vulnerable to overfishing because they change sex, many are long lived, and some species (e.g., gag, black grouper, scamp, red hind) form spawning aggregations at locations known to fishermen (SAFMC 2008 and references therein). The January-April commercial and recreational spawning season closure for South Atlantic SWG was put into place through the final rule for Amendment 16 to the Snapper Grouper FMP (SAFMC 2008). Amendment 16 was implemented to end overfishing of gag; thus, a closure of other shallow-water groupers commonly caught with gag was put in place to reduce incidental mortality of gag.

Alternative 1 (No Action) would retain the January 1 through April 30 spawning season closure for SWG in the South Atlantic EEZ. The spawning season closure is intended to protect SWG from fishing mortality during a vulnerable time of their life history. **Table 4.4.1.2** shows the spawning and peak spawning periods of select snapper grouper species managed by the South Atlantic Council.

Alternative 2, which was suggested by stakeholders during the Visioning Project, would prohibit seasonal harvest and possession of SWG, during X months off east Florida (**sub-alternative 2a**), and during X months off Georgia and the Carolinas (**sub-alternative 2b**).

Black grouper are predominantly harvested in South Atlantic federal waters off Florida. Black grouper, gag, and scamp form spawning aggregations with peak spawning of females occurring from January to March for black grouper and gag (SAFMC 2008 and references therein). The Southeast Fisheries Science Center has evidence of spawning aggregations for black grouper and gag that were fished out in the upper Florida Keys by the early 1990s. **Alternative 4** would prohibit harvest and possession of *black grouper* in the EEZ off the area determined in **Alternative 2** (if **Alternative 2a** is selected as preferred) during January to March

(**sub-alternative 4a**), during January (**sub-alternative 4b**), during February (**sub-alternative 4c**), and during March (**sub-alternative 4d**).

Red grouper do not appear to form spawning aggregations, but spawning in the South Atlantic occurs during February-June, with a peak in April (**Figure 4.4.1.2**; Burgos 2001). This action addresses concerns from stakeholders that the current closure does not coincide with red grouper spawning off North Carolina. **Alternative 5** would prohibit harvest and possession of *red grouper* in the EEZ off the area determined in **Alternative 2b** (if **Alternative 2b** is selected as preferred), during January to May (**sub-alternative 5a**), during February to May (**sub-alternative 5b**), and during March to June (**sub-alternative 5c**).

Alternative 3 would establish a seasonal prohibition on recreational harvest of SWG, except black grouper, south of 28 degrees North Latitude, a boundary that coincides with the established boundary for regulations on circle hooks (Amendment 17A, SAFMC 2010a). The sub-alternatives would modify the seasonal closure to January through March (**sub-alternative 3a**), February through March (**sub-alternative 3b**), February through April (**sub-alternative 3c**), and February through May (**sub-alternative 3d**).

2.5 Action 5. Remove the recreational minimum size limit for deep-water snapper species

Alternative 1 (No Action). The recreational minimum size limit for queen snapper, silk snapper, and blackfin snapper in South Atlantic federal waters is 12 inches total length (TL).

Alternative 2. Remove the 12-inch TL recreational minimum size limit for queen snapper, silk snapper, and blackfin snapper in South Atlantic federal waters.

Snapper Grouper AP Input:
MOTION: RECOMMEND REMOVAL OF MINIMUM SIZE LIMIT FOR DEEP-WATER SPECIES
APPROVED BY AP (UNANIMOUSLY)

Comparison of Alternatives:

Alternative 1 (No Action) would retain the minimum size limit for queen snapper, silk snapper, and blackfin snapper of 12 inches total length (TL). **Alternative 2** would remove the 12-in TL minimum size limit for these three species. These three species are the only remaining deep-water species within the Deep-water Complex (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper) that currently have a minimum size limit.

Minimum size can cause increased regulatory discard and, depending on depth of capture, may increase discard mortality. Deep-water species generally have high discard mortality rates due to barotrauma. When reeled in from depth, expansion of gas in a fish's swim bladder causes bloating and prevents the fish from regulating its buoyancy. Venting (puncturing the swim bladder with a needle to release gas) or use of descending devices to assist fish to return to depth can increase release survival. Although species in the Deep-water Complex are not generally targeted and their landings are minor (SAFMC, 2014), removing the minimum size limit under **Alternative 2** would be expected to have neutral biological benefits compared to **Alternative 1 (No Action)**, as overall catch would not be affected and data indicate a minimal level of discards of any of the species affected by this action.

2.6 Action 6. Reduce the recreational minimum size limit for black sea bass

Alternative 1 (No Action). The recreational minimum size limit for black sea bass in South Atlantic federal waters is 13 inches total length (TL).

Alternative 2. Reduce the recreational minimum size limit for black sea bass in South Atlantic federal waters to 12 inches TL.

Alternative 3. Reduce the recreational minimum size limit for black sea bass in South Atlantic federal waters to 11 inches TL.

IPT Input:

- *ABC for black sea bass based on selectivity patterns. If MSL changes that would affect the ABC. Also consider that the black sea bass assessment results will be available in late 2017 (?)*
-

Snapper Grouper AP Input:

- *Concern about how change in size limit would affect bag limit and length of season*

MOTION: AP RECOMMENDS REDUCING RECREATIONAL MINIMUM SIZE LIMIT FOR BLACK SEA BASS TO 12 INCHES (ALTERNATIVE 2) APPROVED BY AP (6 OPPOSED)

Comparison of Alternatives

Alternative 1 (No Action) would retain the existing recreational minimum size of 13 inches total length (TL) in federal waters of the South Atlantic. **Alternatives 2** and **3** consider decreasing the recreational minimum size limit to 12 and 11 inches TL, respectively. The South Atlantic Council did not consider increasing the minimum size limit because the intent is to reduce the level of undersized black sea bass that are being discarded. The current minimum size limit for the recreational sector was established in Amendment 18A (SAFMC 2012) to slow the rate of harvest.

2.7 Action 7. Reduce the recreational minimum size limit for gray triggerfish in federal waters off East Florida

Alternative 1 (No Action). The recreational minimum size limit for gray triggerfish in South Atlantic federal waters off the east coast of Florida is 14 inches fork length (FL). The recreational minimum size limit for gray triggerfish in federal waters off Georgia, South Carolina, and North Carolina is 12 inches FL.

Alternative 2. Reduce the recreational minimum size limit for gray triggerfish in federal waters off the east coast of Florida to 12 inches FL.

IPT Input:

- *Consider an alternative that would increase the MSL from 12 to 14 inches off GA, SC and NC. The Gulf Council is considering increasing the MSL to 15 inches as Gulf gray trigger is undergoing overfishing.*

MOTION: AP RECOMMENDS ALTERNATIVE 2, REDUCING THE MSL FOR GRAY TRIGGERFISH OFF EAST FLORIDA TO 12 INCHES
APPROVED BY AP (1 ABSTENTION)

Comparison of Alternatives

In 2015, Amendment 29 to the Snapper Grouper Fishery of the South Atlantic Region (Amendment 29) (SAFMC 2014) increased the minimum size limit for gray triggerfish in federal waters off east Florida from 12 inches total length (TL) to 14 inches fork length (FL). The amendment also implemented a minimum size limit (for both sectors) of 12 inches FL in federal waters off the remaining South Atlantic states. **Alternative 1 (No Action)** would retain these recreational minimum size limits in federal waters of the South Atlantic states. **Alternative 2** would reduce the recreational minimum size limit for gray triggerfish in federal waters off the east coast of Florida to 12 inches FL. The Florida Fish and Wildlife Conservation Commission (FWC) requested that the South Atlantic Council consider this action due to concerns over excessive discards of gray triggerfish in South Florida since the increase in the recreational minimum size limit went into place in 2015. The FWC took action to reduce the minimum size limit in state waters off east Florida from 14 inches FL to 12 inches FL effective January 2017. Hence, **Alternative 2** would establish a minimum size limit that is also consistent with the current minimum size limit requirements in state waters off east Florida.

Chapter 3. Affected Environment

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

- **Habitat environment** (Section 3.1)
- **Biological and Ecological environment** (Section 3.2)
- **Economic and Social environment** (Sections 3.3)
- **Administrative environment** (Section 3.4)

3.1 Habitat Environment

3.1.1 Inshore/Estuarine Habitat

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

3.1.2 Offshore Habitat

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

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

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

Artificial reef structures are also utilized to attract fish and increase fish harvests; however, research on artificial reefs is limited and opinions differ as to whether or not these structures promote an increase of ecological biomass or merely concentrate fishes by attracting them from nearby, natural un-vegetated areas of little or no relief. There are several notable shipwrecks along the southeast coast in state and federal waters including *Lofthus* (eastern Florida), *SS Copenhagen* (southeast Florida), *Half Moon* (southeast Florida), *Hebe* (Myrtle Beach, South Carolina), *Georgiana* (Charleston, South Carolina), *U.S.S. Monitor* (Cape Hatteras, North Carolina), *Huron* (Nags Head, North Carolina), and *Metropolis* (Corolla, North Carolina).

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 Council's 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.

Additional information on the habitat utilized by snapper grouper species is included in Volume II of the Fishery Ecosystem Plan (FEP; SAFMC 2009b). The FEP can be found at: http://safmc.net/ecosystem-management/fishery-ecosystem-plan/.

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 Marine Protected Areas (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 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 and estuarine invasive species.

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

3.2 Biological and Ecological Environment

3.2.1 Fish Populations Affected by this Amendment

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

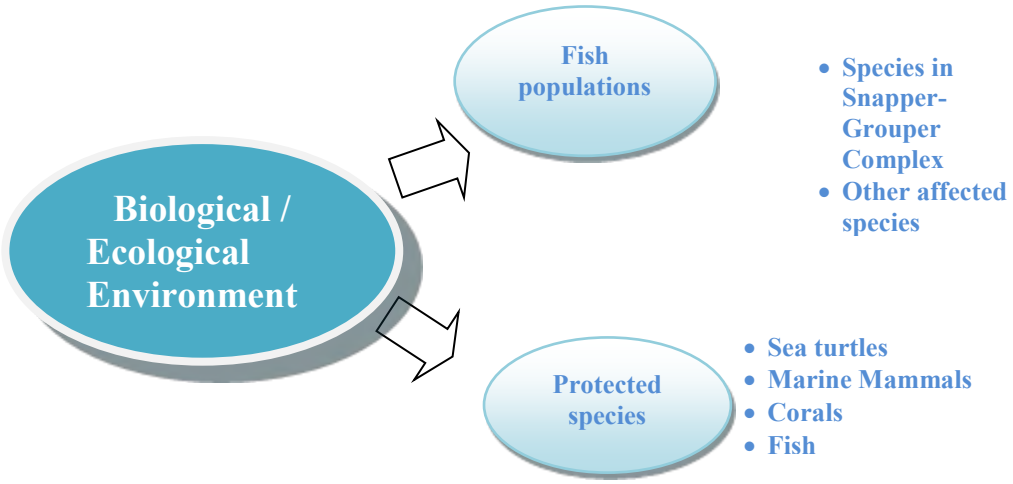


Figure 3.2.1. Two components of the biological environment described in this document.

The waters off the South Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 55 species of fish, many of them neither "snappers" 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.

Affected Species

Life history, biological characteristics, and stock status information for snapper grouper species found in the Vision Blueprint Recreational Amendment 26 may be found in the Southeast Data, Assessment, and Review (SEDAR) reports which are available on the SEDAR web site http://www.sefsc.noaa.gov/sedar/.

Thirty nine out of fifty five snapper grouper species would be directly affected by the proposed action, including many co-occurring species (see **Section 3.2.3**). For assessed snapper grouper species, the life history, biological characteristics, and stock status may be found in their

respective Southeast Data, Assessment, and Review (SEDAR) reports listed below, which are available on the SEDAR Web site http://www.sefsc.noaa.gov/sedar/ (see **Section 3.2.4** of this document for more information on the SEDAR process).

- Greater Amberjack – SEDAR 15 (2008)*
- Black Grouper – SEDAR 19 (2010) – undergoing assessment
- Red Grouper – SEDAR 19 (2010) – standard assessment completed in 2017
- Red Snapper – SEDAR 24 (2010)*
- Golden Tilefish – SEDAR 25 Update (2016)
- Goliath Grouper – SEDAR 23 (2011)*
- Black Sea Bass – SEDAR 25 (2011) - undergoing assessment
- Vermilion Snapper – SEDAR 17 Update Assessment (2012)*
- Yellowtail Snapper – SEDAR 3 (2012)*
- Red Porgy –SEDAR Assessment Update (2012)*
- Snowy Grouper – SEDAR 36 (2013)
- Blueline Tilefish – SEDAR 32 (2013) - undergoing assessment
- Gag – SEDAR 10 Assessment Update (2014)
- Hogfish – SEDAR 37 (2014)*

*Not addressed by this amendment

An expanded discussion of life history traits, population characteristics, and stock status of snapper grouper species affected by this amendment can be found in **Sections 3.2.1** and **3.3** of the Comprehensive Annual Catch Limit (ACL) Amendment (SAFMC 2011c), which are hereby incorporated by reference and may be found at https://www.dropbox.com/s/mp3xwedsrarfpjn/Comp%20ACL%20Am%20101411%20FINAL.pdf.

3.2.2 Bycatch

As summarized in **Appendix D**, the Bycatch Practicability Analysis (BPA), the actions in Regulatory Amendment 26 are XXX In addition, the South Atlantic Council, the National Marine Fisheries Service (NMFS), and the Southeast Fisheries Science Center (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. Therefore, no additional action is needed to minimize bycatch or bycatch mortality within the snapper grouper fishery. See **Appendix D** for detailed descriptions of bycatch when fishing for species found in the snapper grouper complex.

3.2.3 Other Species Affected

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://safmc.net/ecosystem-management/fishery-ecosystem-plan/.

3.2.4 The Stock Assessment Process

The Southeast Data, Assessment, and Review (SEDAR) process is a cooperative Fishery Management Council initiative 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.

3.2.5 Protected Species

There are 49 species, or distinct population segments (DPSs) of species, protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act (MMPA) (Wynne and Schwartz 1999, Waring et al. 2013). The MMPA requires that each commercial fishery be classified by the number of marine mammals they seriously injure or kill. NMFS's List of Fisheries (LOF) classifies U.S. commercial fisheries into three categories based on the number of incidental mortality or serious injury they cause to marine mammals. More information about the LOF and the classification process can be found at: http://www.nmfs.noaa.gov/pr/interactions/fisheries/2016_list_of_fisheries_lof.html.

Five of the marine mammal species (sperm, sei, fin, blue, humpback, and North Atlantic right whales (NARW)) protected by the MMPA, are also listed as endangered under the Endangered Species Act (ESA). In addition to those five marine mammals, five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; five DPSs of Atlantic sturgeon; and six species of coral [elkhorn coral (*Acropora palmata*), staghorn coral (*A. cervicornis*) ("*Acropora*" collectively); lobed star coral (*Orbicella annularis*), mountainous star coral (*O. faveolata*), and knobby star coral (*O. franksi*) ("*Orbicella*" collectively); and rough cactus coral (*Mycetophylia ferox*)] are also protected under the ESA. Portions of designated critical habitat for NARW, the Northwest Atlantic (NWA) DPS of loggerhead sea turtles, and *Acropora* corals occur within the South Atlantic Council's jurisdiction. NMFS has conducted specific analyses ("Section 7 consultations") to evaluate the potential adverse effects from the South Atlantic snapper grouper fishery on species and critical habitat protected under the ESA. Information on these, as well as sea turtles and smalltooth sawfish and how they are adversely affected by the snapper grouper fishery are discussed below.

Subsequent to the June 7, 2006 biological opinion (2006 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. On September 10, 2014, NMFS listed 20 new coral species under the ESA, five of those species occur in the Caribbean (including Florida) and all of these are listed as threatened. The two previously listed *Acropora* coral species remain protected as threatened. In an "ESA section 7 consultation on the continued authorization of the snapper grouper and dolphin and wahoo fisheries following the listing of new coral species", dated September 11, 2014, NMFS indicated that the previous determination remains valid and the South Atlantic snapper grouper fishery is still not likely to

adversely affect *Acropora* corals.

The September 10, 2014, final listing rule provided some new information on the threats facing *Acropora*; however, none of the information suggested that previous determinations were no longer valid. For this reason, a memo dated September 11, 2014, indicates that previous determination remains valid and the South Atlantic snapper grouper fishery is still not likely to adversely affect *Acropora* corals. For the remaining 5 species of coral (*Mycetophyllia ferox, Dendrogyra cylindrus, Orbicella annularis, O. faveolata, and O. franksi*), the threats to corals from fishing identified in the status review for these species (SSR) include (1) trophic effects, (2) human-induced physical damage, and (3) destructive fishing practices. The September 11, 2014, memo indicates South Atlantic snapper grouper fishery will not cause trophic effects because it does not capture herbivorous fish.

On December 1, 2016, NMFS completed a new biological opinion on the snapper grouper fishery of the South Atlantic Region (2016 Opinion). In this biological opinion, NMFS concluded that the snapper grouper fishery's continued authorization is not likely to jeopardize the continued existence of the NARW, loggerhead sea turtle Northwest Atlantic DPSs, leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle North Atlantic DPS, green sea turtle South Atlantic DPS, hawksbill sea turtle, smalltooth sawfish U.S. DPS, or Nassau grouper. NMFS concluded that the proposed action is not likely to adversely affect designated critical habitat or other ESA-listed species in the South Atlantic Region.

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.) 2002).

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

The **hawksbill's** pelagic stage lasts from the time they leave the nesting beach as hatchlings until they are approximately 22-25 cm in straight carapace length (Meylan 1988, Meylan and Donnelly 1999). The pelagic stage is followed by residency in developmental habitats (foraging

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

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

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

Loggerhead hatchlings forage in the open ocean and are often associated with *Sargassum* rafts (Hughes 1974, Carr 1987, Walker 1994, Bolten and Balazs 1995). The pelagic stage of these sea turtles eat a wide range of organisms including salps, jellyfish, amphipods, crabs, syngnathid fish, squid, and pelagic snails (Brongersma 1972). Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length they begin to live in coastal inshore and nearshore waters of the continental shelf throughout the U.S. Atlantic (Witzell 2002). Here they forage over hard- and soft-bottom habitats (Carr 1986). Benthic

foraging loggerheads eat a variety of invertebrates with crabs and mollusks being an important prey source (Burke et al. 1993). Estimates of the maximum diving depths of loggerheads range from 211 m to 233 m (692-764ft.) (Thayer et al. 1984, Limpus and Nichols 1988). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Thayer et al. 1984, Limpus and Nichols 1988, Limpus and Nichols 1994, Lanyan et al. 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994, Lanyan et al. 1989).

Sea turtles are vulnerable to capture by bottom longline and vertical hook-and-line gear. Hook-and-line gear used in the fishery includes commercial bottom longline gear and commercial and recreational vertical line gear (e.g., handline, bandit gear, and rod-and-reel). The magnitude of the interactions between sea turtles and the South Atlantic snapper grouper fishery was evaluated in NMFS (2006) and again in 2016 using data from the Supplementary Discard Data Program (SDDP). In 2006, 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 3.2.1**).

Table 3.2.1. 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	1
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 2016. Endangered Species Act Section 7 consultation on the continued authorization of snapper grouper fishing in the U.S. South Atlantic Exclusive Economic Zone (EEZ) as Managed under the Snapper Grouper Fishery Management Plan (SGFMP) of the South Atlantic Region, including Proposed Regulatory Amendment 16 to the SGFMP. Biological Opinion. December 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 2016 Opinion also used the extrapolated data from the SDDP to estimate the magnitude of recreational fishing on sea turtles. NMFS estimated 23 loggerhead and 23 leatherback sea turtles would be captured on a triennial basis. Therefore, the 2006 consultation concluded the continued authorization of the fishery was not likely to jeopardize the continued existence of any of these species. However, the logbook data was reevaluated in 2016 (Farmer) and the new analysis indicated that the 2006 Opinion sea turtle capture estimates for bottom longlines were based on 2 SDDP reports that were not

actually snapper grouper bottom longline sea turtle captures. Because Farmer (2016a) invalidated NMFS' 2006 bottom longline gear sea turtle capture estimates, and NMFS could not simply assume the same rates and number of captures in the absence of new data, NMFS looked at sea turtle capture data from other bottom longline fisheries in the Southeast Region. **Section 5.2.3.1** of the 2016 Opinion presents a summary of the primary observer data sources considered, and **Section 5.2.3.3** estimates mortality both on the line prior to retrieval and post-release mortality and present our overall mortality estimates for the bottom longline component of the South Atlantic snapper grouper fishery. **Table 3.2.1** reports the takes authorized for the fishery prior to completion of the 2016 consultation

Regulations implemented through Amendment 15B to the Snapper Grouper FMP (74 FR 31225; June 30, 2009; SAFMC 2008b) 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; SAFMC 2011e) 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.

On September 22, 2011, NMFS and the U.S. Fish and Wildlife Service determined the loggerhead sea turtle population consists of nine 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. The February 15, 2012, memorandum stated that because the 2006 Opinion had evaluated the impacts of the fishery on the loggerhead subpopulations now wholly contained within the NWA DPS, the 2006 Opinion's conclusion that the fishery is not likely to jeopardize the continued existence of loggerhead sea turtles remains valid.

On July 10, 2014, NMFS published a final rule designating critical habitat for the Northwest Atlantic Ocean (NWA) Loggerhead Sea Turtle DPS in the *Federal Register* (79 FR 39856). The final rule, effective August 11, 2014, designated 38 marine areas within the Atlantic Ocean and Gulf of Mexico, which contain the physical or biological features essential for the conservation of the loggerhead sea turtle. A memorandum dated September 16, 2014, evaluated the effects of continued authorization of federal fisheries, including snapper grouper, on the newly-designated critical habitat. The memo concluded that activities associated with the snapper grouper fishery would not adversely affect any of the NWA loggerhead DPS critical habitat units.

On April 6, 2016, NMFS and the Fish and Wildlife Service (FWS) published a Final Rule in the Federal Register (81 FR 20057) removing the range-wide and breeding population ESA listings of the green sea turtle, and in their place, listing 8 green sea turtle DPSs as threatened and 3 green sea turtle DPSs as endangered, effective May 6, 2016. Two of the green sea turtle DPSs, the North Atlantic DPS and the South Atlantic DPS, occur in the South Atlantic Region and may be affected by snapper grouper fishing, based on the existing 2006 Opinion's analysis for green

sea turtles as previously listed. Therefore, the Final Listing Rule created an additional issue for the ongoing consultation to address.

NMFS concluded on December 1, 2016, in the 2016 Opinion on the snapper grouper fishery of the South Atlantic Region, the fishery's continued authorization is not likely to jeopardize the continued existence of the NARW, loggerhead sea turtle Northwest Atlantic DPS, leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle North Atlantic DPS, green sea turtle South Atlantic DPS, or hawksbill sea turtle.

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 sources (Simpfendorfer 2001). Smalltooth sawfish also prey on crustaceans (mostly shrimp and crabs) by disturbing bottom sediment with their saw (Norman and Fraser 1938, Bigelow and Schroeder 1953).

Five DPSs of Atlantic sturgeon were listed since the completion of the 2006 Opinion (77 FR 5914, February 6, 2012, and 77 FR 5880, February 6, 2012). In 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.

On June 29, 2016, NMFS published a final rule in the *Federal Register* listing **Nassau grouper** as threatened under the Endangered Species Act due to a decline in its population (81 FR 42268). The final rule became effective on July 29, 2016. The species is in need of more conservation efforts given its population has not yet recovered. However, this listing does not change current fishing regulations in the U.S. (including federal waters in U.S. Caribbean territories), as harvest of this species is already prohibited in state, territorial, and federal waters. Commercial and recreational fishing for this species was first prohibited in U.S. federal waters in 1990 when it was listed as a Species of Concern. Prior to 1990, historical harvest greatly diminished the population of Nassau grouper and eliminated many spawning groups. Because Nassau grouper is a slow growing, late maturing fish, the population has yet to recover despite conservation efforts. In addition, Nassau grouper is still harvested in several Caribbean countries and fishing pressure on the remaining spawning groups continues to threaten the species. While a threatened listing status does not afford the same strict prohibitions on import, export, and incidental catch that an endangered status does, NMFS will assess whether to add additional regulatory measures in future rule makings. NMFS will also organize a recovery team to begin development of a plan to guide the conservation and recovery of the species. The plan will lay

out the criteria and actions necessary to ensure species recovery. It will also be used to ensure recovery efforts are on target and being met effectively and efficiently.

NMFS concluded on December 1, 2016 in the 2016 Opinion on the snapper grouper fishery of the South Atlantic Region that the fishery's continued authorization is not likely to jeopardize the continued existence of the smalltooth sawfish U.S. DPS or Nassau grouper. NMFS concluded that the proposed action is not likely to adversely affect designated critical habitat or other ESA-listed species in the South Atlantic Region.

3.3 Economic Environment

3.3.1 Economic Description of the Commercial Sector

This regulatory amendment deals with the recreational sector of the snapper grouper fishery of the South Atlantic Region. Information on the commercial sector may be found in Regulatory Amendment 27, and is incorporated herein by reference.

3.3.2 Economic Description of the Recreational Sector

The following focuses on recreational landings and effort (angler trips) for selected snapper grouper species examined in this regulatory amendment. Unless otherwise noted, the major sources of data summarized in this description are the Recreational ACL Dataset (SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2) for landings and the NOAA fisheries website for accessing/downloading recreational data (http://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/downloads) for effort. Additional information on the recreational sector of the snapper grouper fishery is contained in previous amendments, and is incorporated herein by reference [see Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Regulatory Amendment 9 (SAFMC 2011a), Comprehensive ACL Amendment (SAFMC 2011c), Amendment 37 (SAFMC 2016), and Amendment 41 (SAFMC 2017)].

The recreational sector is comprised of a private component and a for-hire component. The private component includes anglers fishing from shore (including all land-based structures) and private/rental boats. The for-hire component is composed of charter boats and headboats (also called partyboats). Although charter boats tend to be smaller, on average, than headboats, the key distinction between the two types of operations is how the fee is typically determined. On a charter boat trip, the fee charged is for the entire vessel, regardless of how many passengers are carried, whereas the fee charged for a headboat trip is paid per individual angler.

Permits

A federal for-hire vessel permit (South Atlantic Charter/Headboat Snapper/Grouper Permit) is required for harvesting snapper grouper species when fishing on for-hire vessels. The South Atlantic for-hire permit is an open access system. As of May 10, 2017, there were 1,586 valid (non-expired) or renewable Atlantic charter/headboat snapper/grouper permits. A renewable permit is an expired permit that may not be actively fished, but is renewable for up to one year after expiration. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate. In the period 2012 through 2016,

the lowest number of for-hire vessel permits occurred in 2014 and the highest in 2016 (**Table 3.3.2.1**). 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. On average (2012-2016), these vessels accounted for approximately 10% of the total number of for-hire snapper grouper permits issued.

Table 3.3.2.1. For-hire permits, by homeport state, 2012-2016.

Home Port	2012	2013	2014	2015	2016	Average
North Carolina	312	307	294	308	331	310
South Carolina	138	150	160	188	212	170
Georgia	26	30	34	45	53	38
Florida	1,122	1,121	1,062	1,071	1,100	1,095
Gulf (AL-TX)	93	91	81	73	69	81
Others	106	100	96	94	102	100
Total	1,797	1,799	1,727	1,779	1,867	1,794

Source: NMFS, SERO Permits Dataset, 2017.

Although the for-hire permit application collects information on the primary method of operation, the resultant permit itself does not identify the permitted vessel as either a headboat or a charter boat, operation as either a headboat or charter boat is not restricted by the permitting regulations, and vessels may operate in both capacities. However, only selected headboats are required to submit harvest and effort information to the NMFS Southeast Region Headboat Survey (SRHS). Participation in the SRHS is based on determination by the SEFSC that the vessel primarily operates as a headboat. There were 63 South Atlantic vessels registered in the SRHS as of February 22, 2017 (K. Fitzpatrick, NMFS SEFSC, pers. comm.).

Information on South Atlantic charter boat and headboat operating characteristics, including average fees and net operating revenues, as reported in Holland et al. (2012), is incorporated herein by reference.

There are no specific federal permitting requirements for recreational anglers to fish for or harvest cobia. 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. As a result, it is not possible to identify with available data how many individual anglers would be expected to be affected by this proposed amendment.

Catch

There are at least 39 species examined in this amendment, and for purposes of presenting total catches these species, except black sea bass and gray triggerfish which are presented separately, are combined into the following groups: 1) shallow-water grouper, 2) deep-water species, 3) aggregate snapper bag limit species, and 4) aggregate 20-fish bag limit species. Another potential group consists of species under the aggregate grouper bag limit, but it is not presented here as a separate group, because all species within this group are already included in the other groups. At any rate some species still fall in more than one group. Blackfin snapper, queen snapper, and silk snapper belong to both the deep-water species group and the aggregate snapper group. Gray triggerfish, which is part of the species under the 20-fish bag limit, is also presented separately.

Total catches are presented by state/area and by fishing mode. The states/areas are the east coast of Florida (FLE), northeast Florida, together with Georgia (NFLE/GA), North Carolina (NC), and South Carolina (SC). The fishing modes are charterboat (CBT), headboat (HBT), private/rental (PRIV/Rental), and shore (SHORE). Total catch, in number of fish, is the sum of the three types of catches A, B1, and B2. A refers to observed harvest, B1 is unobserved harvest, and B2 is released fish. Headboat catches reflect only harvest information and not total catch. Total catches from 2012 through 2016 are presented for each group annually and as averages (2012-2016) for each of the species within a group. Averaging of catches assumes that zero or no landings entries are zero. This would tend to possibly underestimate the true catches. Because the annual catches are for a group of species and for each individual species only an average is presented, issues related to confidentiality of harvest appear to be limited. Nevertheless, catches from Georgia are combined with those from northeast Florida.

For all groups of species, Florida is the dominant state and the private/rental mode is the dominant fishing modes. Some other states and fishing modes have generally a fair amount of catches for each of the group of species. While Florida is the dominant state for shallow-water grouper catches, North Carolina also registered a good amount of catches (**Table 3.3.2.2**). Among the species of shallow-water grouper, gag and red grouper are the two dominant species, although catches of black grouper and graysby are relatively high. The private/rental mode is by far the dominant fishing mode for shallow-water grouper catches, with gag, red grouper, graysby, and black grouper being the top species (**Table 3.3.2.3)**. The shore mode comes second, particularly for catches of gag, red grouper, and black grouper. The seasonal distribution of shallow-water grouper is presented in **Figure 3.3.2.1**. This is a stacked chart, so catches per year are added to those of previous year, starting from 2012 and ending with the average. The main intent in using this chart type is to show the pattern of seasonal distribution over the years 2012 through 2016 with less clutter. As shown in **Figure 3.3.2.1**, the pattern of season catch distribution remained fairly the same for the first three years showing peak catches in the May/June wave, but deviated in the last two years which recorded peaks in the November/December wave, resulting in the average catches to peak in the November/December wave.

Table 3.3.2.2. Recreational catches (number of fish) of shallow-water grouper, by state, 2012-2016.

	FLE	NFLE/GA	NC	SC	TOTAL
Group of Species					
2012	145,781	5,181	32,734	13,272	196,969
2013	174,492	3,823	12,695	5,577	196,589
2014	158,530	6,623	9,762	12,656	187,570
2015	145,451	10,061	25,309	5,425	186,247
2016	95,616	9,753	12,770	5,712	123,851
Average	143,974	7,088	18,654	8,529	178,245
Individual Species of Shallow-water Grouper, 2012-2016 Average					
Black Grouper	13,519	405	3	3	13,930
Coney	703	124	0	0	827
Gag	43,824	1,004	16,134	5,431	66,393
Graysby	25,435	1,505	449	236	27,625
Red Grouper	54,042	1,533	887	11	56,472
Red Hind	1,352	157	4	72	1,585
Rock Hind	2,538	1,592	205	455	4,790
Scamp	2,462	741	972	2,321	6,496
Yellowfin Gr	97	15	1	0	113
Yellowmouth Gr	0	13	0	0	13

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

Table 3.3.2.3. Recreational catches (number of fish) shallow-water grouper, by fishing mode, 2012-2016.

	CBT	HBT	PRIV/RENTAL	SHORE	TOTAL
Group of Species					
2012	9,290	8,568	166,000	13,111	196,969
2013	11,793	6,898	175,198	2,700	196,589
2014	7,774	9,514	144,908	25,374	187,570
2015	10,922	10,592	150,183	14,551	186,247
2016	11,294	12,507	100,050	0	123,851
Average	10,214	9,616	147,268	11,147	178,245
Individual Species of Shallow-water Grouper, 2012-2016 Average					
Black Grouper	458	411	12,019	1,041	13,930
Coney	110	124	593	0	827
Gag	3,711	1,207	54,397	7,078	66,393
Graysby	1,720	1,937	23,968	0	27,625
Red Grouper	2,603	1,672	49,248	2,949	56,472
Red Hind	195	172	1,218	0	1,585
Rock Hind	106	2,136	2,549	0	4,790
Scamp	1,312	1,928	3,178	78	6,496
Yellowfin Gr	0	16	97	0	113
Yellowmouth Gr	0	13	0	0	13

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

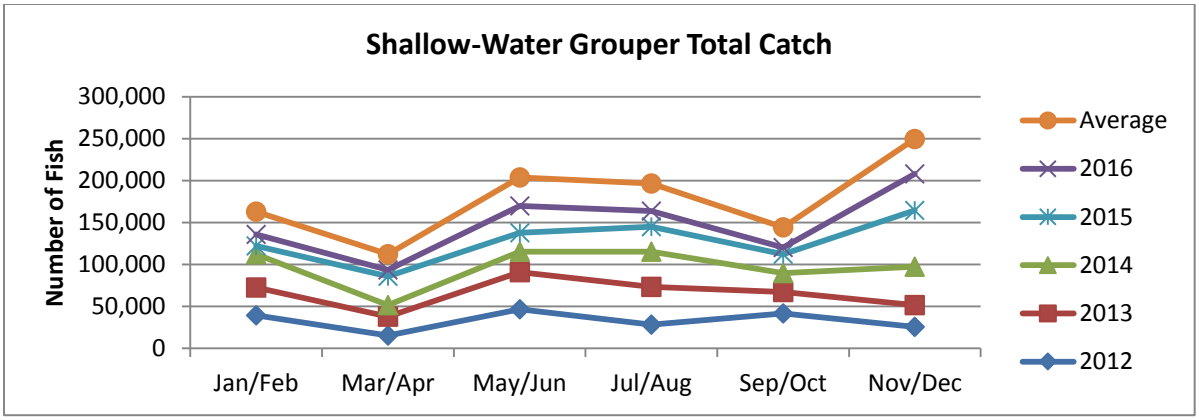


Figure 3.3.2.1. Seasonal distribution of shallow-water grouper catches, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

Florida is the dominant state for catches of deep-water species but North Carolina also registered some good catches of deep-water species (**Table 3.3.2.4**). Blueline tilefish and queen snapper are the top two species. While the private/rental mode is the dominant fishing mode, the charterboat mode is not too far behind, except in 2013 when private/rental mode catches of deep-water species were extremely high (**Table 3.3.2.5)**. With the possible exception of 2012, the pattern of seasonal distribution of deep-water species catches remained the same through the years (**Figure 3.3.2.2)**.

Table 3.3.2.4. Recreational catches (number of fish) of deep-water species, by state, 2012-2016.

	FLE	NFLE/GA	NC	SC	TOTAL
Group of Species					
2012	46,750	6,523	14,676	16	67,965
2013	127,705	5,404	10,418	1	143,529
2014	37,072	8,609	14,198	9	59,888
2015	36,389	9,534	3,431	1	49,356
2016	30,451	5,829	28,665	4	64,950
Average	55,674	7,180	14,278	6	77,137
Individual Species of Deep-water Species, 2012-2016 Average					
Blackfin Snapper	351	526	0	0	877
Blueline Tilefish	17,048	3,097	12,933	0	33,078
Golden Tilefish	0	10	0	0	10
Misty Grouper	0	347	0	0	347
Queen Snapper	31,343	1,144	192	3	32,683
Sand Tilefish	628	1,252	88	3	1,970
Silk Snapper	2,300	584	896	0	3,780
Snowy Grouper	3,993	104	126	0	4,222
Yellowedge Gr	11	190	43	0	244

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

Table 3.3.2.5. Recreational catches (number of fish) of deep-water species, by fishing mode, 2012-2016.

	CBT	HBT	PRIV/RENTAL	SHORE	TOTAL
Group of Species					
2012	20,985	9,592	32,851	4,536	67,965
2013	14,685	8,300	120,144	399	143,529
2014	10,451	12,258	36,921	258	59,888
2015	13,023	9,560	26,407	365	49,356
2016	25,710	6,682	32,558	0	64,950
Average	16,971	9,278	49,776	1,112	77,137
Individual Species of Deep-water Species, 2012-2016 Average					
Blackfin Snapper	43	526	309	0	877
Blueline Tilefish	9,393	5,147	18,458	80	33,078
Golden Tilefish	0	10	0	0	10
Misty Grouper	0	347	0	0	347
Queen Snapper	4,235	1,180	26,361	907	32,683
Sand Tilefish	93	1,258	620	0	1,970
Silk Snapper	712	591	2,353	125	3,780
Snowy Grouper	2,443	104	1,676	0	4,222
Yellowedge Gr	53	191	0	0	244

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

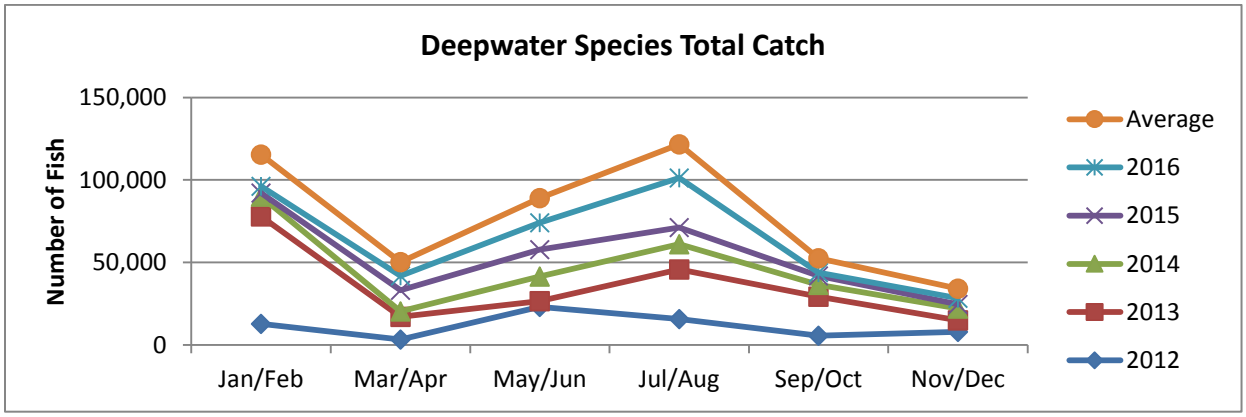


Figure 3.3.2.2. Seasonal distribution of deep-water species, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

Species in the aggregate snapper group are primarily caught in Florida, and relatively minimal in other areas (**Table 3.3.2.6**). Gray snapper is by far the most caught species but catches of yellowtail snapper, lane snapper, and mutton snapper are also relatively high. While the private/rental mode is the dominant fishing mode, the shore mode registered relatively high catches of aggregate snapper species, particularly gray snapper (**Table 3.3.2.7**). The pattern of seasonal distribution of aggregate snapper catches remained relatively the same throughout the 2012-2016 period, with peaks around the July/August and September/October waves (**Figure 3.3.2.3**).

Table 3.3.2.6. Recreational catches (number of fish) of aggregate snapper species, by state, 2012-2016.

	FLE	NFLE/GA	NC	SC	TOTAL
Group of Species					
2012	2,357,683	249,535	6	580	2,607,804
2013	3,776,715	225,857	15	61	4,002,647
2014	4,000,628	291,299	3,759	52	4,295,738
2015	3,141,078	288,342	421	781	3,430,621
2016	4,412,680	311,232	12	5	4,723,930
Average	3,537,757	273,253	843	296	3,812,148
Individual Species of Aggregate Snapper, 2012-2016 Average					
Blackfin Snapper	351	526	0	0	877
Cubera Snapper	1,137	228	1	88	1,454
Gray Snapper	2,500,388	81,821	695	188	2,583,093
Lane Snapper	271,199	27,702	2	0	298,903
Mutton Snapper	243,811	16,321	2	7	260,141
Queen Snapper	0	347	0	0	347
Silk Snapper	628	1,252	88	3	1,970
Yellowtail Snap.	520,242	145,127	55	9	665,433

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

Table 3.3.2.7. Recreational catches (number of fish) of aggregate snapper species, by fishing mode, 2012-2016.

	CBT	HBT	PRIV/RENTAL	SHORE	TOTAL
Group of Species					
2012	79,298	201,897	1,462,085	864,524	2,607,804
2013	201,100	188,748	2,743,469	869,331	4,002,647
2014	97,312	286,002	3,322,421	590,004	4,295,738
2015	143,712	284,410	2,607,258	395,241	3,430,621
2016	88,409	305,527	2,872,189	1,457,805	4,723,930
Average	121,966	253,317	2,601,484	835,381	3,812,148
Individual Species of Aggregate Snapper, 2012-2016 Average					
Blackfin Snapper	43	526	309	0	877
Cubera Snapper	87	229	1,000	137	1,454
Gray Snapper	40,414	61,867	1,746,210	734,602	2,583,093
Lane Snapper	17,501	27,704	225,323	28,375	298,903
Mutton Snapper	19,648	16,319	178,582	45,592	260,141
Queen Snapper	0	347	0	0	347
Silk Snapper	93	1,258	620	0	1,970
Yellowtail Snap.	44,180	145,136	449,441	26,676	665,433

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

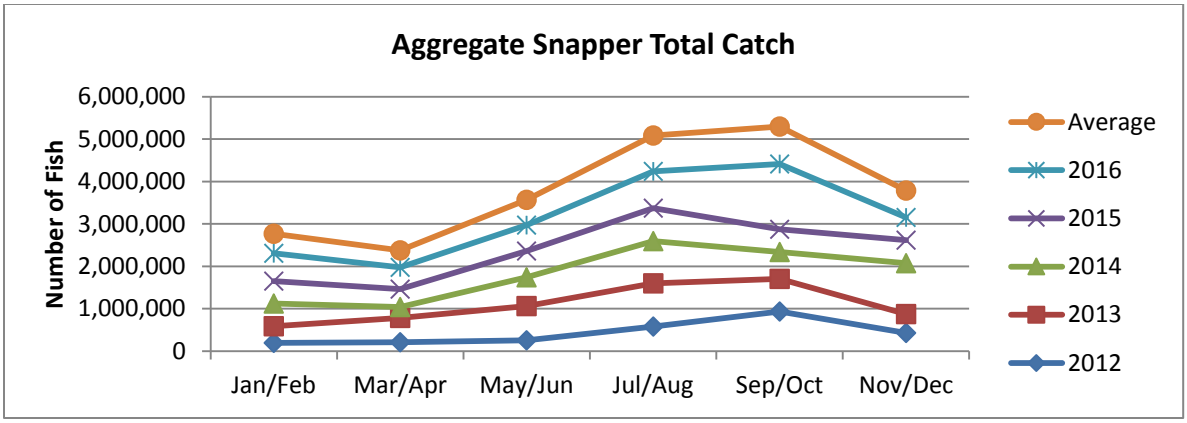


Figure 3.3.2.3. Seasonal distribution of aggregate snapper species, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

There are 14 species currently subject to the aggregate 20-fish bag limit, but the information presented below does not yet include Atlantic spadefish. Florida is the dominant state for catches of aggregate 20-fish bag limit species, but the other states also registered relatively high landings of the various species (**Table 3.3.2.8**). Gray triggerfish and white grunt are the top species in this group. Although well behind the private/rental mode, headboats registered relatively high catches of this species group, particularly white grunt (**Table 3.3.2.9**). The pattern of seasonal catch distribution of this species group remained about the same throughout the 2012-2016 years (**Figure 3.3.2.4**). One exception is the catch increase in the last wave of 2016 whereas catch decreased for this wave in earlier years.

Table 3.3.2.8. Recreational catches (number of fish) of the aggregate 20-fish bag limit species, by state, 2012-2016.

	FLE	NFLE/GA	NC	SC	TOTAL
Group of Species					
2012	871,901	184,691	192,921	42,016	1,291,529
2013	813,264	150,933	145,411	45,265	1,154,873
2014	682,828	182,172	121,047	100,750	1,086,797
2015	615,469	179,370	125,636	70,990	991,466
2016	1,135,969	152,846	135,103	42,455	1,466,373
Average	823,886	170,002	144,024	60,295	1,198,207
Individual Species of the Aggregate 20-fish Bag Limit, 2012-2016 Average					
Almaco Jack	45,876	3,417	2,279	1,271	52,843
Banded Rudrfish	11,168	3,925	4,703	8,789	28,585
Bar Jack	6,788	553	438	92	7,871
Gray Triggerfish	284,106	19,881	64,505	16,668	385,159
Jolthead Porgy	29,176	4,546	502	999	35,223
Knobbed Porgy	7,098	5,341	1,497	157	14,092
Lesser Amberjck	0	245	387	37	669
Margate	4,244	772	211	14	5,241
Sailor's Choice	44,633	1,183	49	410	46,274
Saucereye Porgy	1,315	100	0	0	1,415
Scup	0	30	8,673	3,942	12,645
White Grunt	368,018	125,790	59,373	26,497	579,679

Whitebone Porgy	21,465	4,220	1,406	1,420	28,512
Spadefish					

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

Table 3.3.2.9. Recreational catches (number of fish) of the aggregate 20-fish bag limit species, by fishing mode, 2012-2016.

	CBT	HBT	PRIV/RENTAL	SHORE	TOTAL
Group of Species					
2012	116,370	265,081	709,057	201,021	1,291,529
2013	103,357	237,623	774,317	39,576	1,154,873
2014	120,584	279,934	642,360	43,919	1,086,797
2015	133,754	270,397	548,673	38,643	991,466
2016	78,188	235,339	1,047,713	105,133	1,466,373
Average	110,450	257,675	744,424	85,658	1,198,207
Individual Species of the Aggregate 20-fish Bag Limit, 2012-2016 Average					
Almaco Jack	7,507	5,511	39,764	60	52,843
Banded Rudrfish	5,704	11,062	9,272	2,548	28,585
Bar Jack	608	506	4,208	2,550	7,871
Gray Triggerfish	53,352	48,501	260,862	22,444	385,159
Jolthead Porgy	3,862	5,961	25,400	0	35,223
Knobbed Porgy	546	5,939	7,436	171	14,092
Lesser Amberj	13	507	149	0	669
Margate	245	997	2,443	1,556	5,241
Sailor's Choice	926	1,133	30,726	13,489	46,274
Saucereye Porgy	22	100	1,293	0	1,415
Scup	415	9,905	1,770	555	12,645
White Grunt	33,975	162,369	341,334	42,000	579,679
Whitebne Porgy	3,274	5,186	19,767	285	28,512
Spadefish					

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

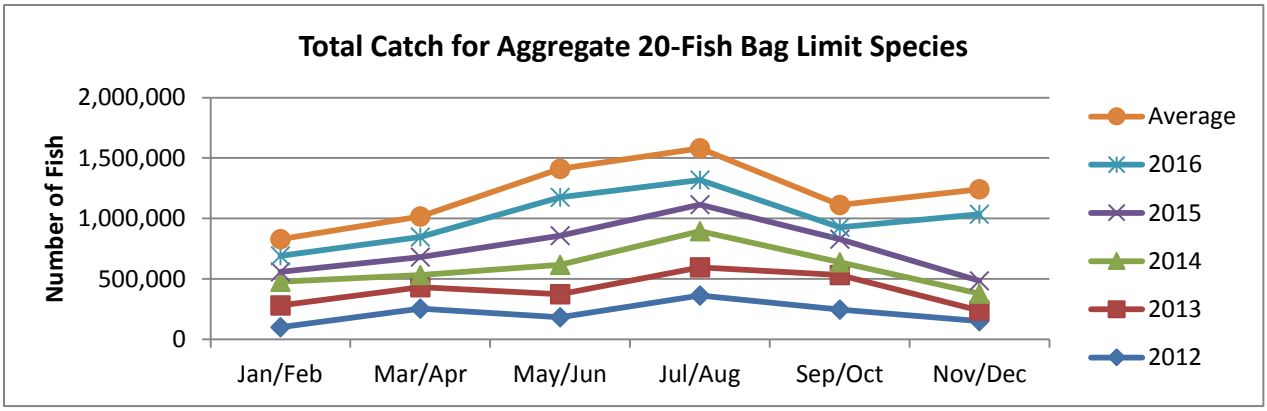


Figure 3.3.2.4. Seasonal distribution of aggregate 20-fish bag limit species, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

North Carolina is the dominant state for black sea bass catches (**Table 3.3.2.10**). However, the other states (except Georgia) are not far behind such that the distribution of black sea bass

catches by state is close to being equal. For gray triggerfish, Florida is the dominant state but North Carolina also registered relatively high catches (**Table 3.3.2.10**). The private/rental mode is the dominant fishing mode for both black sea bass and gray triggerfish catches, although the charterboat mode accounted for high catches of both species (**Table 3.3.2.11**). Black sea bass is probably one of the few species where the shore mode registers higher catches than headboat. For both black sea bass, the pattern of seasonal distribution remained about the same throughout 2012-2016 (**Figure 3.3.2.5**). A similar pattern of seasonal distribution may also be observed for gray triggerfish throughout 2012-2016, except that catches of gray triggerfish increased in the last wave for 2016 in contrast to decreases for this wave in earlier years (**Figure 3.3.2.6**).

Table 3.3.2.10. Recreational catches (number of fish) of black sea bass and gray triggerfish, by state, 2012-2016.

	FLE	NFLE/GA	NC	SC	TOTAL
Black Sea Bass					
2012	1,454,984	180,126	2,195,741	943,804	4,774,655
2013	913,041	404,222	1,449,402	432,924	3,199,589
2014	1,630,540	592,297	1,436,363	1,725,843	5,385,044
2015	855,336	288,638	1,527,653	955,224	3,626,852
2016	799,409	109,206	1,897,858	640,710	3,447,184
Average	1,130,662	314,898	1,701,403	939,701	4,086,665
Gray Triggerfish					
2012	119,680	24,814	77,345	9,071	230,910
2013	178,531	24,706	90,376	11,465	305,078
2014	207,304	18,788	55,394	19,464	300,951
2015	242,343	16,742	44,806	34,484	338,375
2016	672,673	14,352	54,603	8,854	750,483
Average	284,106	19,881	64,505	16,668	385,159

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

Table 3.3.2.9. Recreational (number of fish) of black sea bass and gray triggerfish, by fishing mode, 2012-2016.

	CBT	HBT	PRIV/RENTAL	SHORE	TOTAL
Black Sea Bass					
2012	302,162	107,460	4,008,125	356,908	4,774,655
2013	110,680	88,724	2,894,547	105,637	3,199,589
2014	850,689	79,603	4,080,503	374,250	5,385,044
2015	523,202	62,957	2,823,406	217,286	3,626,852
2016	232,533	50,918	2,979,509	184,223	3,447,184
Average	403,853	77,932	3,357,218	247,661	4,086,665
Gray Triggerfish					
2012	47,931	49,096	116,100	17,783	230,910
2013	51,453	56,490	193,034	4,101	305,078
2014	46,668	53,108	186,683	14,492	300,951
2015	91,164	45,972	192,457	8,782	338,375
2016	29,547	37,840	616,033	67,063	750,483
Average	53,352	48,501	260,862	22,444	385,159

Source: SEFSC MRIPACLspec_rec81_16wv6_20Mar17_wLACreel14to16v2.

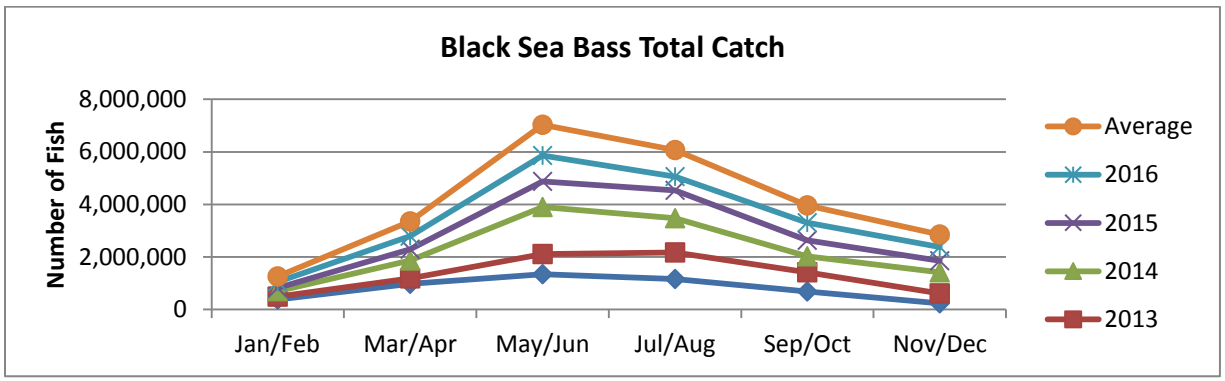


Figure 3.3.2.5. Seasonal distribution of black sea bass, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

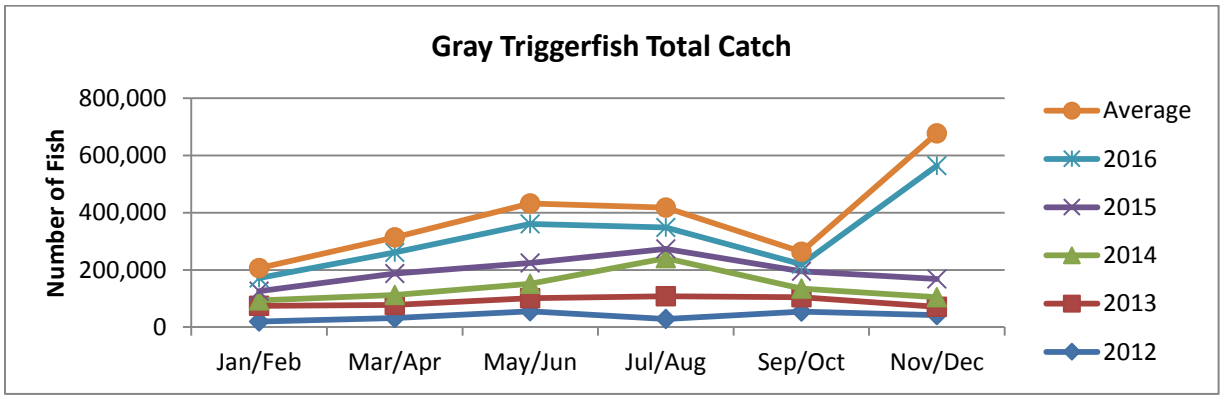


Figure 3.3.2.6. Seasonal distribution of gray triggerfish, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

Effort

Recreational effort derived from the Marine Recreational Statistics Survey/Marine Recreational Information Program (Marine Recreational Fisheries Statistical Survey [MRFSS]/Marine Recreational Information Program [MRIP]) database can be characterized in terms of the number of trips as follows:

Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that the species or a species in the species group was targeted as either the first or second primary target for the trip. The species did not have to be caught.

Catch effort - The number of individual angler trips, regardless of duration and target intent, where the individual species or a species in the species group was caught. The fish did not have to be kept.

Total recreational trips - The total estimated number of recreational trips in the Atlantic, regardless of target intent or catch success.

Other measures of effort are possible, such as the number of harvest trips (the number of individual angler trips that harvest a particular species regardless of target intent), and directed

trips (the number of individual angler trips that either targeted or caught a particular species), among other measures, but the three measures of effort listed above are used in this assessment.

The following presents target and catch trips only for groups of species. Generally, trips for individual species, particularly target trips, are relatively sparse. As with catches, target and catch trips are presented by state and by fishing mode. In estimating target and catch trips by species group, a trip is registered if any one species in the group registers a non-positive trip. In a case where a trip targets or catches more than one species, such trip is recorded only as one trip. This implies that the estimated of total group trips may be less than the sum of trips from all species within a group.

For the shallow-water grouper species, most of the target trips are accounted for by Florida, with some coming from North Carolina and a few from South Carolina (**Table 3.3.2.10**). While Florida is the dominant state for catch trips, North and South Carolina also accounted for a good number of catch trips. The private/rental fishing mode accounted for most of the target and catch trips, but while the other fishing modes reported only few target trips they do account for much higher catch trips than target trips (**Table 3.3.2.11**). The pattern of seasonal distribution for target trips changed over the years—for 2012 through 2014 peaks occurred in the July/August wave but for the later years the peaks shifted to the May/June wave with increases in the November/December wave (**Figure 3.3.2.6**). For catch trips, the pattern of seasonal distribution remained fairly the same throughout, except for increases in the last wave for the last two years (**Figure 3.3.2.7**).

Table 3.3.2.10. Target and catch trips for shallow-water grouper, by state, 2012-2016.

	FLE	GA	NC	SC	TOTAL
Target Trips					
2012	15,717	0	1,725	0	17,442
2013	23,081	0	0	0	23,081
2014	11,837	0	0	0	11,837
2015	19,871	0	1,374	164	21,410
2016	25,732	0	0	548	26,280
Average	19,248	0	620	142	20,010
Catch Trips					
2012	90,574	1,437	23,767	5,671	121,448
2013	147,216	40	8,677	2,350	158,283
2014	104,848	1,274	9,059	8,026	123,206
2015	64,096	722	12,965	2,100	79,883
2016	89,185	221	10,000	4,428	103,835
Average	99,184	739	12,894	4,515	117,331

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.3.2.11. Target and catch trips for shallow-water grouper, by fishing mode, 2012-2016.

	Shore	Charter	Private/Rental	Total
Target Trips				
2012	779	0	16,663	17,442
2013	0	582	22,499	23,081
2014	0	0	11,837	11,837
2015	3,906	2,588	14,916	21,410
2016	0	0	26,280	26,280
Average	937	634	18,439	20,010
Catch Trips				
2012	7,575	11,770	102,103	121,448
2013	2,700	16,336	139,247	158,283
2014	11,962	13,221	98,024	123,206
2015	6,495	11,075	62,313	79,883
2016	0	15,223	88,612	103,835
Average	5,746	13,525	98,060	117,331

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

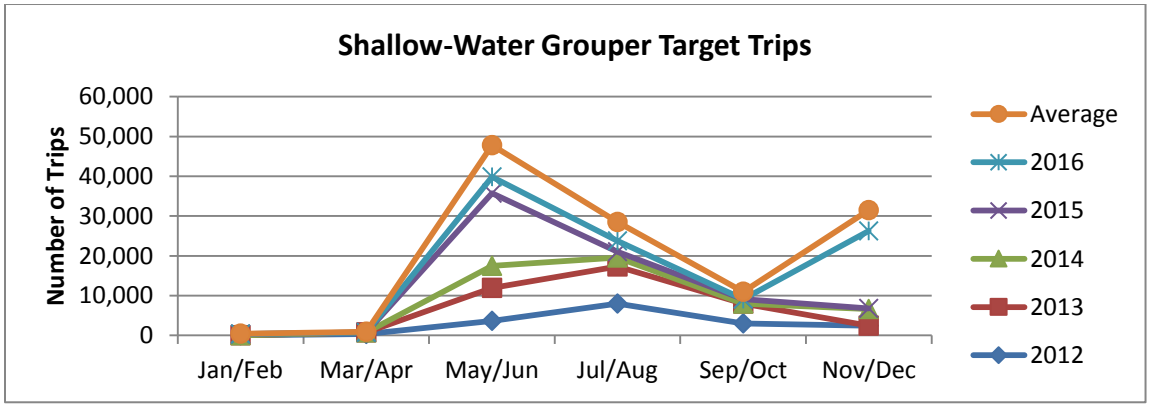


Figure 3.3.2.6. Seasonal distribution of shallow-water target trips, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

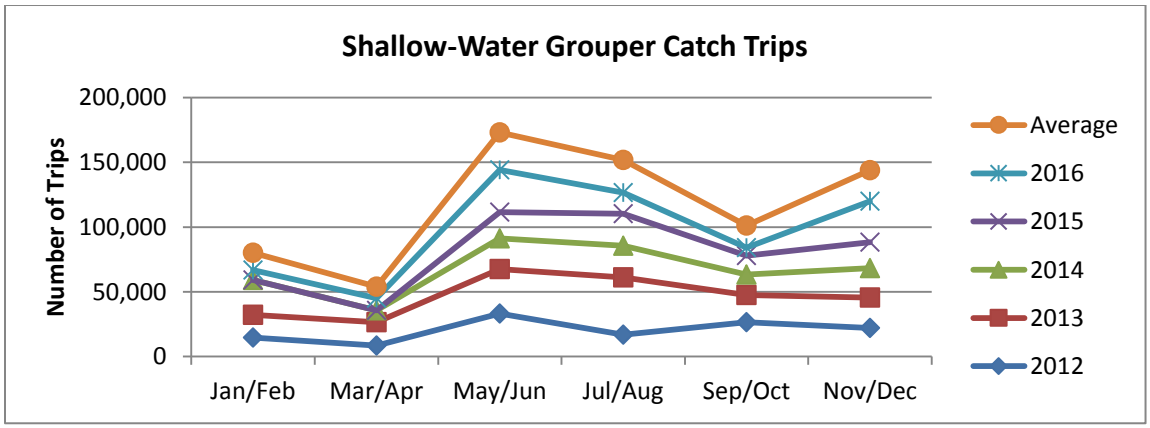


Figure 3.3.2.7. Seasonal distribution of shallow-water grouper catch trips, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

While Florida is the dominant state for target and catch trips for deep-water species, North Carolina did register relatively high catch trips (**Table 3.3.2.12**). All the other states did not report any target or catch trips. The private/rental mode accounted for most of the target trips, with the other states showing very little non-zero trips (**Table 3.3.2.13**). In terms, however, of catch trips the other states reported some positive trips, particularly in the earlier years. The pattern of seasonal distribution of both target and catch trips remained about the same throughout the period (**Figures 3.3.2.8** and **3.3.2.9**).

Table 3.3.2.12. Target and catch trips for deep-water species, by state, 2012-2016.

	FLE	GA	NC	SC	TOTAL
Target Trips					
2012	1,511	0	462	0	1,973
2013	11,542	0	344	0	11,885
2014	2234	0	910	0	3,144
2015	37	0	0	0	37
2016	5,003	0	877	0	5,880
Average	4,065	0	519	0	4,584
Catch Trips					
2012	33,318	0	7,014	0	40,332
2013	47,922	0	4,209	0	52,131
2014	24,364	0	4,958	0	29,322
2015	12,207	0	3,689	0	15,896
2016	28,947	0	10,965	0	39,912
Average	29,352	0	6,167	0	35,519

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.3.2.13. Target and catch trips for deep-water species, by fishing mode, 2012-2016.

	Shore	Charter	Private/Rental	Total
Target Trips				
2012	0	0	1973	1973
2013	0	0	11,885	11,885
2014	0	0	3,144	3,144
2015	0	37	0	37
2016	340	255	5,286	5,880
Average	68	58	4,458	4,584
Catch Trips				
2012	4,536	13,669	22,127	40,332
2013	399	9,075	42,657	52,131
2014	258	6,160	22,903	29,322
2015	365	5,198	10,333	15,896
2016	0	14,357	25,556	39,912
Average	1,112	9,692	24,715	35,519

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

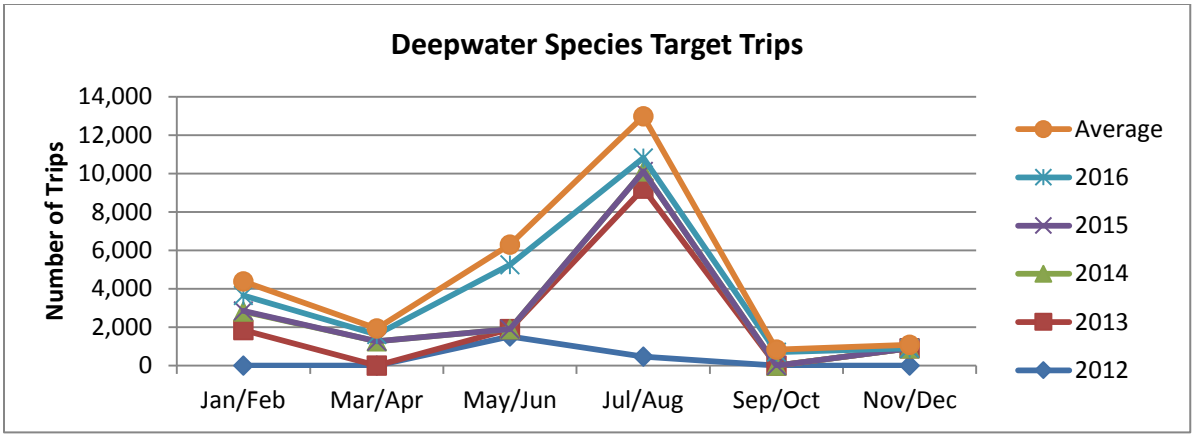


Figure 3.3.2.8. Seasonal distribution of deep-water species target trips, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

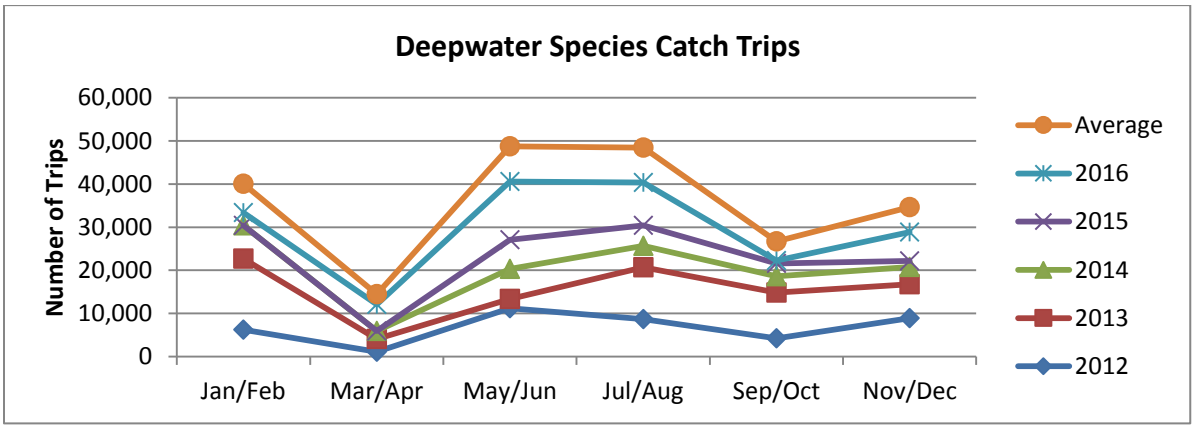


Figure 3.3.2.9. Seasonal distribution of deep-water species catch trips, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

Although Florida is the only state with positive target trips for aggregate snapper species, the other states, particularly Georgia, registered positive catch trips (**Table 3.3.2.14**). All three fishing modes appear to be important fishing modes for both target and catch trips, although the private/rental mode is still the dominant fishing mode (**Table 3.3.2.15**). The pattern of seasonal distribution for both target and catch trips remained about the same throughout the 2012-2016 period (**Figures 3.3.2.**10 and **3.3.2.11**).

Table 3.3.2.14. Target and catch trips for the aggregate snapper species, by state, 2012-2016.

	FLE	GA	NC	SC	TOTAL
Target Trips					
2012	113,412	0	0	0	113,412
2013	151,638	0	0	0	151,638
2014	146,501	0	0	0	146,501
2015	184,962	0	0	0	184,962
2016	227,530	0	0	0	227,530
Average	164,809	0	0	0	164,809
Catch Trips					

2012	767,555	17,113	0	293	784,960
2013	948,022	11,271	62	0	959,356
2014	1,058,427	8,154	208	0	1,066,789
2015	644,809	1,738	496	2,477	649,521
2016	1,093,002	1,877	0	0	1,094,879
Average	902,363	8,031	153	554	911,101

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.3.2.15. Target and catch trips for the aggregate snapper species, by fishing mode, 2012-2016.

	Shore	Charter	Private/Rental	Total
Target Trips				
2012	41,359	707	71,346	113,412
2013	46,314	523	104,801	151,638
2014	44,264	845	101,392	146,501
2015	51,977	2,589	130,396	184,962
2016	107,959	1,904	117,667	227,530
Average	58,375	1,314	105,120	164,809
Catch Trips				
2012	285,180	16,199	483,582	784,960
2013	254,293	44,168	660,895	959,356
2014	183,248	40,480	843,061	1,066,789
2015	125,157	43,857	480,506	649,521
2016	334,319	44,025	716,535	1,094,879
Average	236,439	37,746	636,916	911,101

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

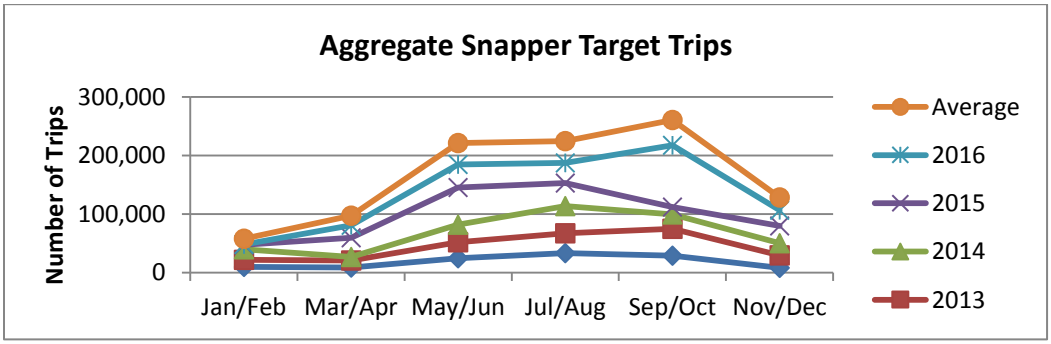


Figure 3.3.2.10. Seasonal distribution of aggregate snapper target trips, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

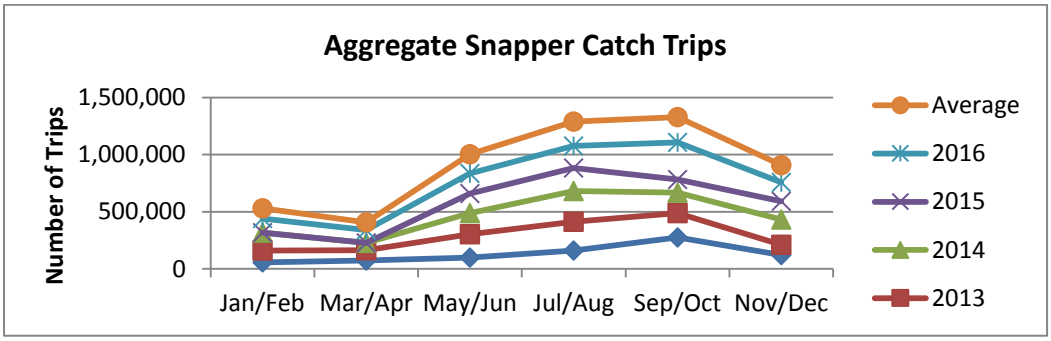


Figure 3.3.2.11. Seasonal distribution of aggregate snapper catch trips, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

Only Florida and North Carolina registered positive target trips for any of the aggregate 20-fish bag limit species, but all states reported positive catch trips (**Table 3.3.2.16**). Florida and North Carolina registered about the same number of target trips, but Florida showed significantly more catch trips than North Carolina. All fishing modes reported relatively large numbers of target and catch trips, although the private mode still dominates all other fishing modes (**Table 3.3.2.17**). The pattern of seasonal distribution for both target and catch trips remained about the same throughout the 2012-2016 years, with peaks occurring in the July/August wave (**Figures 3.3.2.**12 and **3.3.2.13**).

Table 3.3.2.16. Target and catch trips for the aggregate 20-fish bag limit species, by state, 2012-2016.

	FLE	GA	NC	SC	TOTAL
Target Trips					
2012	1,399	0	1,269	0	2,669
2013	9,583	0	7,558	0	17,140
2014	10,763	0	6,841	0	17,604
2015	2,204	0	3,309	0	5,513
2016	4,287	0	3,200	0	7,487
Average	5,647	0	4,435	0	10,083
Catch Trips					
2012	293,738	4,832	27,416	5,472	331,459
2013	279,210	5,754	23,724	2,054	310,742
2014	324,794	2,613	17,017	26,963	371,387
2015	215,594	4,783	19,404	21,209	260,990
2016	329,369	1,113	28,983	7,466	366,931
Average	288,541	3,819	23,309	12,633	328,302

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.3.2.17. Target and catch trips for aggregate 20-fish bag limit species, by fishing mode, 2012-2016.

	Shore	Charter	Private/Rental	Total
Target Trips				
2012	0	1,748	921	2,669
2013	964	2,683	13,493	17,140
2014	2,124	867	14,612	17,604
2015	286	1,182	4,045	5,513
2016	1,525	640	5,321	7,487
Average	980	1,424	7,678	10,082
Catch Trips				
2012	63,620	38,065	229,774	331,459
2013	19,245	44,850	246,647	310,742
2014	22,508	64,928	283,951	371,387
2015	21,232	66,298	173,460	260,990
2016	45,452	45,612	275,867	366,931
Average	34,411	51,951	241,940	328,302

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

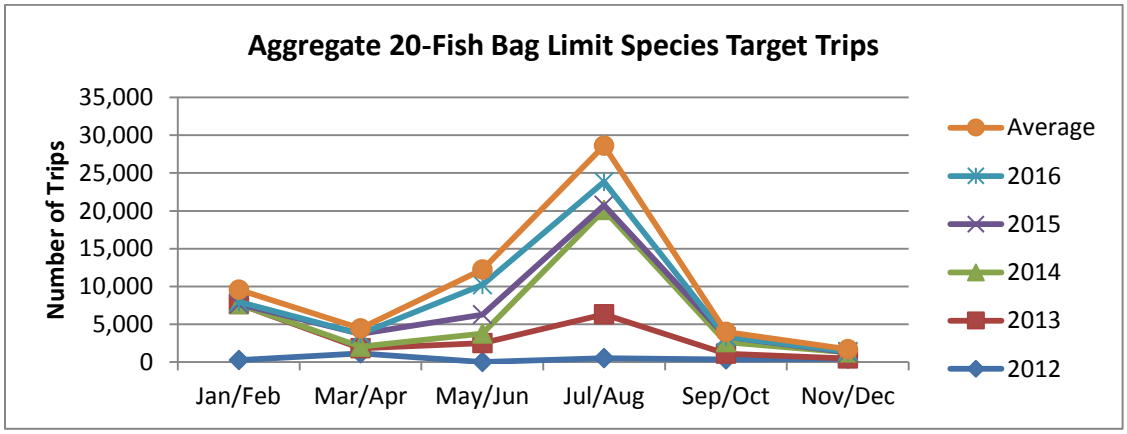


Figure 3.3.2.12. Seasonal distribution of aggregate 20-fish bag limit species target trips, by two month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

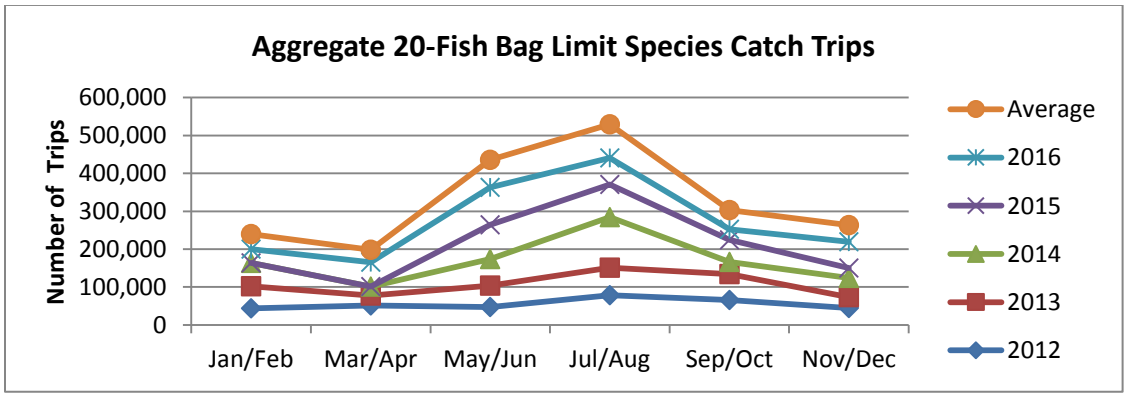


Figure 3.3.2.13. Seasonal distribution of aggregate 20-fish bag limit species catch trips, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

All states recorded relatively large numbers of both target and catch trips for black sea bass, reflecting the importance of the species in all states (**Table 3.3.2.18**). Florida and South Carolina are the top two states in terms of target trips but North Carolina and Florida comprise the top two for catch trips. The private/rental mode is by far the dominant state for both target and catch trips but while charterboats showed more catch trips than the shore mode the reverse happened for catch trips (**Table 3.3.2.19**). For both target and catch trips, the pattern of seasonal distribution remained about the same throughout the 2012-2016 period (**Figures 3.3.2.14** and **3.3.2.15**). Target trips peaked in May/June wave while catch trips peaked in the July/August wave.

Table 3.3.2.18. Target and catch trips for black sea bass, by state, 2012-2016.

	FLE	GA	NC	SC	TOTAL
Target Trips					
2012	6,951	1,069	13,250	19,825	41,094
2013	3,248	6,166	4,595	5,160	19,169
2014	33,599	10,328	9,742	22,775	76,445
2015	6,949	2,624	10,776	7,634	27,983
2016	17,217	1,755	11,846	5,338	36,155
Average	13,593	4,388	10,042	12,146	40,169
Catch Trips					
2012	248,139	48,111	348,053	141,733	786,037
2013	207,788	47,936	276,878	67,530	600,132
2014	347,763	48,930	242,411	177,494	816,597
2015	158,101	36,430	253,984	149,581	598,096
2016	156,266	24,173	299,825	135,299	615,563
Average	223,611	41,116	284,230	134,327	683,285

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.3.2.19. Target and catch trips for black sea bass, by fishing mode, 2012-2016.

	Shore	Charter	Private/Rental	Total
Target Trips				
2012	175	190	40,729	41,094
2013	0	762	18,407	19,169
2014	0	6,458	69,987	76,445
2015	923	5,226	21,834	27,983
2016	990	2,208	32,957	36,155
Average	418	2,969	36,783	40,169
Catch Trips				
2012	111,773	35,533	638,730	786,037
2013	59,986	13,587	526,559	600,132
2014	116,522	62,362	637,713	816,597
2015	104,375	34,649	459,071	598,096
2016	90,934	37,873	486,757	615,563
Average	96,718	36,801	549,766	683,285

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

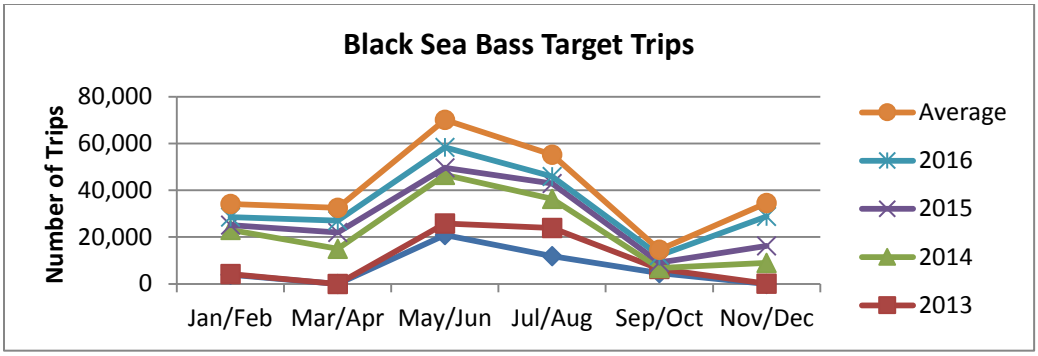


Figure 3.3.2.14. Seasonal distribution of black sea bass target trips, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

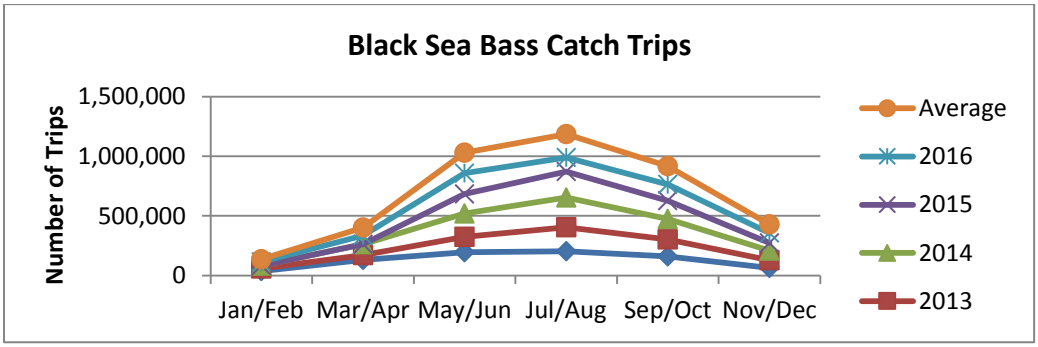


Figure 3.3.2.15. Seasonal distribution of black sea bass catch trips, by two-month wave, 2012-2016. Note: Line charts are stacked, including the average line chart.

Florida and North Carolina are the only states with recorded target trips for gray triggerfish but all states reported positive catch trips of the species (**Table 3.3.2.20**). Florida and North Carolina reported about the same number of target trips but Florida is by far the dominant state in terms of catch trips. The private/rental mode accounted for most of the target and catch trips but the other fishing modes also showed non-minimal number of both types of trips, especially catch trips (**Table 3.3.2.21**). The pattern of seasonal distribution of both target and catch trips remained about the same throughout the 2012-2016 years, and generally peaks for both target and catch trips occurred in the July/August wave (**Figures 3.3.2.16 and 3.3.2.17**).

Table 3.3.2.20. Target and catch trips for gray triggerfish, by state, 2012-2016.

	FLE	GA	NC	SC	TOTAL
Target Trips					
2012	632	0	1,269	0	1,901
2013	9,583	0	6,967	0	16,550
2014	10,763	0	5,522	0	16,284
2015	1,419	0	3,289	0	4,708
2016	4,287	0	3,062	0	7,349
Average	5,337	0	4,022	0	9,358
Catch Trips					
2012	95,315	3,211	13,623	1,394	113,544
2013	105,820	5,720	15,751	764	128,055
2014	152,371	2,147	9,570	19,375	183,463

2015	73,116	2,969	8,239	10,344	94,668
2016	170,459	1,023	16,372	4,108	191,962
Average	119,416	3,014	12,711	7,197	142,338

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.3.2.21. Target and catch trips for gray triggerfish, by fishing mode, 2012-2016.

	Shore	Charter	Private/Rental	Total
Target Trips				
2012	0	980	921	1,901
2013	374	2,683	13,493	16,550
2014	805	867	14,612	16,284
2015	286	1,162	3,260	4,708
2016	1,525	640	5,183	7,349
Average	598	1,266	7,494	9,358
Catch Trips				
2012	16,583	21,174	75,786	113,544
2013	3,812	18,647	105,596	128,055
2014	14,492	40,563	128,409	183,463
2015	4,833	34,273	55,563	94,668
2016	25,553	24,454	141,955	191,962
Average	13,055	27,822	101,462	142,338

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

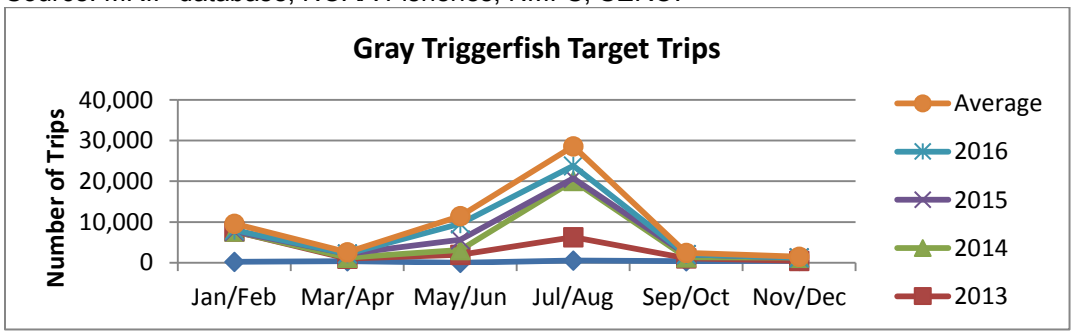


Figure 3.3.2.16. Seasonal distribution of gray triggerfish target trips, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

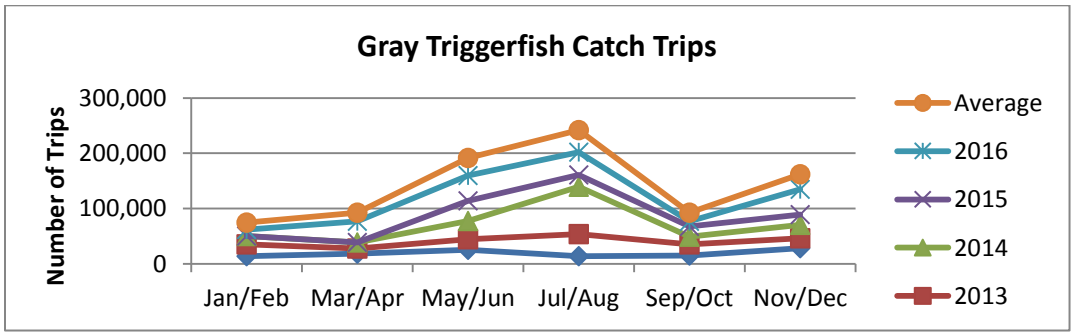


Figure 3.3.2.17. Seasonal distribution of gray triggerfish catch trips, by two-month wave, 2012-2016.
Note: Line charts are stacked, including the average line chart.

Headboat data in the Southeast do not support the estimation of target or catch effort because target intent is not collected and the harvest data (the data reflects only harvest information and not total catch) are collected on a vessel basis and not by individual angler. **Table 3.3.2.22** contains estimates of the number of headboat angler days for the South Atlantic states for 2010-2015. Florida and Georgia data are combined for confidentiality purposes.

Table 3.3.2.22. South Atlantic headboat angler days, by state, 2010-2015.

	Angler Days			Percent Distribution		
	Florida/Georgia	North Carolina	South Carolina	Florida/Georgia	North Carolina	South Carolina
2012	123,662	20,766	41,003	69.30%	10.30%	20.40%
2013	124,041	20,547	40,963	72.90%	9.00%	18.00%
2014	139,623	22,691	42,025	75.20%	8.70%	16.10%
2015	194,979	22,716	39,702	75.75%	8.83%	15.42%
2016	196660	21565	42207	75.51%	8.28%	16.21%
Average	155,793	21,657	41,180	71.26%	9.91%	18.84%

Source: NMFS Southeast Region Headboat Survey (SRHS).

Economic Value

Economic value can be measured in the form of consumer surplus (CS) per additional fish kept on a trip for anglers (the amount of money that an angler would be willing to pay for a fish in excess of the cost to harvest the fish). The CS value per fish for each snapper and grouper species examined in this amendment is unknown but some proxies, such as the CS for snapper and the CS for grouper, may be used. The estimated value of the CS per fish for a second snapper kept on a trip is approximately $12.38, with bounds of $8.26 and $17.89 at the 95 percent confidence interval (Haab et al. 2012; values updated to 2015 dollars), and that for grouper is approximately $101 (Carter and Liese 2012; values updated to 2015 dollars).

Economic value for for-hire vessels can be measured by producer surplus (PS) per passenger trip (the amount of money that a vessel owner earns in excess of the cost of providing the trip). Estimates of the PS per for-hire passenger trip are not available. Instead, net operating revenue (NOR), which is the return used to pay all labor wages, returns to capital, and owner profits, is used as a proxy for PS. For vessels in the South Atlantic, the estimated NOR value is $163 (2015 dollars) per charter angler trip (Liese and Carter 2011). The estimated NOR value per headboat angler trip is $44 (2015 dollars) (C. Liese, NMFS SEFSC, pers. comm.).

Recreational Sector Business Activity

Estimates of the business activity (economic impacts) associated with recreational angling for cobia were derived using average impact coefficients for recreational angling for all species, as derived from an add-on survey to MRIP to collect economic expenditure information, as described and utilized in NMFS (2011). Estimates of these coefficients for target or catch behavior for individual species are not available. Estimates of the average trip expenditures by recreational anglers are also provided in NMFS (2011) and are incorporated herein by reference.

Business activity for the recreational sector is characterized in the form of jobs, output (sales) impacts (gross business sales), and value-added impacts (difference between the value of goods and the cost of materials or supplies). Job and output (sales) impacts are equivalent metrics across both the commercial and recreational sectors. Income impacts (commercial sector) and value-added impacts (recreational sector) are not equivalent, though similarity in the magnitude of multipliers generated and used for the two metrics may result in roughly equivalent values. Similar to income impacts, value-added impacts should not be added to output (sales) impacts because this would result in double counting.

To generate the associated business activity from recreational effort, target trips are selected as a measure of effort. Many of the individual species examined in this amendment have very low or no reported target trips. On this account, estimates of business activity are generated for groups of species, except for black sea bass and gray triggerfish. Estimates of business activity are shown in **Table 3.3.2.23** through **Table 3.3.2.28**.

The estimates of the business activity associated with recreational trips are only available at the state level. Addition of the state-level estimates to produce a regional or national total will underestimate the actual amount of total business activity because summing the state estimates will not capture business activity that leaks outside the individual states. A state estimate only reflects activities that occur within that state and not related activity that occurs in another state. For example, if a good is produced in South Carolina but sold in North Carolina, the measure of business activity in North Carolina associated with the sale in North Carolina does not include the production process in South Carolina. Assessment of business activity at the national (or regional) level would capture activity in both states and include all activity except that which leaks into other nations.

It is noted that these estimates do not, and should not be expected to, represent the total business activity associated with a specific recreational harvest sector in a given state or in total. For example, these results do not state, or should be interpreted to imply, that there are only 4 jobs associated with the charter sector in Florida (see **Table 3.3.2.23**). Instead, as previously stated, these results relate only to the business activity associated with target trips for a group of shallow-water grouper. Few businesses or jobs would be expected to be devoted solely to shallow-water grouper fishing, but there may be some businesses that have significant dependence and reliance on the shallow-water grouper fishery. The existence of these businesses and jobs, in total, is supported by the fishing for, and expenditures on, the variety of marine species available to anglers throughout the year. In addition, expenditures for durable goods, such as boats, rods, reels, that were used for harvesting cobia are not included in the economic impact estimation.

Table 3.3.2.23. Summary of shallow-water grouper target trips (2012-2016 average) and associated business activity, South Atlantic states. Output and value added impacts are not additive. Dollar values are in thousands and in 2015 dollars.

	North Carolina	South Carolina	Georgia	Florida
	Charter			
Target Trips	5	33	0	596
Output/Sales Impact	$1	$11	$0	$278
Value Added Impact	$3	$20	$0	$458
Income Impact	$1	$8	$0	$190
Jobs Impact	<1	<1	0	4
	Private/Rental			
Target Trips	615	110	0	17,715
Output/Sales Impact	$29	$3	$0	$599
Value Added Impact	$47	$5	$0	$967
Income Impact	$18	$2	$0	$364
Jobs Impact	<1	<1	0	9
	Shore			
Target Trips	0	0	0	937
Output/Sales Impact	$0	$0	$0	$22
Value Added Impact	$0	$0	$0	$35
Income Impact	$0	$0	$0	$13
Jobs	0	0	0	0
	All Modes			
Target Trips	620	142	0	19,248
Output/Sales Impact	$30	$14	$0	$899
Value Added Impact	$50	$25	$0	$1,460
Income Impact	$19	$10	$0	$567
Jobs Impact	0	0	0	13

Source: Effort data from the MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

Table 3.3.2.24. Summary of deep-water species target trips (2012-2016 average) and associated business activity, South Atlantic states. Output and value added impacts are not additive. Dollar values are in thousands and in 2015 dollars.

	North Carolina	South Carolina	Georgia	Florida
	Charter			
Target Trips	51	0	0	7
Output/Sales Impact	$15	$0	$0	$3
Value Added Impact	$26	$0	$0	$6
Income Impact	$10	$0	$0	$2
Jobs Impact	0	0	0	0
	Private/Rental			
Target Trips	468	0	0	3,990
Output/Sales Impact	$22	$0	$0	$135
Value Added Impact	$36	$0	$0	$218
Income Impact	$13	$0	$0	$82
Jobs Impact	0	0	0	2
	Shore			

Target Trips	0	0	0	68
Output/Sales Impact	$0	$0	$0	$2
Value Added Impact	$0	$0	$0	$3
Income Impact	$0	$0	$0	$1
Jobs	0	0	0	0
	All Modes			
Target Trips	519	0	0	4,066
Output/Sales Impact	$37	$0	$0	$140
Value Added Impact	$62	$0	$0	$226
Income Impact	$24	$0	$0	$85
Jobs Impact	1	0	0	2

Source: Effort data from the MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

Table 3.3.2.25. Summary of aggregate snapper target trips (2012-2016 average) and associated business activity, South Atlantic states. Output and value added impacts are not additive. Dollar values are in thousands and in 2015 dollars.

	North Carolina	South Carolina	Georgia	Florida
	Charter			
Target Trips	0	0	0	1,314
Output/Sales Impact	$0	$0	$0	$613
Value Added Impact	$0	$0	$0	$1,009
Income Impact	$0	$0	$0	$419
Jobs Impact	0	0	0	9
	Private/Rental			
Target Trips	0	0	0	105,120
Output/Sales Impact	$0	$0	$0	$3,555
Value Added Impact	$0	$0	$0	$5,740
Income Impact	$0	$0	$0	$2,157
Jobs Impact	0	0	0	53
	Shore			
Target Trips	0	0	0	58,375
Output/Sales Impact	$0	$0	$0	$1,352
Value Added Impact	$0	$0	$0	$2,167
Income Impact	$0	$0	$0	$817
Jobs	0	0	0	22
	All Modes			
Target Trips	0	0	0	164,809
Output/Sales Impact	$0	$0	$0	$5,520
Value Added Impact	$0	$0	$0	$8,917
Income Impact	$0	$0	$0	$3,393
Jobs Impact	0	0	0	84

Source: Effort data from the MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

Table 3.3.2.26. Summary of aggregate 20-fish bag limit species target trips (2012-2016 average) and associated business activity, South Atlantic states. Output and value added impacts are not additive. Dollar values are in thousands and in 2015 dollars.

	North Carolina	South Carolina	Georgia	Florida
	Charter			
Target Trips	883	0	0	541
Output/Sales Impact	$256	$0	$0	$252
Value Added Impact	$448	$0	$0	$415
Income Impact	$178	$0	$0	$173
Jobs Impact	5	0	0	4
	Private/Rental			
Target Trips	2,572	0	0	5,106
Output/Sales Impact	$121	$0	$0	$173
Value Added Impact	$199	$0	$0	$279
Income Impact	$74	$0	$0	$105
Jobs Impact	2	0	0	3
	Shore			
Target Trips	980	0	0	0
Output/Sales Impact	$69	$0	$0	$0
Value Added Impact	$118	$0	$0	$0
Income Impact	$42	$0	$0	$0
Jobs	1	0	0	0
	All Modes			
Target Trips	4,435	0	0	5,647
Output/Sales Impact	$446	$0	$0	$425
Value Added Impact	$765	$0	$0	$694
Income Impact	$294	$0	$0	$277
Jobs Impact	8	0	0	6

Source: Effort data from the MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

Table 3.3.2.27. Summary of black sea bass target trips (2012-2016 average) and associated business activity, South Atlantic states. Output and value added impacts are not additive. Dollar values are in thousands and in 2015 dollars.

	North Carolina	South Carolina	Georgia	Florida
	Charter			
Target Trips	679	1,700	346	244
Output/Sales Impact	$197	$593	$86	$114
Value Added Impact	$345	$1,027	$152	$187
Income Impact	$137	$424	$61	$78
Jobs Impact	4	11	2	2
	Private/Rental			
Target Trips	9,213	10,392	3,864	13,314
Output/Sales Impact	$433	$282	$109	$450
Value Added Impact	$712	$479	$174	$727
Income Impact	$264	$175	$66	$273
Jobs Impact	7	6	2	7
	Shore			

Target Trips	150	54	178	35
Output/Sales Impact	$11	$4	$6	$1
Value Added Impact	$18	$7	$9	$1
Income Impact	$6	$2	$3	$0
Jobs	<1	<1	<1	<1
	All Modes			
Target Trips	10,042	12,146	4,389	13,593
Output/Sales Impact	$640	$879	$200	$565
Value Added Impact	$1,074	$1,512	$336	$916
Income Impact	$407	$601	$130	$352
Jobs Impact	11	17	3	8

Source: Effort data from the MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

Table 3.3.2.28. Summary of gray triggerfish target trips (2012-2016 average) and associated business activity, South Atlantic states. Output and value added impacts are not additive. Dollar values are in thousands and in 2015 dollars.

	North Carolina	South Carolina	Georgia	Florida
	Charter			
Target Trips	879	0	0	387
Output/Sales Impact	$254	$0	$0	$181
Value Added Impact	$446	$0	$0	$297
Income Impact	$177	$0	$0	$124
Jobs Impact	5	0	0	3
	Private/Rental			
Target Trips	2,545	0	0	4,949
Output/Sales Impact	$119	$0	$0	$167
Value Added Impact	$197	$0	$0	$270
Income Impact	$73	$0	$0	$102
Jobs Impact	2	0	0	3
	Shore			
Target Trips	598	0	0	0
Output/Sales Impact	$42	$0	$0	$0
Value Added Impact	$72	$0	$0	$0
Income Impact	$26	$0	$0	$0
Jobs	1	0	0	0
	All Modes			
Target Trips	4,022	0	0	5,336
Output/Sales Impact	$416	$0	$0	$348
Value Added Impact	$715	$0	$0	$568
Income Impact	$276	$0	$0	$225
Jobs Impact	7	0	0	5

Source: Effort data from the MRIP, economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

Estimates of the business activity (impacts) associated with headboat effort for the species examined in this amendment in the Southeast are not available. The headboat sector in the Southeast is not covered in the MRFSS/MRIP, so estimation of the appropriate impact coefficients for the headboat sector has not been conducted. While appropriate impact

coefficients are available for the charter sector, potential differences in certain factors, such as the for-hire fee, rates of tourist versus local participation, and expenditure patterns, may result in significant differences in the business impacts of the headboat sector relative to the charter sector.

3.4 Social Environment

This amendment affects the recreational management of the snapper grouper management complex in the South Atlantic. This section provides the background for the proposed actions, which will be evaluated in **Chapter 4**. Recreational landings for included species (gag, red grouper, scamp, rock hind, red hind, grasby, yellowfin grouper, coney, yellowmouth grouper, snowy grouper, yellowedge grouper, misty grouper, black sea bass, queen snapper, yellowtail snapper, gray snapper, mutton snapper, lane snapper, cubera snapper, silk snapper, blackfin snapper, knobbed porgy, jolthead porgy, scup, whitebone porgy, saucereye porgy, white grunt, margate, sailor's choice, almaco jack, banded rudderfish, bar jack, lesser amberjack, golden tilefish, blueline tilefish, sand tilefish, gray triggerfish, and atlantic spadefish) are included by state to provide information on the geographic distribution of fishing involvement. Descriptions of the top recreational fishing communities in the South Atlantic based on recreational engagement are included. Community level data are presented in order to meet the requirements of National Standard 8 of the Magnuson-Stevens Act, which requires the consideration of the importance of fishery resources to human communities when changes to fishing regulations are considered. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns. Additional information on the South Atlantic recreational and commercial mutton snapper fishery is provided in the Economic Environment in **Section 3.3**.

Landings by State

Table 3.4.1. Recreational snapper grouper landings (ww) by species and by state, 2016.

Species	FLE/GA	NC	SC	Total
almaco jack	161006	16230	10722	187958
atlantic spadefish	15127	12033	75	27235
banded rudderfish	30261	6296	15063	51621
bar jack	1971	0	0	1971
black grouper	60202	0	187	60388
black sea bass	152490	113546	48218	314254
blackfin snapper	2409	0	0	2409
blueline tilefish	19289	149269	0	168558
coney	300	3	0	303
cubera snapper	194	0	12	206
gag	113847	27539	6604	147990
gray snapper	953848	0	0	953848
gray triggerfish	284438	79655	23071	387165
graysby	14184	593	215	14992

jolthead porgy	91928	530	514	92972
knobbed porgy	4678	1517	271	6466
lane snapper	79496	0	0	79496
lesser amberjack	669	190	56	916
margate	8029	0	0	8030
misty grouper	32	0	0	32

Source: SEFSC MRIP and MRFSS datasets.
Note: Landings for 2016 are preliminary.

Table 3.4.2. Recreational snapper grouper landings (ww) by species and by state continued, 2016.

Species	FLE/GA	NC	SC	Total
mutton snapper	340540	19	13	340572
queen snapper	8023	0	0	8023
red grouper	61600	503	77	62180
red hind	1078	5	10	1093
rock hind	9275	391	1696	11363
sailors choice	8685	0	0	8684
sand tilefish	2707	141	7	2856
saucereye porgy	194	0	0	194
scamp	18560	2000	9948	30507
scup	7	5665	2287	7959
silk snapper	1837	21	0	1858
snowy grouper	6697	8785	0	15482
tilefish	54321	1813	0	56134
white grunt	174357	65226	31710	271294
whitebone porgy	25385	2070	2245	29700
yellowedge grouper	1717	549	0	2265
yellowfin grouper	46	0	0	46
yellowmouth grouper	106	0	0	106
yellowtail snapper	391000	0	7	391007

Source: SEFSC MRIP and MRFSS datasets.
Note: Landings for 2016 are preliminary.

Recreational Communities

Landings for the recreational sector are not available by species at the community level; therefore, it is not possible with available information to identify communities as dependent on recreational fishing for specific species. Because limited data are available concerning how recreational fishing communities are engaged and reliant on specific species, indices were created using secondary data from permit and infrastructure information for the southeast recreational fishing sector at the community level (Jepson and Colburn 2013; Jacob et al. 2013). Recreational fishing engagement is represented by the number of recreational permits and

vessels designated as "recreational" by homeport and owners address. Fishing reliance includes the same variables as fishing engagement, divided by population. Factor scores of both engagement and reliance were plotted. Communities were analyzed in ranked order by recreational fishing engagement. **Figure 3.4.1** identifies the top 20 recreational communities located in the South Atlantic that are the most engaged and reliant on recreational fishing, in general. All included communities demonstrate high levels of recreational engagement. Seven communities (Key West, Florida; Marathon, Florida; Islamorada, Florida; Manteo, North Carolina; Murrells Inlet, South Carolina, Atlantic Beach, North Carolina; and Ponce Inlet Florida) demonstrate high levels of recreational reliance.

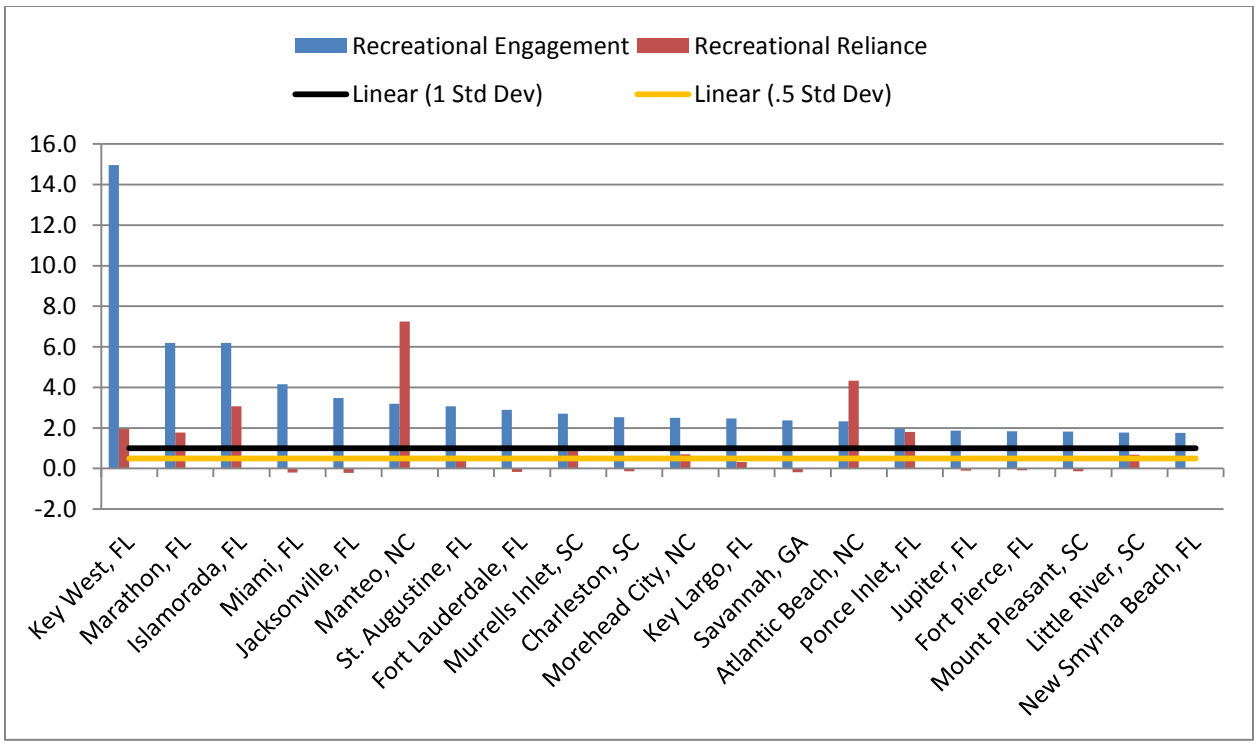


Figure 3.4.1. Recreational fishing communities' engagement and reliance.
Source: SERO, Social indicators database (2012).

Environmental Justice

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

Recreational fishermen and associated industries could be impacted by the proposed actions. However, information on the race and income status for groups at the different participation

levels is not available. Although information is available concerning communities overall status with regard to minorities and poverty (e.g., census data), such information is not available specific to fishermen and those involved in the industries and activities, themselves. To help assess whether any environmental justice concerns arise from the actions in this amendment, a suite of indices were created to examine the social vulnerability of coastal communities. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of five, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

Figure 3.4.2 provides the social vulnerability of the top recreational communities. Several South Atlantic communities exceed the threshold of 0.5 standard deviation for at least one of the social vulnerability indices: Miami, Florida; Manteo, North Carolina; Fort Lauderdale, Florida; Morehead City, North Carolina; Savannah, Georgia; and Fort Pierce, Florida. The communities of Miami, Fort Lauderdale, and Fort Pierce, Florida and Savannah, Georgia exceed the threshold for all three social vulnerability indices. These communities have substantial vulnerabilities and may be susceptible to further effects from any regulatory changes depending upon the direction and extent of that change.

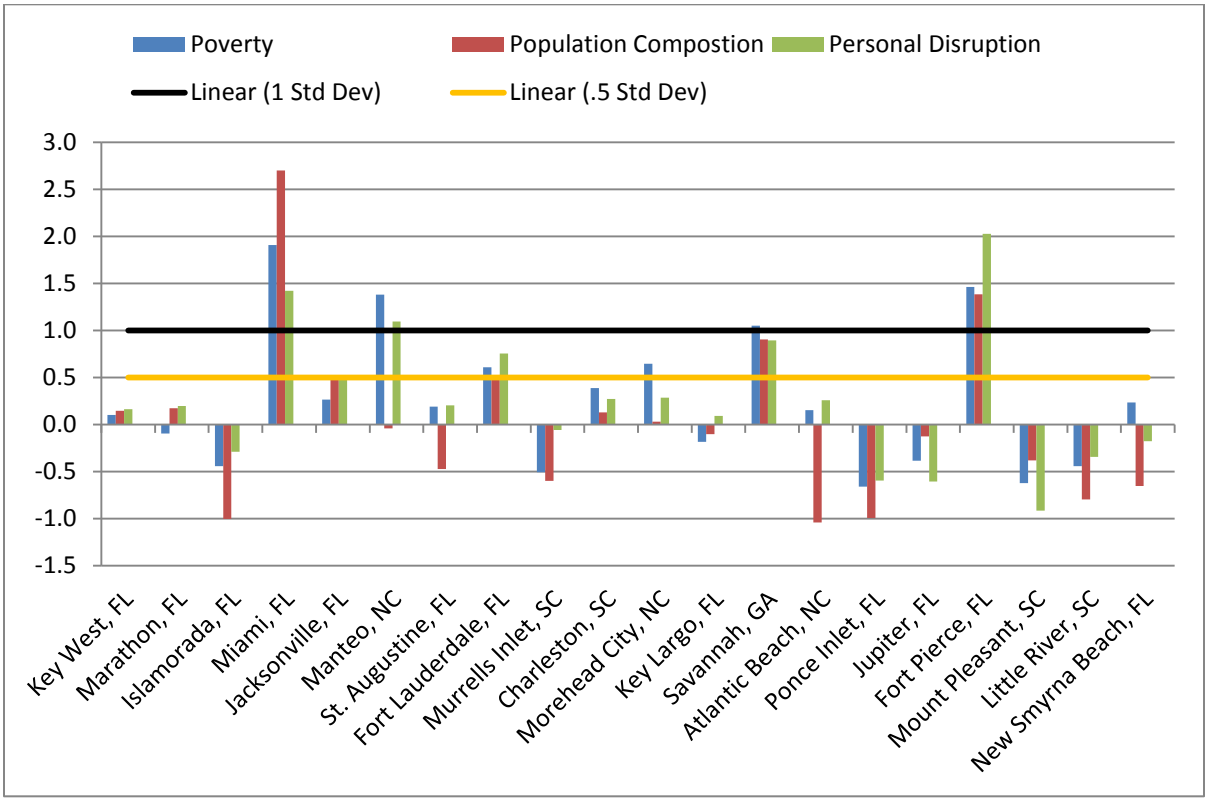


Figure 3.4.2. Social vulnerability indices for top recreational communities.
Source: SERO, Social Indicators Database (2012).

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

3.5 Administrative Environment

3.5.1 The Fishery Management Process and Applicable Laws

3.5.1.1 Federal Fishery Management

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

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

The South Atlantic Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 mi 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. The South Atlantic Council also established two voting seats for the Mid-Atlantic Council on the South Atlantic Mackerel Committee. 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.

3.5.1.2 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environmental Quality. 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's State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation Act) programs. Additionally, it works with the ASMFC to develop and implement cooperative State-Federal fisheries regulations.

3.5.1.3 Enforcement

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

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

Enforcement Agreements, whereby states conduct patrols that focus on federal priorities and, in some circumstances, prosecute resultant violators through the state when a state violation has occurred.

The NOAA Office of General Counsel Penalty Policy and Penalty Schedule is available online at http://www.gc.noaa.gov/enforce-office3.html.

Chapter 4. Environmental Effects and Comparison of Alternatives

4.1 Action 1. Modify the recreational grouper and 10-snapper aggregate bag limits and establish a recreational aggregate bag limit and recreational season for deep-water species

4.1.1 Biological Effects

This action considers establishing a recreational aggregate bag limit and season for deep-water species included in the current 10-snapper aggregate and deep-water species under the 3-grouper aggregate.

Alternatives*

1. No Action.
   Snapper Aggregate: 10 snappers/person/day year-round including: lane, yellowtail, gray, mutton*, queen, blackfin, cubera, and silk. Excludes vermilion snapper and red snapper.
   Grouper Aggregate: 3 groupers/person/day including: gag, black, snowy, misty, red, scamp, yellowedge, yellowfin, yellowmouth, blueline tilefish, sand tilefish, golden tilefish, coney, graysby, red hind, and rock hind. *Restrictions are in place for multiple species in this aggregate including limiting harvest to seasons.*

2. Establish a 2-fish/person/day deep-water species aggregate including yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, golden tilefish, snowy grouper, and blueline tilefish.
   2a. Establish a May 1 - August 31 recreational season.
   2b. Only 1 fish/person/day can be of any one species.

3. Establish a 3-fish/person/day deep-water species aggregate including yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, golden tilefish, snowy grouper, and blueline tilefish.
   3a. Establish a May 1 - August 31 recreational.
   3b. Only 1 fish/person/day can be of any one species.

4. Establish a 4-fish/person/day deep-water species aggregate including yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, golden tilefish, snowy grouper, and blueline tilefish.
   4a. Establish a May 1 - August 31 recreational season.
   4b. Only 1 fish/person/day can be of any one species.

* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives

The biological effects analyses in **Chapter 4** uses two different data sources: Marine Recreational Intercept Program (MRIP) and Southeast Region Headboat Survey (SRHS). MRIP surveys charter boats and private recreational fishermen to estimate landings and discards and length frequency of landed fish. There are three components to the catch estimate in the MRIP estimate. Type "A" landings are based on intercepts where the species was caught and brought back to the dock in a form that could be identified by trained interviewers. "B1" landings are those based on angler information, where the species was caught and killed but was not available for interviewer identification. Type "B2" landings are those reported discarded alive by the angler. In the following chapter, catch is equal to all

fish caught on a trip: "A" + "B1" + "B2." Landings equals fish identified plus killed but not observed: "A" + "B1.". Discards equals fish discarded alive: "B2."

The SRHS estimates landings and discards and length frequency of landed fish. The estimates of landings and discards are reported through a census of logbooks. Length frequency of landed fish is obtained through dockside surveys. Additionally MRIP samples length distribution of discards on headboats. Observers are placed on headboats and measure fish prior to the fish being discarded.

NOTE: ANALYSES BELOW DO NOT YET INCLUDE HEADBOAT DATA

Limited information is available to evaluate the potential impacts of implementing an aggregate bag limit for deep-water species (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, golden tilefish, snowy grouper, and blueline tilefish) and even less information to evaluate a possible recreational season on this group of species. There is only sufficient data in the Marine Recreational Information program (MRIP) to evaluate possible effects on blueline tilefish and sand tilefish. It is important to note that sand tilefish, a species currently included in the Deep-water Complex (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper), is reported in the literature as a shallow-water species found over sand and rubble bottom (Dooley 1978). **Table 4.1.1.1** shows the number of intercepted charter and private recreational trips intercepted from 2014 through 2016 that landed deep-water species, including sand tilefish, according to MRIP data. **Table 4.1.1.2** contains the same information excluding sand tilefish. Data used in this preliminary analysis are raw (unexpanded). From 2014 through 2016, 210 intercepted trips reported landing one deep-water species (including sand tilefish) and only 28 intercepted trips landed more than one deep-water species (including sand tilefish). When sand tilefish are removed, the number of intercepted charter and private recreational trips that landed one deep-water species from 2014 through 2016 dropped to only 7 intercepted trips landing more than 1 deep-water species (**Table 4.1.1.2,** (A=observed harvest, B1=reported harvest, B2=discarded)).

Table 4.1.1.1. Number of intercepted charter and private recreational trips landing (A or B1) deep-water species, including sand tilefish, from 2014 to 2016 in South Atlantic waters (including Monroe County). If no deep-water species were landed (= 0), deep-water species were released.

Year	Number of DW Species Landed	Charter	Recreational
2014	0	28	32
	1	59	26
	2	5	2
2015	0	81	31
	1	20	26
	2	6	4
2016	0	46	22
	1	53	26
	2	3	6
	3	2	

Table 4.1.1.2. Number of sampled charter and private recreational trips landing (A or B1) deep-water species, excluding sand tilefish, from 2014 to 2016 in South Atlantic waters (including Monroe County). If no deep-water species were landed (Number of DW species landed = 0), deep-water species were released.

		2014		2015		2016	
Year	Number of Species Landed	Charter	Private Rec	Charter	Private Rec	Charter	Private Rec
2014	0	2	4	3	1	1	2
	1	44	8	10	4	27	6
	2	2		1		2	1
	3	1				1	

Table 4.1.1.3 examines the unexpanded distribution of the catch per angler on charter trips that caught (A=observed harvest, B1=reported harvest, B2=discarded) deep-water species from 2014 through 2016. This was done by separating the total catch for a trip among the number of anglers on the trip. For example, if there were five fish caught on a trip and three fishermen, the model assumed two fishermen caught 2 fish and one fisherman caught 1 fish. There were no reported trips that caught queen snapper or misty grouper over this time period. **Table 4.1.1.4** shows the same information but only for landed catch (A + B1). **Tables 4.1.1.5** and **4.1.1.6** present similar information for the private recreational sector.

Sand tilefish is the most frequently encountered species on charter trips followed by blueline tilefish, golden tilefish, and snowy grouper. In terms of landings, blueline tilefish is the most frequently landed species on charter trips. In addition, from 2014 through 2016, anglers on charter trips frequently caught more than one blueline tilefish and many anglers (57) landed more than 3 fish. Only one blueline tilefish was reported to have been discarded during the same time period (**Table 4.1.1.3**). From 2014 through 2016 there were no reported catches of queen snapper or misty grouper among charter anglers. Given the low number of trips intercepted for misty grouper, snowy grouper, yellowedge grouper, blackfin snapper, queen snapper, silk snapper, and golden tilefish, the catch estimates will not likely provide informative catch statistics for the different management alternatives.

Table 4.1.1.3. Unexpanded catch per angler on charter trips that caught (A+B1+B2) deep-water species in the South Atlantic (including Monroe County) from 2014 through 2016. Numbers in top row denote number of fish caught. Numbers within cells are numbers of anglers.

Year	Species	Number of Sampled Trips	Number of Anglers Catching (A, B1, and B2)					
			0	1	2	3	4	5
2014	blackfin snapper	2	5	2	.	.	.	.
2014	blueline tilefish	40	33	50	29	58	42	2
2015		1	4	2	.	.	.	.
2016		27	22	33	15	55	13	.
2014	sand tilefish	28	162	36	.	.	.	.
2015		74	528	111	1	.	.	.
2016		49	334	82	1	.	.	.

2014	silk snapper	1	2	1	.	.	.	.
2015		2	4	6	.	.	.	.
2014	snowy grouper	5	18	5	.	.	.	.
2015		11	39	11	.	.	.	.
2016		7	29	9	.	.	.	.
2014	yellowedge grouper	2	9	3	.	.	.	.
2015		1	5	1	.	.	.	.
2016		1	4	2	.	.	.	.
2014	golden tilefish	2	12	3	.	.	.	.
2015		11	30	22	2	.	.	.
2016		8	16	18	1	.	.	.

Table 4.1.1.4. Unexpanded catch per angler on charter trips that landed (A+B1) deep-water species in the South Atlantic (including Monroe County) from 2014 through 2016. Numbers in top row denote number of fish landed. Numbers within cells are numbers of anglers.

Year	Species	Number of Sampled Trips	Number of Anglers Landing (A and B1)					
			0	1	2	3	4	5
2014	blackfin snapper	2	5	2	.	.	.	.
2014	blueline tilefish	40	34	49	29	58	42	2
2015		1	4	2	.	.	.	.
2016		27	22	33	15	55	13	.
2014	sand tilefish	28	191	7	.	.	.	.
2015		74	640	0	.	.	.	.
2016		49	412	5	.	.	.	.
2014	silk snapper	1	2	1	.	.	.	.
2015		2	5	5	.	.	.	.
2014	snowy grouper	5	19	4	.	.	.	.
2015		11	41	9	.	.	.	.
2016		7	30	8	.	.	.	.
2014	yellowedge grouper	2	9	3	.	.	.	.
2015		1	5	1	.	.	.	.
2016		1	4	2	.	.	.	.
2014	golden tilefish	2	12	3	.	.	.	.
2015		11	30	22	2	.	.	.
2016		8	16	18	1	.	.	.

Information in **Tables 4.1.1.5** and **4.1.1.6** suggests that private recreational anglers also encountered sand tilefish most frequently than any other deep-water species from 2014 through 2016 and up to four sand tilefish were reportedly kept. Considerably fewer private recreational anglers caught and landed blueline tilefish than anglers on charter trips. Private recreational anglers also kept almost all the blueline tilefish they encountered and only three reported keeping more than three blueline tilefish. From 2014 through 2016 there were no reported catches of yellowedge grouper, queen snapper, or misty grouper among private recreational anglers. Given the low number of trips intercepted for misty grouper, snowy grouper, yellowedge grouper,

blackfin snapper, queen snapper, silk snapper, and golden tilefish, the catch estimates will not likely provide informative catch statistics for the different management alternatives.

Table 4.1.1.5. Unexpanded catch per angler on private recreational trips that caught (A+B1+B2) deep-water species in the South Atlantic (including Monroe County) from 2014 through 2016.

Year	Species	Number of Sampled Trips	Number of Anglers Catching (A, B1, and B2)					
			0	1	2	3	4	5
2014	blackfin snapper	1	2	1	.	.	.	.
2016		1	1	2	.	.	.	.
2014	blueline tilefish	7	8	9	2	0	1	.
2015		3	1	4	2	1	.	.
2016		7	7	4	5	3	1	1
2014	sand tilefish	30	27	40	6	3	.	.
2015		31	31	35	11	3	1	.
2016		17	36	19	.	.	.	.
2014	snowy grouper	4	9	7	.	.	.	.
2015		2	5	2	.	.	.	.
2016		2	2	2	.	.	.	.
2014	golden tilefish	2	2	2	.	.	.	.
2015		1	1	1	.	.	.	.
2016		5	12	7	.	.	.	.

Table 4.1.1.6. Unexpanded catch per angler on private recreational trips that landed (A+B1) deep-water species in the South Atlantic (including Monroe County) from 2014 through 2016.

Year	Species	Number of sampled trips	Number of anglers landing (A and B1)					
			0	1	2	3	4	5
2014	blackfin snapper	1	2	1	.	.	.	.
2016		1	1	2	.	.	.	.
2014	blueline tilefish	7	8	9	2	0	1	.
2015		3	1	4	2	1	.	.
2016		7	9	3	4	3	1	1
2014	sand tilefish	30	69	3	2	2	.	.
2015		31	73	6	2	.	.	.
2016		17	54	1	.	.	.	.
2014	snowy grouper	4	16	0	.	.	.	.
2015		2	6	1	.	.	.	.
2016		2	3	1	.	.	.	.
2014	golden tilefish	2	2	0	.	.	.	.
2015		1	1	1	.	.	.	.
2016		5	12	1	.	.	.	.

Tables 4.1.1.7 and **4.1.1.8** show expanded numbers of deep-water species landed in the charter and private components of the recreational fishery in the South Atlantic region (including Monroe County) from 2014 to 2016 during January-April and September-December and May-August. **Table 4.1.1.7** contains information on the status quo whereas **Table 4.1.1.8** shows the effect on landings of restricting catch to a bag limit of one fish.

Table 4.1.1.7. Expanded numbers of deep-water species landed in the South Atlantic (including Monroe County) during January-April and September-December and May-June during 2014-2016 for charter and private recreational components. Cells highlighted in red indicate low sample size (N<20) and not likely reliable estimates to determine effect of proposed management alternatives.

Year	Species	Charter		Recreational	
		Jan-Apr & Sept-Dec	May-Aug	Jan-Apr & Sept-Dec	May-Aug
2014	Blackfin snapper	25	99	528	
	Blueline tilefish*	2,062	6,217	2,056	3,570
	Sand tilefish	35	0	2,421	1,993
	Silk snapper	25			
	Snowy grouper*	48	31	0	0
	Golden tilefish	285		447	
	Yellowedge grouper	13	32		
2015	Blueline tilefish*		105		1,542
	Sand tilefish	0	0	0	2,636
	Silk snapper	0	414		
	Snowy grouper*	233	156		451
	Golden tilefish	3,417	74	174	
	Yellowedge grouper		56		
2016	Blackfin snapper				293
	Blueline tilefish*	870	13,703		13,422
	Sand tilefish	322	180	1,159	0
	Snowy grouper*	261	266		424
	Golden tilefish	5,068		390	3,367
	Yellowedge grouper		62		

* Species for which a May through August recreational season is currently in place.

Prior to implementation of the May-August recreational season for blueline tilefish (Amendment 32, effective March 30, 2015), recreational landings were higher during those four months than over the remaining eight months of the year. During 2015, very small landings were confined to the recreational season and during 2016, some landings occurred outside the 4-month season (**Table 4.1.1.7**). Snowy grouper landings have occurred outside the May-August season during 2014-2016. The amendment that implemented the recreational season for snowy grouper (Regulatory Amendment 20, SAFMC 2014) was effective in August 2015, so the first year the closure was in place was 2016. According to **Table 4.1.1.7**, the same level of snowy grouper landings were observed within the established May-August season as during the remainder of the year when recreational harvest of the species is not allowed. Recreational

harvest of golden tilefish is currently allowed under a one fish per person limit year-round, yet harvest seems concentrated during months other than May-August.

Because very few recreational trips during 2014-2016 caught more than one deep-water species (**Tables 4.1.1.1** and **4.1.1.2**), **Alternatives 3** and **4** (3-fish and 4-fish aggregate bag limits, respectively), would have no effect on landings. **Table 4.1.1.8** shows that a 1-fish bag limit within a 2-fish aggregate (**Alternative 2**, **Sub-alternative 2b**) would reduce landings of blueline tilefish by 53%. Landings of golden tilefish from charter trips also show a reduction under the 1-fish bag limit scenario even though the current retention limit is one fish. This is because there were intercepted trips in 2014-2016 that exceeded the current golden tilefish bag limit (**Table 4.1.1.4**) Landings of other deep-water species would not be affected as angler are not catching more than 1 fish.

Table 4.1.1.8. Expanded numbers of deep-water species landed in the South Atlantic (including Monroe County) during January-April and September-December and May-June during 2014-2016 for charter and private recreational components with an imposed 1-fish bag limit. Cells highlighted in red indicate low number of intercepted trips (N<20) and not likely reliable estimates to determine effect of proposed management alternatives.

Year	Species	Charter		Recreational	
		Jan-Apr & Sept-Dec	May-Aug	Jan-Apr & Sept-Dec	May-Aug
2014	Blackfin snapper	25	99	528	
	Blueline tilefish	851	2,905	1,778	2,525
	Sand tilefish	35	0	2,421	797
	Silk snapper	25			
	Snowy grouper	48	31	0	0
	Golden tilefish	285		447	
	Yellowedge grouper	13	32		
2015	Blueline tilefish		105		1,079
	Sand tilefish	0	0	0	2,003
	Silk snapper	0	414		
	Snowy grouper	233	156		451
	Golden Tilefish	3,389	74	174	
	Yellowedge grouper		56		
2016	Blackfin snapper				293
	Blueline tilefish	435	5,436		5,733
	Sand tilefish	322	180	1,159	0
	Snowy grouper	261	266		424
	Golden Tilefish	4,451		390	3,367
	Yellowedge grouper		62		

NOTE: Tables below not included in Decision Document due to lack of time. Need to sort out appropriate titles and include discussion

Table 4.1.1.9. Number of deep-water species retained per trip on headboats from 2014 to 2016.

	Year		
Species Retained	**2014**	**2015**	**2016**
0	559	555	639
1	695	863	489
2	21	15	13
3	2		2
4	1	4	2
5	2	3	1
6	9	6	6
7	2	4	6

Table 4.1.1.10. Number of trips catching bags expressed as number of deep-water species caught per trip per day.

		Bags Caught per Trip per Day								
Species	**Year**	**0.25**	**0.75**	**1**	**2**	**3**	**4**	**5**	**6**	**7+**
Blackfin snapper	2014	35	3	1	1					
	2015	31	8	3						
	2016	41	7	4						
Blueline tilefish	2014	10	12	23	14	35	2			1
	2015	9	4	13	7	2	1	1		
	2016	9	3	6	3	8	4	3	1	4
Misty grouper	2014	6								
	2015	8								
	2016	10								
Queen snapper	2014	11	1							
	2015	14	1							
	2016	7	2		1					

Sand tilefish	2014	1097	28	4						
	2015	1255	60	4	1					
	2016	949	74	13	4					
Silk snapper	2014	29	4	18						
	2015	44	13	3	1					
	2016	64	7	6	1					
Snowy grouper	2014	43	4	1						
	2015	21	11	7						
	2016	8	5	1						
Yellowedge grouper	2014	12	1	1						
	2015	15	4							
	2016	14								

Table 4.1.1.11. Number of trips keeping bags expressed as number of deep-water species kept per trip per day.

	Bags Kept per Trip per Day								
Species	**Year**	**0.25**	**0.75**	**1**	**2**	**3**	**4**	**5**	**7**
Blackfin Snapper	2014	36	2	1	1				
	2015	33	7	2					
	2016	41	8	3					
Blueline Tilefish	2014	10	13	22	14	35			
	2015	9	4	13	7	2	2		1
	2016	18	3	6	3	11	1	1	
Misty Grouper	2014	6							
	2015	8							
	2016	10							
Queen Snapper	2014	11	1						
	2015	14	1		1				
	2016	7	2	4					
Sand Tilefish	2014	1112	15	3					
	2015	1303	23	6					
	2016	1027	12	2					
Silk Snapper	2014	29	4	3	1				

	2015	47	11	5	1				
	2016	65	6	1					
Snowy Grouper	2014	43	4	7					
	2015	21	11	1					
	2016	8	5	1					
Yellowedge Grouper	2014	12	1						
	2015	15	4						
	2016	14							

4.1.2 Economic Effects

Generally, angler satisfaction, which can be measured monetarily in consumer surplus (CS), increases with the number of fish that are harvested and the size of the fish. The smaller the bag limit the greater the probability that the satisfaction from an angler trip could be negatively affected. The effects of **Action 1** would vary depending on the species being examined. **Alternative 2**, **3**, and **4** would potentially increase harvest and CS on trips landing snowy grouper, as this alternative is less restrictive than the current 1 fish per vessel per day limit and maintains or removes the current harvest season of May 1 – August 31. **Sub-alternative 2a** would restrict CS derived on trips landing yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, sand tilefish, or golden tilefish that occur outside May 1 – August 31 harvest season, as this season does not currently apply to these species. **Sub-alternative 2b** would restrict the CS that could be derived on trips harvesting yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, and blueline tilefish by limiting the harvest of each species below their current respective bag limits if there is a 1 fish/person/day limit for any one species.

Sub-alternative 3a and **4a** would restrict CS derived on trips landing yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, sand tilefish, and golden tilefish that occur outside May 1 – August 31, since this season does not currently apply to these species. **Sub-alternative 3b and 4b** would restrict the CS that could be derived on trips harvesting yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, blackfin snapper, and blueline tilefish by limiting the harvest of each species below their current respective bag limits if there is a 1 fish/person/day limit for any one species. Based on the analysis provided in **Chapter 4.1.1**, the greatest negative economic effects would occur on trips landing blueline tilefish. There would be no economic effects in regards to CS derived from golden tilefish, as this species has a limit of 1 fish per person and falls within the current 3 fish per person aggregate grouper bag limit.

In relation to the other alternatives, **Alternative 1 (No Action)** is equally or less restrictive for all species except snowy grouper. **Alternative 4** is the second least restrictive, and thus is expected to have the least negative economic effects based on the highest aggregate bag limit followed by **Alternative 3** and **Alternative 2**. The exact effects of each alternative will be dependent on the sub-alternative chosen.

4.1.3 Social Effects

Section 3.4 describes communities with the highest engagement and reliance on recreational fishing (**Figure 3.4.1**). These communities may have residents and businesses that would be expected to be affected by the proposed action. This action would specifically affect individuals and for-hire businesses that specialize in deep-dropping, a technique used to target deepwater species. Deep-dropping requires some specialized gear and knowledge, and likely contributes to a higher rate for for-hire trips targeting deepwater species.

In general, the social effects of modifying the recreational harvest limit and specifying a season for deepwater species would be associated with the biological costs of each alternative

and sub-alternative (see **Section 4.1.1**), as well as the effects on current recreational fishing opportunities. While **Alternatives 2-4** could restrict recreational fishing opportunities for deepwater species but would also be expected to contribute to long-term benefits to the stocks and for future recreational opportunities. The effects on recreational fishermen due to an establishment of a designated season for recreational deepwater harvest during the year with would be associated with the biological benefits of how the opening/closing dates, and the negative social and economic effects of restricted access when the season is not open.

Alternative 1 (No Action) would not modify the current harvest limits for deepwater species and would not modify the current specified seasons, and this would not be expected to have any effects on recreational fishermen and for-hire businesses that target deepwater species because there would be no additional restrictions. The exception would be for trips targeting snowy grouper, because **Alternative 1 (No Action)** would maintain the current limit of 1 per vessel per day, and **Alternatives 2-4** would allow for more than one snowy grouper per vessel through the personal bag limits.

Lower bag limits are usually associated with increased restrictions on recreational fishing opportunities. In some cases, if a bag limit is too low, it may not be worth the time and effort to take the recreational trip. For fishermen on charter trips, it is likely that the lower aggregate limit could have negative social effects because charter trips were more likely to have higher catch per person (see **Section 4.1.1**) and would therefore be more limited in how many fish to keep. The greatest restrictions on fishing opportunities and trip satisfaction on charter businesses and clients would be under **Alternative 2,** followed by **Alternative 3** and then **Alternative 4.** For private recreational trips, it is likely that the aggregate limits would affect some recreational opportunities and trip satisfaction, but not at the same level as for charter. The specifications that only one fish per species may be kept under **Sub-alternatives 2b, 3b** and **4b** may have minimal effects on most fishermen, except for those targeting blueline tilefish because it is not uncommon to keep more than one blueline tilefish (**Section 4.1.1**).

The proposed seasons in **Sub-alternatives 2a, 3a** and **4a** may negatively affect recreational fishermen and for-hire businesses targeting deepwater species because all deepwater species would be limited to May 1 through August 31. This may particularly affect recreational fishermen targeting golden tilefish because those are the most commonly caught September through April (**Table 4.1.1.7**).

However, assuming that there are associated management measures to reduce harvest during the designated periods, the long-term benefits to the deepwater species will be greater with more restrictive bag limits and aligning the open recreational season for all deepwater species under **Sub-alternatives 2a, 3a** and **4a.**

Setting the recreational harvest limits and aligning the deepwater open season (**Alternatives 2-4**) would reduce complexity of management measures, which would likely improve compliance.

4.1.4 Administrative Effects

4.2 Action 2. Modify the recreational grouper aggregate bag limit and establish a recreational aggregate bag limit for shallow-water grouper species

Alternatives*

1 (No Action). Grouper Aggregate: 3 per person/day including: gag, black, snowy, misty, red, scamp, yellowedge, yellowfin, yellowmouth, blueline tilefish, sand tilefish, golden tilefish, coney, graysby, red hind, and rock hind. *Restrictions are in place for multiple species in this aggregate including limiting harvest to seasons.*

2. Establish a shallow-water grouper aggregate including red hind, rock hind, coney, graysby, yellowfin grouper, yellowmouth grouper, gag, scamp, black grouper, and red grouper.
   2a. 1 fish per person per day.
   2b. 2 fish per person per day with no more than 1 fish of any one species.
   2c. 3 fish per person per day with no more than 1 fish of any one species.

* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives

4.2.1 Biological Effects

This action considers establishing a recreational aggregate bag limit and season for shallow-water grouper species included in the current 3-grouper aggregate.

Shallow-water grouper (red hind, rock hind, coney, graysby, yellowfin grouper, yellowmouth grouper, gag, scamp, black grouper, and red grouper) are currently included in the 3-grouper aggregate along with some deep-water species. From 2014 through 2016, 100 intercepted charter trips reported landing one shallow-water grouper, whereas 11 intercepted trips landed more than 1 species. In the private recreational component, 92 intercepted trips reported landing 1 fish and only 7 intercepted trips had more than 1 species (**Table 4.2.1.1**).

Table 4.2.1.2 examines the distribution of the catch per angler on charter trips that caught (A=observed harvest, B1=reported harvest, B2=discarded) shallow-water species from 2014 through 2016. This was done by separating the total catch for a trip by among the number of anglers on the trip. For example if there were five fish caught on a trip and three fishermen, the model assumed two fishermen caught two fish and one fisherman caught one fish.

Table 4.2.1.1. Number of intercepted trips landing (A or B1) shallow-water species from 2014 to 2016 in South Atlantic waters on charter and private recreational vessels (including Monroe County). If no shallow-water species were landed (Number of species landed = 0), shallow-water species were only released.

		2014		2015		2016	
Year	Number of Species Landed	Charter	Private Rec	Charter	Private Rec	Charter	Private Rec
2014	0	27	110	38	101	43	68
	1	46	32	25	23	29	37
	2	6	1	1	3	3	3
	3	1					

Table 4.2.1.2. Unexpanded catch per angler on charter trips that caught (A+B1+B2) shallow-water species in the South Atlantic (including Monroe County) from 2014 through 2016. Numbers in top row denote number of fish caught. Numbers within cells are numbers of anglers.

Year	Species	Number of Trips Sampled	Number of Anglers Catching (A, B1, and B2)					
			0	1	2	3	4	5
2014	Black grouper	9	20	13	1	.	.	.
2015		8	15	10	2	.	.	.
2016		2	11	2	.	.	.	.
2014	Coney	1	5	3	.	.	.	.
2015		4	19	5	.	.	.	.
2016		5	21	5	.	.	.	.
2014	Gag	52	139	70	3	.	.	.
2015		28	73	37	0	2	.	.
2016		38	127	51	.	.	.	.
2014	Graysby	6	39	7	.	.	.	.
2015		12	63	15	.	.	.	.
2016		11	45	18	.	.	.	.
2014	Red grouper	18	66	24	1	.	.	.
2015		12	43	12	.	.	.	.
2016		27	136	31	2	.	.	.
2014	Red hind	4	15	4	.	.	.	.
2015		3	26	4	.	.	.	.
2014		2	11	2	.	.	.	.
2016		2	6	4	.	.	.	.

Gag is the most frequently encountered shallow-water species on charter trips followed by red grouper. Gag is also the species that is most frequently discarded. In terms of landings (**Table 4.2.1.3**), gag is the most frequently landed species on charter trips and most anglers land one fish. Current regulations limit possession of gag to one fish within the 3-fish grouper aggregate. No scamp, yellowfin grouper or yellowmouth grouper were reported during charter trips from 2014 through 2016 in the South Atlantic.

Table 4.2.1.3. Unexpanded catch per angler on charter trips that landed (A+B1) shallow-water species in the South Atlantic (including Monroe County) from 2014 through 2016. Numbers in top row denote number of fish landed. Numbers within cells are numbers of anglers.

Year	Species	Number of Trips Sampled	Number of Anglers Landing (A and B1)					
			0	1	2	3	4	5
2014	Black grouper	9	27	6	1	.	.	.
2015		8	24	3	.	.	.	.
2016		2	12	1	.	.	.	.
2014	Coney	1	5	3	.	.	.	.
2015		4	24	0	.	.	.	.
2016		5	23	3	.	.	.	.
2014	Gag	52	165	45	2	.	.	.
2015		28	93	19	.	.	.	.
2016		38	149	29	.	.	.	.
2014	Graysby	6	39	7	.	.	.	.
2015		12	70	8	.	.	.	.
2016		11	48	15	.	.	.	.
2014	Red grouper	18	73	17	1	.	.	.
2015		12	51	4	.	.	.	.
2016		27	166	3	.	.	.	.
2014	Red hind	4	15	4	.	.	.	.
2015		3	28	2	.	.	.	.
2014	Rock hind	2	11	2	.	.	.	.
2016		2	6	4	.	.	.	.

Catch per angler for private recreational trips in the South Atlantic from 2014 through 2016 is shown in **Table 4.2.1.4**. Landings per angler are shown in **Table 4.2.1.5**. Similar to the charter component, private recreational anglers caught and landed primarily gag and red grouper. For both species, the number of discarded fish is greater than those landed. Scamp, yellowfin grouper, and yellowmouth grouper are absent from private recreational trips that took place in the South Atlantic from 2014 through 2016.

Table 4.2.1.4. Unexpanded catch per angler on private recreational trips that caught (A+B1+B2) shallow-water species in the South Atlantic (including Monroe County) from 2014 through 2016.

Year	Species	Number of Trips Sampled	Number of Anglers Catching (A, B1, and B2)					
			0	1	2	3	4	5
2014	Black grouper	10	12	13	.	.	.	.
2015		17	28	20	.	.	.	.
2016		13	21	18	.	.	.	.
2014	Coney	1	2	2	.	.	.	.
2015		2	3	2	.	.	.	.

2014	Gag	75	102	85	5	0	1	.
2015		68	103	76	0	4	1	1
2016		53	71	58	3	.	.	.
2014	Graysby	21	28	26	3	0	1	.
2015		16	19	18	2	1	.	.
2016		9	18	9	.	.	.	.
2014	Red grouper	46	76	50	5	.	.	.
2015		23	29	31	6	.	.	.
2016		35	58	41	1	.	.	.
2014	Red hind	3	4	3	.	.	.	.
2015		1	1	1	.	.	.	.
2016		2	9	2	.	.	.	.
2014	Rock hind	2	2	2	.	.	.	.
2015		4	7	5	.	.	.	.
2016		3	5	4	.	.	.	.

Table 4.2.1.5. Unexpanded catch per angler on private recreational trips that landed (A+B1) shallow-water species in the South Atlantic (including Monroe County) from 2014 through 2016.

Year	Species	Number of Trips of Sampled	Number of Anglers Landing (A and B1)					
			0	1	2	3	4	5
2014	Black grouper	10	24	1	.	.	.	.
2015		17	44	4	.	.	.	.
2016		13	28	11	.	.	.	.
2014	Coney	1	4	0	.	.	.	.
2015		2	5	0	.	.	.	.
2014	Gag	75	174	19	.	.	.	.
2015		68	175	9	0	1	.	.
2016		53	113	20	.	.	.	.
2014	Graysby	21	48	10	.	.	.	.
2015		16	28	11	1	.	.	.
2016		9	21	7	.	.	.	.
2014	Red grouper	46	121	10	.	.	.	.
2015		23	56	10	.	.	.	.
2016		35	89	12	.	.	.	.
2014	Red hind	3	6	1	.	.	.	.
2015		1	1	1	.	.	.	.
2016		2	10	1	.	.	.	.
2014	Rock hind	2	4	0	.	.	.	.
2015		4	11	1	.	.	.	.
2016		3	7	2	.	.	.	

Since the vast majority of recreational trips in the South Atlantic are catching only one shallow-water grouper species, proposed **Sub-alternatives 2b** and **2c** (two and three fish per person per day with only one of any one species, respectively) would not have any effect on landings. Hence, **Table 4.2.1.6** compares the status quo (**Alternative 1 (No Action)**) and **Sub-alternative 2a**, a 1-fish per person per day bag limit for all shallow-water grouper species. As expected, **Sub-alternative 2a** would not result in any difference from the status quo.

Table 4.2.1.6. Expanded catch (in numbers of fish) for status quo (Alternative 1) and Sub-alternative 2a for shallow-water groupers on charter and private recreational trips from 2014 through 2016 in the South Atlantic. Cells highlighted in red indicate low number of intercepted trips (N<20) and not likely reliable estimates to determine effect of proposed management alternatives.

Year	Species	Status Quo		Bag Limit =1	
		Charter	Recreational	Charter	Recreational
2014	Black grouper	154	349	138	349
	Coney	63	0	63	0
	Gag	3,278	10,596	3,111	10,596
	Graysby	345	4,670	345	4,670
	Red grouper	822	3,505	801	3,505
	Red hind	201	245	201	245
	Rock hind	152	0	152	0
2015	Black grouper	108	486	108	486
	Coney	0	0	0	0
	Gag	2,848	2,110	2,848	1,756
	Graysby	587	6,578	587	6,128
	Red grouper	180	14,789	180	14,789
	Red hind	202	274	202	274
	Rock hind		3,475		3,475
2016	Black grouper	12	4,336	12	4,336
	Coney	169		169	
	Gag	1,451	8,539	1,451	8,539
	Graysby	990	12,580	990	12,580
	Red grouper	661	8,856	661	8,856
	Red hind		529		529
	Rock hind	175	436	175	436

NOTE: Tables below not included in Decision Document due to lack of time. Need to sort out appropriate titles and include discussion

Table 4.2.1.7. Observer data reporting the number of species kept by headboats from 2014-2016 for the South Atlantic for X species. .

	Year		
Number of Species Kept	**2014**	**2015**	**2016**
0	2,143	2,089	2,658
1	1,956	2,070	1,604
2	405	385	277
3	61	82	45
4	16	11	8
5	4	4	6

Table 4.2.1.8. Observer data reporting the number of bag limits caught and bag limits kept per trip per day by headboats from 2014-2016 for the South Atlantic.

		Bag Caught Fish per Trip per Day						Bag Kept Fish per Trip per Day			
Species	**Year**	**0.25**	**0.75**	**1**	**2**	**3**	**4**	**0.25**	**0.75**	**1**	**2**
Black grouper	2014	797	9					804	2		
	2015	526	14					530	10		
	2016	393	3	1	1			393	3	1	1
Coney	2014	208						208			
	2015	291	2					292	1		
	2016	256						256			
Gag	2014	953	34	10				975	18	4	
	2015	835	16	6	1		1	848	10	1	
	2016	661	19	11	3			684	8	2	
Graysby	2014	1490	145	21	1			1632	21	4	
	2015	1683	121	24	5	1		1816	16	2	
	2016	1356	50	7	1			1401	13		
Red grouper	2014	1950	83	15	2			2043	5	2	
	2015	1564	133	37	5			1731	8		
	2016	2465	134	30		2		2617	13	1	
Red hind	2014	158	3					161			
	2015	237	6	1				244			
	2016	211	2	1				213		1	
Rock hind	2014	774	9	3				782	2	2	
	2015	949	24	3				966	10		
	2016	830	26	3	1			850	9		1

Yellowfin grouper	2014	7	1					7	1		
	2015	5						5			
	2016	6						6			
Yellowmouth grouper	2014	4						4			
	2015	12						12			
	2016	13						13			

4.2.2 Economic Effects

Angler satisfaction, which can be monetarily measured in consumer surplus (CS), typically increases with the number of fish that are harvested and the size of the fish. The smaller the bag limit the greater the probability that the satisfaction from an angler trip could be negatively affected. The economic effects of **Action 2** will vary by species. Assuming no deepwater species (yellowedge grouper, blueline tilefish, golden tilefish, sand tilefish, snowy grouper, misty grouper) are harvested on a trip, **Sub-alternatives 2a** and **2b** are more restrictive for all of the shallow-water grouper species than **Alternative 1 (No Action)**, as these sub-alternatives restrict the aggregate grouper bag limit below the 3 fish per person per day that is currently allowed. **Sub-alternative 2c** would not have any economic effects in regards to CS that could be derived from harvesting black or gag grouper, as there is already a limit of one fish per person per day. Trips landing red hind, rock hind, coney, graysby, yellowfin grouper, yellowmouth grouper, scamp, or red grouper may incur negative economic effects if more than one specimen of legal harvest size from multiple species is landed. However, based on the analysis provided in **Chapter 4.2.1**, the anticipated change in landings is expected to be minimal and thus so are the anticipated economic effects of **Action 2**.

4.2.3 Social Effects

Descriptions of communities that may be affected by changes to recreational management are described in **Section 3.4**. As discussed in **Section 4.1.3**, the potential effects on fishermen and communities from changes to harvest limits are associated with changes in access and effects on trip satisfaction, along with long-term biological benefits to the stocks that will contribute to more fish being available in the future.

Alternative 1 (No Action) would not modify the current harvest limits for shallow-water grouper species, and this would not be expected to have any effects on recreational fishermen and for-hire businesses that target shallow-water grouper species because there would be no additional restrictions.

In general, lower harvest limits would be expected to result in the greatest negative effects on fishermen and communities due to restrictions on fishing opportunities and reduced trip satisfaction. However, as discussed in **Section 4.2.1,** most recreational trips in the South Atlantic are catching only one shallow-water grouper species. The bag limits under **Sub-**

alternatives 2a- 2c would be expected to have minimal or no effects on recreational fishermen because it would likely not be different from the number of fish being landed under current conditions.

4.2.4 Administrative Effects

4.3 Action 3. Modify the 10-snapper and 20-fish recreational aggregate bag limits

Alternatives*

1. No Action.
   Snapper Aggregate: 10 snapper/person/day year-round including lane, yellowtail, gray, mutton, queen, blackfin, cubera, and silk. Excludes vermilion snapper and red snapper.
   Aggregate for Species Without Bag Limit: 20 fish/person/day year-round including: whitebone porgy, jolthead porgy, knobbed porgy, saucereye porgy, scup, gray triggerfish, bar jack, almaco jack, banded rudderfish, lesser amberjack, white grunt, margate, sailor's choice, and spadefish.

2. Establish a 20-fish aggregate limit including species in the 20-fish aggregate and the 10-snapper aggregate.
   2a. Within the aggregate, no more than 10 gray triggerfish.
   2b. Within the aggregate, no more than 10 Atlantic spadefish.
   2c. Within the aggregate, no more than 10 of any one species.
   2d. Within the aggregate, no more than 5 of any one species.

* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives

4.3.1 Biological Effects

This action considers a 20-fish aggregate bag limit including species in the current 10-snapper aggregate and species under the 20-fish aggregate and different bag limits for certain species within the aggregate.

The biological effects of proposed **Alternative 2** and it sub-alternatives relative to **Alternative 1 (No Action)** are expected to be neutral since they would not impact overall recreational catch.

Anglers on intercepted recreational trips (charter and private) that took place from 2014 through 2016 in the South Altlantic region retained up to eight species within the aggregate but the majority retained only one (**Table 4.3.1.1**).

Tables 4.3.1.2 and **4.3.1.3** show landings per angler based on raw (unexpanded) Marine Recreational Information Progam (MRIP) data for charter trips in the South Atlantic from 2014 through 2016. **Table 4.3.1.2** shows landings of species in the current 20-fish aggregate only, whereas **Table 4.3.1.3** examines landings of species in the 20-fish aggregate and the 10-snapper aggregate combined. Eighty percent of intercepted charter trips from 2014 through 2016 and 83% of anglers on charter trips during the same time period landed one fish or less of species within the current 20-fish aggregate. The percent of anglers landing one fish of less was slightly higher in 2015 compared to 2014 and 2016 (**Table 4.3.1.2**). About 76% of intercepted trips and 79% of anglers on charter trips in the South Atlantic landed less than one fish of the species included in the current 20-fish and 10-snapper aggregates combined (**Table 4.3.1.3**). Both tables show very little change in the distribution of landings per angler after 7 fish per angler.

Table 4.3.1.1. Unexpanded number of species retained on sampled charter and private recreational trips from 2014 through 2016 in the South Atlantic (including Monroe County). This includes species in the 10-snapper aggregate and the 20-fish aggregate.; PR=private recreational

# Species Retained	2014		2015		2016	
	Charter	Private	Charter	Private	Charter	Private
0	180	744	273	871	247	537
1	157	355	175	320	141	282
2	49	86	48	71	54	55
3	23	35	34	28	22	20
4	18	5	13	9	9	5
5	12		12	3	9	3
6	3		3		9	
7			3		2	
8					2	

Table 4.3.1.2. Percent of intercepted charter trips and percent of anglers landing (A+B1) different bags (0-20 fish) of species in the 20-fish aggregate from 2014 through 2016 in the South Atlantic region (including Monroe County). Data are unexpanded. If the catch is 0, it indicates all species in the 20-fish aggregate were discarded.

Landings Per Angler	2014		2015		2016	
	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers
0	30.1	33.1	42.0	47.3	44.6	48.5
0.1-0.99	46.6	45.8	40.3	40.7	35.1	34.3
1-1.99	8.8	7.9	8.5	5.8	10.3	8.7
2-2.99	3.0	2.8	2.3	1.2	1.7	1.9
3-3.99	3.4	3.3	1.0	0.7	2.3	1.9
4-4.99	0.7	0.5	1.0	0.8	1.4	0.9
5-5.99	1.7	1.5	1.3	0.9	0.6	0.5
6-6.99	1.0	0.8	1.0	0.6	0.9	0.7
7-7.99	0.3	0.3	1.0	0.9	0.0	0.0
8-8.99	0.7	0.8	0.7	0.5	0.3	0.3
9-9.99	0.7	0.8	0.3	0.1	0.3	0.2
10-10.99	1.0	0.9	0.0	0.0	0.3	0.3
11-11.99	0.0	0.0	0.3	0.2	0.9	0.7
12-12.99	0.0	0.0	0.0	0.0	0.0	0.0
13-13.99	0.3	0.4	0.3	0.3	0.0	0.0
14-14.99	0.7	0.4	0.0	0.0	0.3	0.2
15-19.99	0.3	0.4	0.0	0.0	0.9	0.7
20-24.99	0.3	0.3	0.0	0.0	0.3	0.2
>=25	0.3	0.1	0.0	0.0	0.0	0.0

Table 4.3.1.3. Percent of intercepted charter trips and percent of anglers landing (A+B1) different bags (0-20 fish) of species in the 20-fish and 10-snapper aggregates from 2014 through 2016 in the South Atlantic region (including Monroe County). Data are unexpanded. If the catch is 0, it indicates all fish were discarded.

Landings Per Angler	2014		2015		2016	
	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers
0	40.6	45.1	48.7	52.7	50.1	51.9
0.1-0.99	30.5	28.5	29.9	29.5	27.0	27.2
1-1.99	11.3	9.7	10.2	9.1	10.8	9.1
2-2.99	5.6	6.1	5.0	4.0	4.1	4.9
3-3.99	3.6	3.2	2.0	1.6	2.8	2.4
4-4.99	2.3	2.0	1.1	0.8	1.2	1.0
5-5.99	1.4	1.3	1.1	0.8	1.0	0.9
6-6.99	1.1	0.9	0.4	0.2	0.6	0.5
7-7.99	0.7	0.5	0.9	0.8	0.4	0.1
8-8.99	0.5	0.5	0.4	0.3	0.2	0.2
9-9.99	0.5	0.5	0.2	0.1	0.2	0.2
10-10.99	0.7	0.6	0.0	0.0	0.2	0.2
11-11.99	0.0	0.0	0.2	0.1	0.6	0.5
12-12.99	0.0	0.0	0.0	0.0	0.0	0.0
13-13.99	0.2	0.3	0.2	0.2	0.0	0.0
14-14.99	0.5	0.3	0.0	0.0	0.2	0.1
15-19.99	0.2	0.3	0.0	0.0	0.4	0.5
20-24.99	0.2	0.2	0.0	0.0	0.2	0.2
>=25	0.2	0.1	0.0	0.0	0.0	0.0

Landings per angler based on unexpanded MRIP data for private recreational trips in the South Atlantic from 2014 through 2016 are shown in **Tables 4.3.1.4** and **4.3.1.5**. Similar to the charter component, about 80% of intercepted private trips and anglers on private recreational trips landed one fish or less of species in both the 20-fish aggregate and the combined 20-fish and 10-snapper aggregates (**Tables 4.3.1.4** and **4.3.1.5**). The same trend of slightly higher percentages of trips and anglers landing one fish or less in 2015 is also evident for the private recreational component.

Table 4.3.1.4. Percent of intercepted private recreational trips and percent of anglers landing (A+B1) different bags (0-20 fish) of species in the 20-fish aggregate from 2014 through 2016 in the South Atlantic region (including Monroe County). Data are unexpanded. If the catch is 0, it indicates all species in the 20-fish aggregate were discarded.

Landings Per Angler	2014		2015		2016	
	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers
0	43.5	42.4	55.3	54.7	45.1	43.2
0.1-0.99	28.7	33.6	24.9	28.6	31.3	35.6
1-1.99	13.2	11.1	9.5	8.4	11.2	9.2
2-2.99	6.1	6.0	5.1	4.2	7.6	7.1
3-3.99	3.3	2.6	2.1	1.8	3.0	3.1
4-4.99	1.1	0.9	0.5	0.3	1.0	1.0
5-5.99	1.1	0.8	1.3	1.1	0.3	0.3
6-6.99	0.6	0.5	0.0	0.0	0.3	0.5
7-7.99	0.3	0.3	0.0	0.0	0.3	0.1
8-8.99	1.1	0.9	0.0	0.0	0.0	0.0
9-9.99	0.3	0.2	0.3	0.2	0.0	0.0
10-10.99	0.3	0.3	0.3	0.2	0.0	0.0
11-11.99	0.0	0.0	0.3	0.1	0.0	0.0
12-12.99	0.0	0.0	0.0	0.0	0.0	0.0
13-13.99	0.3	0.4	0.0	0.0	0.0	0.0
14-14.99	0.0	0.0	0.0	0.0	0.0	0.0
15-19.99	0.3	0.1	0.3	0.3	0.0	0.0
20-24.99	0.0	0.0	0.0	0.0	0.0	0.0
>=25	0.0	0.0	0.3	0.2	0.0	0.0

Table 4.3.1.5. Percent of intercepted private recreational trips and percent of anglers landing (A+B1) different bags (0-20 fish) of species in the 20-fish and 10-snapper aggregates from 2014 through 2016 in the South Atlantic region (including Monroe County). Data are unexpanded. If the catch is 0, it indicates all fish were discarded.

Landings Per Angler	2014		2015		2016	
	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers	Percent Trips	Percent Anglers
0	60.2	59.1	66.6	65.6	59.5	56.9
0.1-0.99	16.5	19.9	15.8	18.3	19.6	23.5
1-1.99	11.3	10.1	8.2	8.0	10.9	9.7
2-2.99	4.4	4.3	3.7	3.4	5.0	5.1
3-3.99	3.1	2.9	2.4	2.2	2.0	1.9
4-4.99	1.6	1.3	0.7	0.6	1.2	1.1
5-5.99	0.9	0.6	0.8	0.8	0.7	0.7
6-6.99	0.5	0.4	0.1	0.1	0.1	0.2
7-7.99	0.5	0.3	0.4	0.3	0.6	0.4
8-8.99	0.3	0.3	0.3	0.1	0.3	0.3
9-9.99	0.3	0.3	0.2	0.1	0.2	0.1

10-10.99	0.2	0.2	0.3	0.2	0.0	0.0
11-11.99	0.1	0.1	0.1	0.0	0.0	0.0
12-12.99	0.0	0.0	0.1	0.1	0.0	0.0
13-13.99	0.0	0.0	0.0	0.0	0.0	0.0
14-14.99	0.0	0.0	0.0	0.0	0.0	0.0
15-19.99	0.2	0.1	0.2	0.2	0.0	0.0
20-24.99	0.0	0.0	0.0	0.0	0.0	0.0
>=25	0.0	0.0	0.1	0.1	0.0	0.0

To examine the possible effects of proposed bag limit modifications on charter and recreational landings (charter and private), the expanded catch (in numbers of fish) for 2014 through 2016 under the current limits (status quo, SQ) and under a 10-fish (**Sub-alternatives 2a** (affects only gray triggerfish), **2b** (affects only Atlantic spadefish), and **2c** or a 5-fish (**Sub-alternative 2d**) aggregate bag limit is presented in **Table 4.3.1.6**. Cells highlighted in yellow indicate a change in the level of expected landings relative to the status quo.

Table 4.3.1.6. Expanded number of fish caught based on MRIP data for South Atlantic region (including Monroe County) from 2014 to 2016. SQ=Status Quo (current regs with no change assumed for mutton snapper), Alt2a-c establishes a 10-fish bag limit (note Alt2a impacts only gray triggerfish and Alt2b impacts only Atlantic spadefish), Alt2d establishes a 5- fish bag limit. Cells highligthed in yellow are a change from current catch with potential bag limit change. Cells highlighted in red indicate low number of intercepted trips (N<20) and not likely reliable estimates to determine effect of management alternative.

		Charter			Recreational		
Year	**Species**	**SQ**	**Alt2a-c**	**Alt2d**	**SQ**	**Alt2a-c**	**Alt2d**
2014	Almaco jack	5,994	5,994	5,994	2,957	2,957	2,957
	Atlantic spadefish	1,537	1,537	1,537	44,940	44,940	43,982
	Banded rudderfish	14,034	14,034	14,034	1,751	1,751	1,479
	Bar jack	261	261	261	223	223	223
	Blackfin snapper	124	124	124	528	528	528
	Cubera snapper				2,837	2,837	2,837
	Gray snapper	14,640	14,640	14,640	491,981	491,981	486,154
	Gray triggerfish	34,549	33,128	29,683	95,809	95,809	95,460
	Jolthead porgy	1,960	1,960	1,960	27,006	27,006	27,006
	Lane snapper	2,773	2,773	2,773	113,013	113,013	110,339
	Lesser amberjack	16	16	16	289	289	289
	Margate				2,682	2,682	2,682
	Mutton snapper	9,364	9,364	9,364	80,736	80,736	80,736
	Sailors choice	201	201	201	49,080	49,080	45,092
	Scup	859	859	859	1,779	1,779	1,779
	Silk snapper	25	25	25			
	White grunt	42,402	40,740	37,710	154,730	151,236	125,846
	Whitebone porgy	507	507	507	36,564	36,564	35,148
	Yellowtail snapper	21,288	21,288	20,499	309,860	309,860	257,049

2015	Almaco jack	7,948	7,948	7,948	16,453	16,453	16,453
	Atlantic spadefish				11,705	11,705	11,705
	Banded rudderfish	2,282	2,282	2,282	1,334	1,334	1,334
	Bar jack	329	329	329	1,747	1,747	1,747
	Cubera snapper	437	437	437	0	0	0
	Gray snapper	19,718	19,718	19,718	342,750	342,750	335,360
	Gray triggerfish	71,068	70,829	60,977	34,145	34,145	34,145
	Jolthead porgy	5,280	5,280	5,280	30,114	30,114	30,114
	Lane snapper	10,076	10,076	10,076	68,483	68,483	65,490
	Lesser amberjack				201	201	201
	Margate	0	0	0	1,148	1,148	1,148
	Mutton snapper	20,074	20,074	20,074	55,176	55,176	55,176
	Sailors choice	672	672	672	18,670	18,670	18,670
	Scup	26	26	26			
	Silk snapper	414	414	414			
	White grunt	16,038	16,038	13,178	122,155	97,715	86,636
	Whitebone porgy	4,360	4,360	4,360	9,475	9,475	8,697
	Yellowtail snapper	42,825	42,825	42,825	173,927	173,927	159,944
2016	Almaco jack	6,486	6,486	6,486	22,264	22,264	22,264
	Atlantic spadefish				1,200	1,200	1,200
	Banded rudderfish	2,422	2,422	2,422	722	722	722
	Bar jack	0	0	0	925	925	925
	Blackfin snapper				293	293	293
	Gray snapper	24,926	24,926	22,745	335,638	335,638	332,618
	Gray triggerfish	16,917	14,919	12,779	137,900	137,900	136,093
	Jolthead porgy	5,469	5,469	5,469	35,144	35,144	35,144
	Lane snapper	3,377	3,377	3,377	62,732	62,732	62,732
	Lesser amberjack	50	50	50			
	Margate	0	0	0	1,113	1,113	1,113
	Mutton snapper	11,997	11,997	11,997	55,117	55,117	55,117
	Sailors choice	221	221	221	12,836	12,836	12,836
	White grunt	18,781	18,462	16,286	181,300	181,300	181,300
	Whitebone porgy	1,560	1,560	1,560	15,105	15,105	15,105
	Yellowtail snapper	17,699	17,699	17,699	227,819	227,819	208,597

While most of the expected changes in landings as a result of possible modification to the aggregate bag limits, a few are worth noting. A slight decrease in the level of landings for the charter component might be expected under **Sub-alternatives 2a-2d** for gray triggerfish, white grunt, yellowtail snapper (only **Sub-alternative 2d**), and gray snapper (only **Sub-alternative 2d**). **Sub-alternative 2d** (no more than five fish of any one species within the aggregate) may result in more noticeable changes in landings for the private recreational component, albeit

generally small. The exceptions are white grunt and yellowtail snapper, whose landings would decrease by about 18,000 pounds and 30,000 pounds, respectively (**Table 4.3.1.6**).

4.3.2 Economic Effects

The cumulative effects of **Action 3**, **Alternative 2** will be dependent on the sub-alternative(s) that are chosen and will vary by species. Based on the analyses provided in **Chapter 4.3.1**, **Sub-alternatives 2a** and **2c** may decrease the harvest of triggerfish as well as the CS derived from triggerfish on trips where these harvest limits could have been exceeded under **Alternative 1 (No Action)**. **Sub-alternative 2b** would reduce the upper limits of spadefish harvest and resulting CS on a trip, however it is unknown how many trips are harvesting more than 10 spadefish per person and the extent to which this sub-alternative would affect current fishing behavior. **Sub-alternative 2d** is the most restrictive and thus would be expected to have the greatest negative short-term economic effects, particularly for CS derived from yellowtail snapper and white grunt (**Table 4.3.1.6)**. Presumably, in the long-term, reduced bag limits may create economic benefits if the biomass of a species covered under **Action 3** increases and more fish are available to harvest. The extent of these benefits will vary by species and will be dependent on how harvest levels and fishing effort change in relation to the new bag limits. Overall, **Alternative 2** is more restrictive than **Alternative 1 (No Action)**, therefore short-term negative economic effects of **Alternative 2** are expected to be greater.

4.3.3 Social Effects

Descriptions of communities that may be affected by changes to recreational management are described in **Section 3.4**. As discussed in **Section 4.1.3**, the potential effects on fishermen and communities from changes to harvest limits are associated with changes in access and effects on trip satisfaction, along with long-term biological benefits to the stocks that will contribute to more fish being available in the future.

Alternative 1 (No Action) would not modify the current limits for the aggregate snapper and aggregate for no-limit fish. This would not be expected to have any effects on recreational fishermen and for-hire businesses that target these species because there would be no additional restrictions.

In general, lower harvest limits would be expected to result in the greatest negative effects on fishermen and communities due to restrictions on fishing opportunities and reduced trip satisfaction. However, as discussed in **Section 4.3.1,** most recreational trips in the South Atlantic are catching only one fish of the species in the aggregate. The bag limits under **Sub-alternatives 2a- 2d** would be expected to have minimal or no effects on most recreational fishermen because it would likely not be different from the number of fish being landed under current conditions. The exceptions, as noted in **Section 4.3.1**, would be gray triggerfish and yellowtail snapper. Gray triggerfish is a popular species for recreational fishermen in all South Atlantic states and a more restrictive limit (**Sub-alternative 2d**) could negatively affect recreational fishing opportunities and trip satisfaction. Additionally, yellowtail snapper is very

popular in south Florida and the Florida Keys. A lower limit under **Sub-alternative 2d** could negatively affect recreational anglers targeting yellowtail by restricting fishing opportunities.

The potential complexity of the combinations of management measures that would result from **Sub-alternatives 2a-2d** may have some negative effects on recreational anglers and enforcement.

4.3.4 Administrative Effects

4.4 Action 4. Modify the seasonal prohibition on recreational harvest and possession of shallow-water groupers

4.4.1 Biological Effects

Alternatives under this action seek to provide managers with the flexibility to enhance the effectiveness of the January-April closure intended to protect shallow-water grouper species (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) from fishing mortality during their spawning season. The existing closure was implemented in 2009 through implementation of Amendment 16 (SAFMC 2009a). In recent years, fishermen and other stakeholders have expressed concern that the current closure is not matching the timing of spawning for certain species (i.e., red grouper off North Carolina, black grouper in the Florida Keys).

Alternatives*

1 No Action. Recreational harvest and possession of shallow-water groupers (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) is prohibited January 1 through April 30.

2. Prohibit harvest and possession of shallow-water grouper species seasonally by area:
   - 2a. In federal waters off East Florida from the Georgia/Florida state boundary south to the end of the SAFMC's jurisdiction), the closure applies (month) to (month).
   - 2b. In federal waters off Georgia and the Carolinas from the Georgia/South Carolina border north to the North Carolina/Virginia border, the closure applies (month) to (month)

3. Prohibit harvest and possession of shallow-water grouper species (excluding black grouper) south of 28° North latitude (approximately off Palm Bay, Florida):
   - 3a. January – March (3 months)
   - 3b. February – March (2 months)
   - 3c. February – April (3 months)
   - 3d. February – May (4 months)

4. Prohibit harvest and possession of black grouper in federal waters off (specify area based on Alternative 2b above)
   - 4a. January – March (3 months)
   - 4b. January
   - 4c. February
   - 4d. March

5. Prohibit harvest and possession of red grouper in federal waters off (specify area based on Alternative 2a above)
   - 5a. January – May (5 months)
   - 5b. February – May (4 months)
   - 5c. March – June (4 months)

* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives.

The following series of figures pertain to individual shallow-water grouper species. Average monthly and annual recreational landings are shown by state (data for Georgia and South Carolina were aggregated to maintain confidentiality).

Gag

Average recreational landings (pounds whole weight; lbs ww) of **gag** are shown in **Figure 4.4.1.1** by month and state for pre-closure (2004-2009) and post-closure (2010-2015) years. Data are from the Marine Resources Information Program (MRIP) and exclude headboat.

Annual recreational landings (lbs ww) of **gag** from 2004 through 2015 are shown in **Figure 4.4.1.2**. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series.

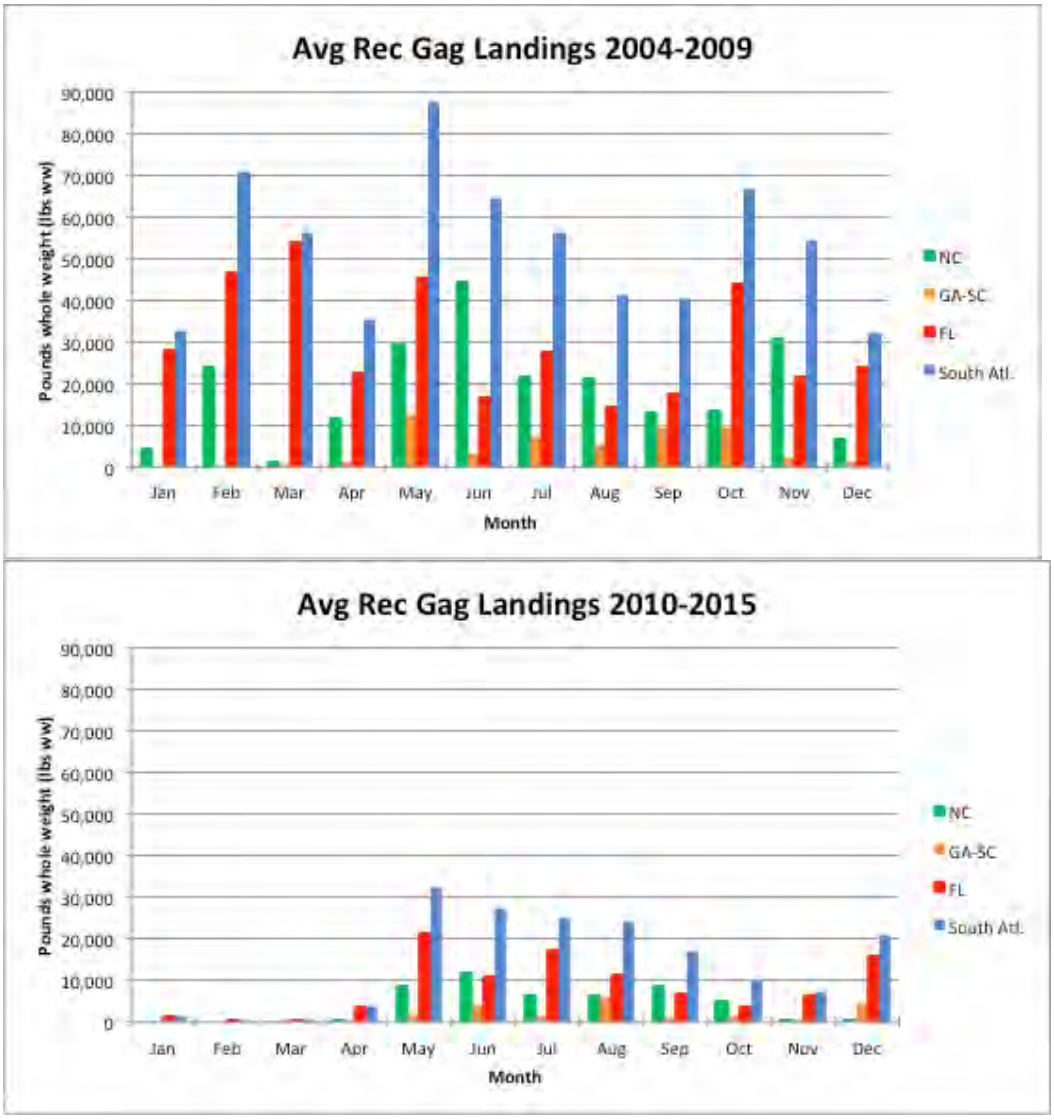


Figure 4.4.1.1. Average monthly recreational landings of **gag** (pounds whole weight) from 2004 through 2015 by state. Top panel is for years before the existing closure (2004-2009); bottom panel shows landings in years after the closure (2009-2015). Source: SAFMC

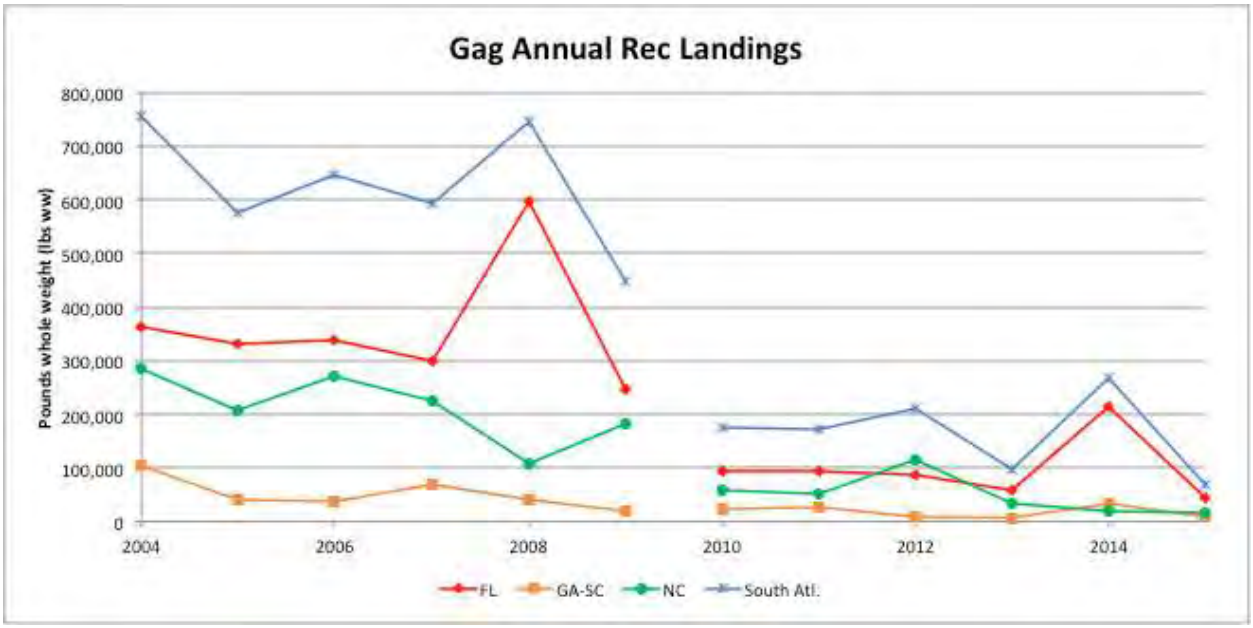


Figure 4.4.1.2. Annual recreational landings of **gag** from 2004 through 2015 by state. The shallow water grouper closure was implemented in 2009, depicted in the figure by a break in the series.
Source: SAFMC

Average monthly recreational landings of **gag** in the South Atlantic prior to the spawning season closure (2004-2009) peaked in May, with high landings also observed in February and October. The bulk of the landings were in Florida, followed by North Carolina (**Figure 4.4.1.1**). While landings of gag in May were still highest for the years after the closure, the overall magnitude of the landings decreased substantially from just under 90,000 pounds whole weight (lbs ww) to just over 30,000 lbs ww. Annual recreational landings reflect this trend (**Figure 4.4.1.2**). However, it is not clear whether management measures or other factors (or both) have contributed to the apparent decline. Based on the SEDAR 10 Update (2014), biomass was similar between the two periods.

To explore the level of discards of gag, landings (A +B1) and discards (B2) from MRIP data fro 2014 through 2016 were examined. On average 83% of the total recreational catch of gag on charter and private recreational vessels were discarded (**Table 4.4.4.1**). Over 99% of the discards of gag came from trips that did not hit either the aggregate limit or the gag/black limit with or without the January-April closure (**Tables 4.4.4.2** and **4.4.4.3**, respectively). This suggests that most gag encountered are below the minimum size. This is supported by the distribution of discards by month for the same time period (**Table 4.4.4.4**), where January-April collectively make up about 22% of the gag discards on average for the year. However, December makes up almost 23% of the discards by itself. September is next in line with around 15%. On average, almost every month (except for June and July) has a higher proportion of the discards than any of the closed months. This may be due to the high amount of directed fishing effort in those months. If the current shallow-water grouper closure in January-April were to be removed, gag discards would increase but landings might not change much. Especially since on average landings constitute only about 17% of the total catch of gag (**Table 4.4.4.1**).

Table 4.4.4.1. Percent of total catch of gag by mode from 2014 through 2016 for charter and private vessels. AB1= (A observed catch), B1 (unobserved reported catch), B2=discarded.

Year	Charter		Private		Total	
	Exp AB1	Exp B2	Exp AB1	Exp B2	Exp AB1	Exp B2
2014	60.9	39.1	11.7	88.3	16.1	83.9
2015	27.9	72.1	5.4	94.6	9.5	90.5
2016	46.8	53.2	30.0	70.0	31.6	68.4
Total	43.9	56.1	13.4	86.6	17.0	83.0

Table 4.4.4.2. Discards of Gag on trips that did not hit the Aggregate or Gag/Black Bag (No Bag) vs. Total Gag Discards from 2014-2016, including January-April. B2=discarded, Exp B2=expanded discards.

Year	No Bag		Total		% No Bag of Total	
	B2	Exp B2	B2	Exp B2	B2	Exp B2
2014	175	96,359	176	96,375	99.43	99.98
2015	184	63,243	189	63,657	97.35	99.35
2016	78	24,208	78	24,208	100.00	100.00
Total	437	183,810	443	184,240	98.65	99.77

Table 4.4.4.3. Discards of Gag on trips that did not hit the Aggregate or Gag/Black Bag (No Bag) vs. Total Gag Discards from 2014-2016 with January-April removed. B2=discarded, Exp B2=expanded discards.

Year	No Bag		Total		% No Bag of Total	
	B2	Exp B2	B2	Exp B2	B2	Exp B2
2014	113	75,296	114	75,311	99.12	99.98
2015	159	49,581	164	49,995	96.95	99.17
2016	64	18,230	64	18,230	100.00	100.00
Total	336	143,107	342	143,536	98.25	99.70

Table 4.4.4.4. Percent of monthly AB1 and expanded discards from 2014-2016. Each column sums to 100%. 1=January, 12=December. AB1= (A observed catch), B1 (unobserved reported catch), Exp B2=expanded discards.

Month	2014		2015		2016		Total	
	Exp AB1	Exp B2	Exp AB1	Exp B2	Exp AB1	Exp B2	Exp AB1	Exp B2
1	0.0%	5.7%	6.7%	7.5%	0.0%	6.4%	1.1%	6.4%
2	0.0%	9.0%	0.0%	0.6%	0.0%	10.2%	0.0%	6.2%
3	0.0%	5.1%	0.0%	0.5%	0.0%	6.3%	0.0%	3.7%
4	0.0%	2.1%	0.0%	12.8%	0.0%	1.9%	0.0%	5.8%
5	12.8%	5.4%	10.6%	8.0%	56.3%	8.8%	27.2%	6.7%
6	11.2%	2.6%	25.4%	6.2%	13.4%	8.3%	14.3%	4.6%
7	25.0%	0.5%	5.7%	5.9%	16.3%	10.7%	18.9%	3.7%
8	23.7%	3.3%	17.4%	16.1%	3.1%	7.4%	15.7%	8.3%
9	9.3%	16.8%	9.9%	14.3%	2.8%	10.6%	7.2%	15.1%
10	1.4%	4.2%	0.0%	11.2%	0.4%	4.3%	0.8%	6.7%
11	3.5%	10.3%	22.7%	3.5%	6.0%	25.3%	7.5%	9.9%
12	13.1%	35.0%	1.4%	13.3%	1.7%	0.0%	7.3%	22.9%

Red Grouper

Average recreational landings (lbs ww) of **red grouper** are shown in **Figure 4.4.1.3** by month and state for pre-closure (2004-2009) and post-closure (2010-2015) years.

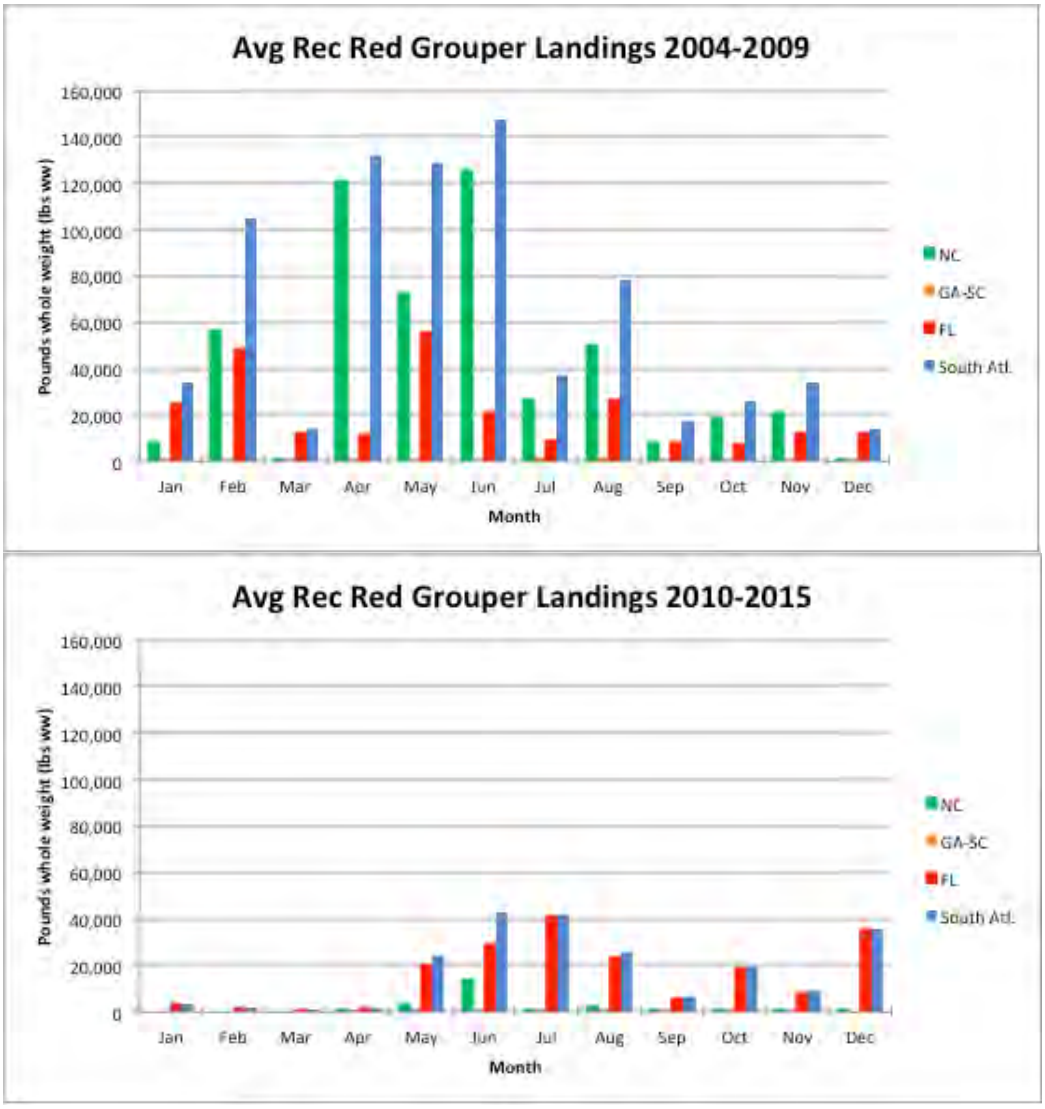


Figure 4.4.1.3. Average monthly recreational landings of **red grouper** (pounds whole weight) from 2004 through 2015 by state. Top panel is for years before the existing closure (2004-2009); bottom panel shows landings in years after the closure (2009-2015). Source: SAFMC

Annual recreational landings (lbs ww) of **red grouper** from 2004 through 2015 are shown in **Figure 4.4.1.4**. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series.

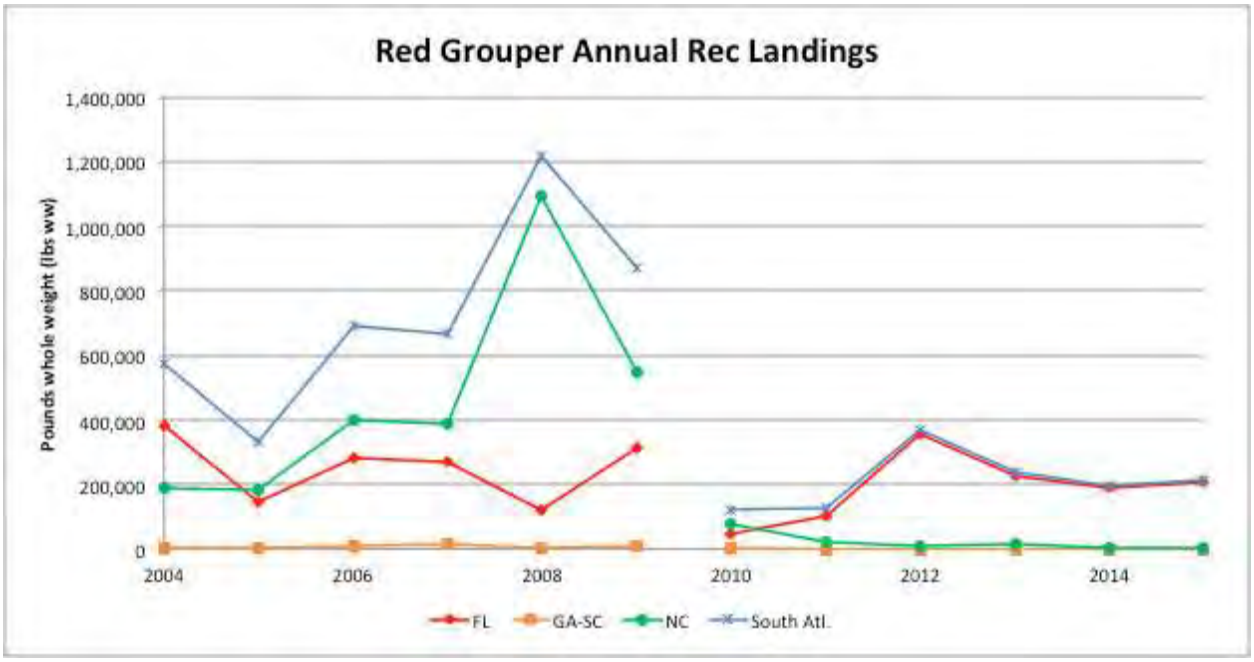


Figure 4.4.1.4. Annual recreational landings of **red grouper** from 2004 through 2015 by state. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series. Source: SAFMC

Red grouper recreational landings have declined sharply in the South Atlantic since implementation of the shallow-water grouper closure, from about 150,000 lbs ww to just over 40,000 lbs ww (**Figures 4.4.1.3** and **4.4.1.4**). Prior to the closure, recreational landings of red grouper were dominated by North Carolina and were highest in April-June. Since the closure, Florida has dominated the recreational harvest of the species. Similar to gag, it is not clear whether management measures or other factors (or both) have contributed to the observed decline. According to SEDAR 53 (2017), red grouper spawning stock biomass decreased in the 2010 to 2015 period compared to the earlier period.

Scamp

Average recreational landings (lbs ww) of **scamp** are by month and state for pre-closure (2004-2009) and post-closure (2010-2015) years are shown in **Figure 4.4.1.5**. Annual landings are in **Figure 4.4.1.6**. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series.

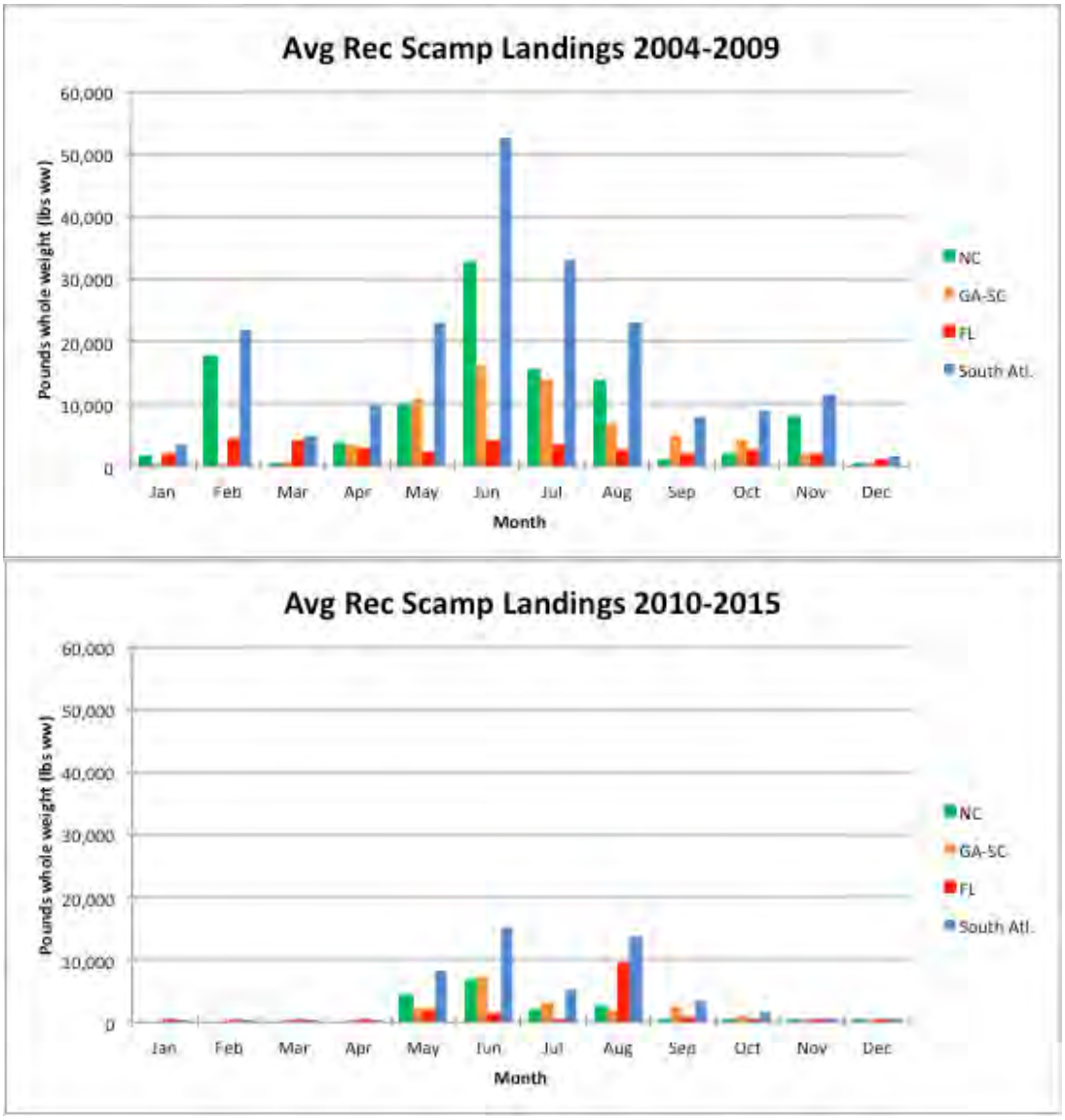


Figure 4.4.1.5. Average monthly recreational landings of **scamp** (pounds whole weight) from 2004 through 2015 by state. Top panel is for years before the existing closure (2004-2009); bottom panel shows landings in years after the closure (2009-2015). Source: SAFMC

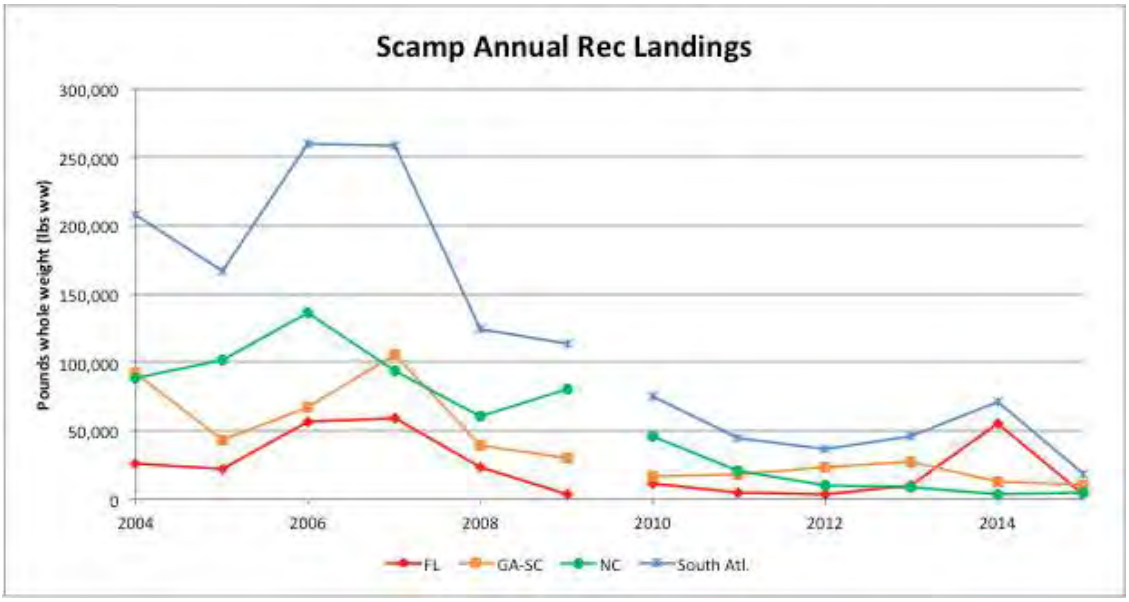


Figure 4.4.1.6. Annual recreational landings of **scamp** from 2004 through 2015 by state. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series. Source: SAFMC

A similar trend to that of gag and red grouper is seen on recreational landings of **scamp** prior to and after the shallow-water grouper closure (**Figures 4.4.1.5** and **4.4.1.6**). Monthly landings of **scamp** in the South Atlantic in years prior to the closure peaked in June and high catches were reported from North Carolina (**Figure 4.4.1.5**). Average landings in June declined from just over 50,000 lbs ww during the pre-closure years to about 15,000 pounds in the post-closure time period examined. Since the closure, highest recreational landings of scamp have been in Florida (**Figure 4.4.1.5**).

To explore potential issues with species misidentification, percentages of "A" versus "B1" landings from the MRIP were examined. Type "A" landings are based on intercepts where the species was caught and brought back to the dock in a form that could be identified by trained interviewers. "B1" landings are those based on angler information, where the species was caught and killed but was not available for interviewer identification. **Table 4.4.1.1** shows the distribution of recreational black grouper landings from 2004 to 2015. On average, the majority of black grouper recreational harvest is type "A". Also shown in **Table 4.4.1.1** is the distribution of black grouper recreational harvest in Florida, with the majority attributed to the Florida Keys.

Annual recreational landings (lbs ww) of **black grouper** from 2004 through 2015 are shown in Figure **4.4.1.7**. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series.

Table 4.4.1.1. Distribution of black grouper recreational landings (A and B1) from the Marine Recreational Information Program in Florida, 2004-2015.

Year	FLE (26.4%)		Keys (73.6%)		All FL	
	% A	% B1	% A	% B1	% A	% B1
2004	94.8	5.2	99.6	0.4	99.0	1.0
2005	61.7	38.3	99.7	0.3	83.3	16.7
2006	100.0	0.0	91.1	8.9	94.4	5.6
2007	100.0	0.0	99.9	0.1	99.9	0.1
2008	100.0	0.0	70.6	29.4	75.8	24.2
2009	8.2	91.8	100.0	0.0	68.1	31.9
2010	100.0	0.0	97.8	2.2	99.3	0.7
2011	16.9	83.1	100.0	0.0	55.3	44.7
2012	86.6	13.4	100.0	0.0	87.7	12.3
2013	27.7	72.3	100.0	0.0	63.9	36.1
2014	93.7	6.3	74.3	25.7	83.4	16.6
2015	100.0	0.0	73.9	26.1	75.3	24.7
Avg	**78.2**	**21.8**	**91.7**	**8.3**	**88.1**	**11.9**

Source: SAFMC based on MRIP data (excludes headboats).

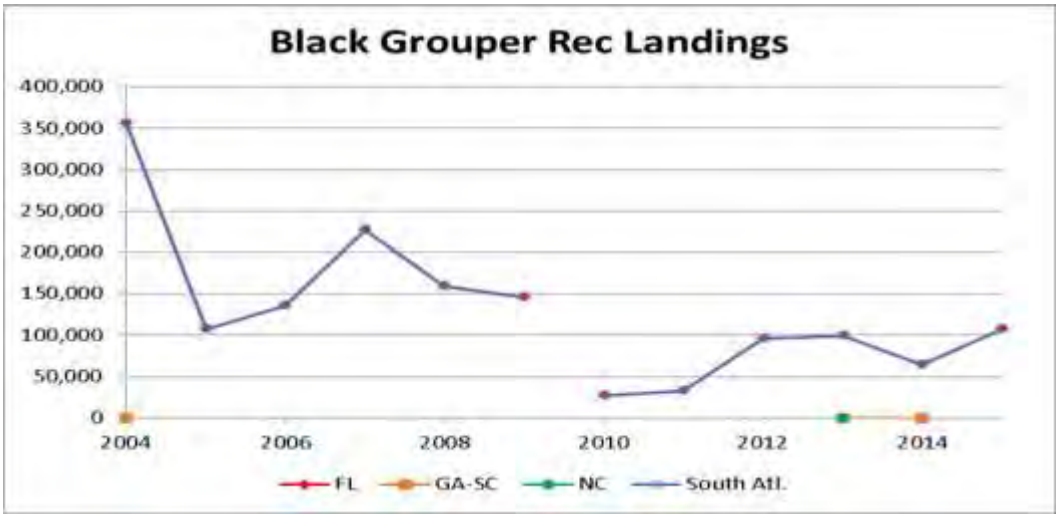
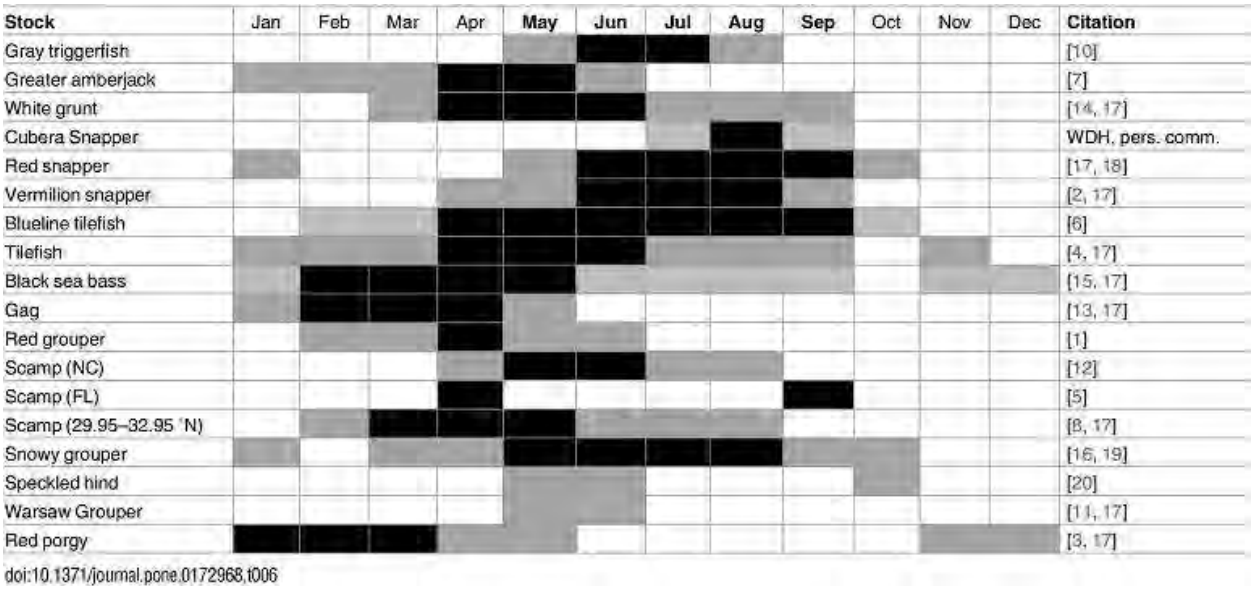


Figure 4.4.1.7. Annual recreational landings of **black grouper** (pounds whole weight) from 2004 through 2015 by state. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series.
Source: SAFMC

Black grouper are caught recreationally mainly in Florida and the Florida Keys. Annual recreational landings pre- and post-closure have shown a similar decline to that of other shallow-water groupers. It is not clear whether management measures or other factors (or both) have contributed to the observed decline.

Spawning seasons and months of peak spawning activity for select snapper grouper species in the South Atlantic are presented in **Table 4.4.1.2**.

Table 4.4.1.2. Timing of spawning (gray shading) and peak spawning (black shading) for exploited Atlantic Ocean reef fish stocks off the southeastern United States (Farmer, et al, 2017).



Stock	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Citation
Gray triggerfish													[10]
Greater amberjack													[7]
White grunt													[14, 17]
Cubera Snapper													WDH, pers. comm.
Red snapper													[17, 18]
Vermilion snapper													[2, 17]
Blueline tilefish													[6]
Tilefish													[4, 17]
Black sea bass													[15, 17]
Gag													[13, 17]
Red grouper													[1]
Scamp (NC)													[12]
Scamp (FL)													[5]
Scamp (29.95–32.95 °N)													[8, 17]
Snowy grouper													[16, 19]
Speckled hind													[20]
Warsaw Grouper													[11, 17]
Red porgy													[3, 17]

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In the South Atlantic, gag spawn from January through June with a peak in February and April (**Table 4.4.1.2**). Hence, it is expected that **Alternative 1 (No Action)** would have beneficial biological effects on the species as it encompasses the period of peak spawning activity. More information on the changes proposed in **Alternatives 2** and **3** is needed to assess their potential biological effects on the stock of gag in the South Atlantic. (Look for info on spatial distribution of gag spawning)

Red grouper spawn from February through June in the South Atlantic with a peak in April (**Table 4.4.1.2**). Fishermen have indicated, however, that red grouper harvested in May off North Carolina are frequently in spawning condition and there is concern that the current spawning season closure is not capturing the bulk of spawning activity for that species in North Carolina. Detailed information on the spatial distribution of red grouper spawning activity is needed to corroborate this information. However, there have been observed shifts in the timing of spawning activity for other species in response to warming ocean temperature (insert citations). The current limited amount of information on the reproductive biology of red grouper, would indicate that **Alternative 1 (No Action)** encompasses the bulk of red grouper spawning activity in the region and would continue to impart beneficial biological effects on the red grouper stock. However, as mentioned above, landings data indicate that red grouper were historically commonly caught off North Carolina (**Figure 4.4.1.3**); therefore, **Alternative 5** and its sub-alternatives, if applicable to federal waters off North Carolina (**Alternative 2**, **Sub-alternative 2b**), would be expected to result in positive biological effects. **Sub-alternative 5a** would lengthen the existing seasonal closure by one month, **Sub-alternative 5b** would shift the closure by a month, and **Sub-alternative 5c** would shift the closure by two months. It is expected that **Sub-alternatives 5a** and **5b** would have similar biological effects as they both include the month of May and commercial fishing for red grouper is low or non-existent in January off North Carolina. **Sub-alternative 5c** would allow fishing for red grouper in February, when the species is reportedly commencing spawning activity in the South Atlantic

(**Table 4.4.1.2**). However, extending the seasonal closure for two months past the reported peak in spawning may have the most positive biological effects on red grouper off North Carolina.

Off North Carolina, scamp have been documented to spawn from April through August with peak activity in May and June; whereas in Florida, the species reportedly spawns in April and September (**Table 4.4.1.2**). Based on this information, the current seasonal closure on recreational harvest under **Alternative 1 (No Action)** is not encompassing the entirety of peak spawning activity for the species in the South Atlantic. As currently structured, it is unclear whether the sub-alternatives under **Alternative 2** would impart biological benefits to scamp. Of the **Alternative 3** sub-alternatives, **Sub-alternatives 3c** and **3d** encompass the month of April, when scamp are reportedly spawning off Florida (**Table 4.4.1.2**). Of these, **Sub-alternative 3d** would be most likely to encompass the bulk of spawning activity and, therefore, be more biologically beneficial to scamp than **Sub-alternative 3c**.

According to SEDAR 19 (2010), the peak spawning season of black grouper, based on back-calculated hatching dates of postlarval fish, is from February through April. Spawning aggregations of the species have been observed in the Florida Keys but spawning activity was not confirmed (Ecklund et al. 2000)

With the limited amount of information for this species' timing, duration, and location of spawning activity, it is difficult to evaluate the effects of proposed alternatives under this action. **Alternative 4** considers seasonal closures on the recreational harvest of black grouper. If the sub-alternatives under **Alternative 4** were to be applicable to South Florida and the Florida Keys (**Alternative 2**, **Sub-alternative 2a**), then **Sub-alternative 4a** would encompass the longest time during which the species is reportedly spawning and would result in the greatest biological benefit of the alternatives considered. **Sub-alternatives 4c** and **4d** would each only encompass one of the three peak spawning months, whereas **Sub-alternative 4b** would implement a closure outside of the peak spawning months for black grouper.

4.4.2 Economic Effects

Under **Alternative 1 (No Action)**, the annual spawning season closure for harvest would remain from January 1 through April 30 for shallow-water groupers (gag grouper, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney). **Alternative 2** would potentially change the spawning season closure months depending on the geographic location. The economic effects of would be dependent on which months are chosen and how they may relate to altering the number of fishing trips for shallow-water grouper as well as the change in harvest and thus CS derived from the shallow-water grouper species.

Alternative 3 would change the months that the shallow-water grouper (excluding black grouper) spawning season closure would take place south of 28° North latitude. **Sub-alternatives 3a** through **3c** decrease the harvest closure. These sub-alternatives may result in positive, short-term economic benefits through increased CS derived from additional harvest of shallow-water groupers, however there may be negative long-term effects if the biomass of shallow-water groupers decreases, thereby decreasing the number of fish available to harvest and the CS that results from such harvest. **Sub-alternative 3d** would maintain the length of the

spawning season closure, but shift the annual closure to start and end a month later than under **Alternative 1 (No Action)**. The economic effects will be dependent on how this shift effects harvest and fishing behavior both in the short and long term, as well as if there is a change in the biomass of shallow-water grouper.

Alternative 4 would reduce the annual spawning season closure for black grouper. The economic effects of would be dependent on which months are chosen and how they may relate to altering the number of fishing trips for black grouper as well as changing harvest and thus CS derived from the species. **Sub-alternatives 4a** through **4d** may result in positive, short-term economic benefits through increased CS derived from additional harvest of black grouper, however there may be negative long-term economic effects if the biomass of black grouper decreases, thereby decreasing the number of fish available to harvest and the CS that results from that harvest.

Conversely, **Alternative 5** would shift or increase the annual spawning season closure for red grouper, with the intention of providing better protection of red grouper when the fish are in spawning aggregations and more susceptible to overharvest. The economic effects of would be dependent on which months are chosen and how they may relate to altering effort and harvest for red grouper and thus CS derived from the species. **Sub-alternative 5a** increases the closure period by one month (May), which may incur some negative economic effects on trips that land or would have landed red grouper during May of each year. **Sub-alternative 5b** and **5c** shifts the harvest closure to occur later in the year, which may offer better protection of the red grouper spawning stock biomass. All sub-alternatives of **Alternative 5** may create positive long-term effects if the biomass of red grouper increases, thereby increasing the number of fish available to harvest and the CS that results from that harvest.

4.4.3 Social Effects

The potential effects on recreational fishermen, for-hire businesses and coastal communities of modifying the shallow-water grouper closure will be a trade-off between the biological benefits of the seasonal closure and the increased recreational fishing opportunities if the closure is shortened. In general, a longer seasonal closure may be biologically beneficial to the stock and contribute to sustainable fishing opportunities in the future if the closure appropriately lines up with spawning, but longer closure would be more likely to restrict recreational fishing opportunities if the closure if during popular times of the year for fishing.

There may be some benefits to maintaining the current seasonal closure in **Alternative 1 (No Action)**, including minimized complexity in management that will result from **Alternatives 2-5**. However, public input from recreational fishermen indicate that the biological benefits of the closure could be maximized if the closures were better tailored by area and with specific times for some species. The benefits to recreational fishermen of more appropriate closures for the areas will be more likely under **Alternative 2/Sub-alternatives 2a and 2b** than under **Alternative 1 (No Action).** Designating an additional sub-zone in **Alternative 3** for south Florida and the Florida Keys will add complexity to management, but may also contribute to better aligned closure with the spawning activity.

The potential effects on fishermen from a specified closure for black grouper in the area north of the Georgia/Florida line (**Alternative 4**) will depend on where and when black grouper are spawning, and there is limited information about this (see **Section 4.4.1**). However, there will be expected short-term benefits to recreational fishermen targeting black grouper in Georgia, South Carolina and North Carolina from potentially shorter closures in **Sub-alternatives 4a-4d**, particularly the one-month closures in **Sub-alternatives 4b-4d.** It is likely that the potential effects on Florida fishermen from adjusting the red grouper closure for Florida (**Alternative 5**) would be similar as the effects on Georgia, South Carolina and North Carolina under **Alternative 4.**

4.4.4 Administrative Effects

4.5 Action 5. Remove the recreational minimum size limit for deep-water snapper species

4.5.1 Biological Effects

(insert background info on management and when MSL was first implemented)

Potential impacts of removing the existing recreational minimum size limit on queen, snapper, silk snapper, and blackfin snapper may not be properly evaluated due to limited data.

Alternatives*

1. No Action. The recreational minimum size limit for queen snapper, silk snapper, and blackfin snapper in South Atlantic federal waters is 12 inches total length (TL).

2. Remove the 12-inch TL recreational minimum size limit for queen snapper, silk snapper, and blackfin snapper in South Atlantic federal waters.

* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives

Table 4.5.1.1 shows the number of fish measured, raw (unexpanded) number of A (observed harvest), B1 (reported harvest), and B2 (released alive) fish from the Marine Recreational Information Program (MRIP) intercepts and expanded number of fish estimates for A and B1 (landings) and A, B1, and B2 (catch) for blackfin, queen, and silk snappers from 2014 to 2106 (excluding Monroe County).

Table 4.5.1.1. Number of fish measured, raw (unexpanded) number of A, B1, and B2 reported through Marine Recreational Information Program (MRIP) intercepts and expanded number of fish estimates for A and B1 (landigs) and A, B1, and B2 (catch) for Blackfin, Queen, and Silk Snappers from 2014 to 2106. Note: Does not include Monroe County.

Combined Charter and Private Recreational							
Year	**Species**	**Number Measured**	**A_Raw**	**B1_Raw**	**B2_Raw**	**Expanded A+B1**	**Expanded A+B1+B2**
2014	blackfin snapper	3	3	0	0	652	652
	queen snapper						
	silk snapper	1	1	0	0	25	25
2015	blackfin snapper						
	queen snapper						
	silk snapper	5	5	0	1	414	427
2016	blackfin snapper	2	2	0	0	293	293
	queen snapper						
	silk snapper						

Table 4.5.1.2. Expanded number of fish for A and B1 (landings) and A, B1, and B2 (catch) estimates from the MRIP for Blackfin, Queen, and Silk Snapper caught on charter and private recreational trips from 2014 to 2016. Note: Does not include Monroe County.

Year	Species	Charter		Private Recreational	
		Expanded A+B1	Expanded A+B1+B2	Expanded A+B1	Expanded A+B1+B2
2014	blackfin snapper	124	124	528	528
	queen snapper				
	silk snapper	25	25		
2015	blackfin snapper				
	queen snapper				
	silk snapper	414	427		
2016	blackfin snapper			293	293
	queen snapper				
	silk snapper				

Table 4.5.1.3 shows numbers of deep-water species for each component of the MRIP estimate for charter and private recreational trips from 2010 through 2016 including proportional standard error (PSE) estimates for each component. The PSE for each component was greater than 68 for all years and samples. In 2012, the number of discards of silk snapper exceeded the sillk snapper catch.

Table 4.5.1.3. Numbers of deep-water species for each component of the expanded MRIP estimate (A=observed harvest; B1=reported harvest; B2=discards) for charter and private recreational trips from 2010 through 2016 including proportional standard error (PSE) estimates for each component.

Year	Species	Observed Harvest (A)	PSE	Reported Harvest (B1)	PSE	Released Alive (B2)	PSE
2010	silk snapper	191	84.8	0	.	35	102.3
2011		766	89.5	0	.	136	78.3
2012		0	.	0	.	3,100	98.6
2013		11	100.6	0	.	0	.
2014		25	105.4	0	.	0	.
2015		414	98.8	0	.	14	110.7
2010	queen snapper	5	108.1	0	.	0	.
2010	blackfin snapper	248	72.8	0	.	0	.
2011		708	101.4	7,787	101.4	0	.
2012		793	83.2	0	.	0	.
2013		18	103.7	0	.	0	.
2014		652	68.6	0	.	0	.
2016		293	100	0	.	0	.

Length distribution of blackfin, queen, and silk snappers sampled through the MRIP program from 2004 through 2016 are shown in **Figure 4.5.1.1**. There were less than 10 lengths by species from 2014 to 2016. Lengths from the MRIP database were converted to total length based on conversions in published literature and rounded to the nearest inch (Queen: Gobert et l 2005, Blackfin: Burton et al. 2016, Silk: Thompson and Munro 1983). Data on blackfin snapper and queen snapper were insufficient to evaluate the length distribution of landings relative to the recreational minimum size limit. For silk snapper, the majority of the landings appear to be above the current 12 inch minimum size limit.

For comparison, length distributions for these species from the Gulf of Mexico and the Caribbean are presented in **Figure 4.5.1.2**. Silk snapper may be a more important recreationally in the Gulf of Mexico and Caribbean than in the South Atlantic.

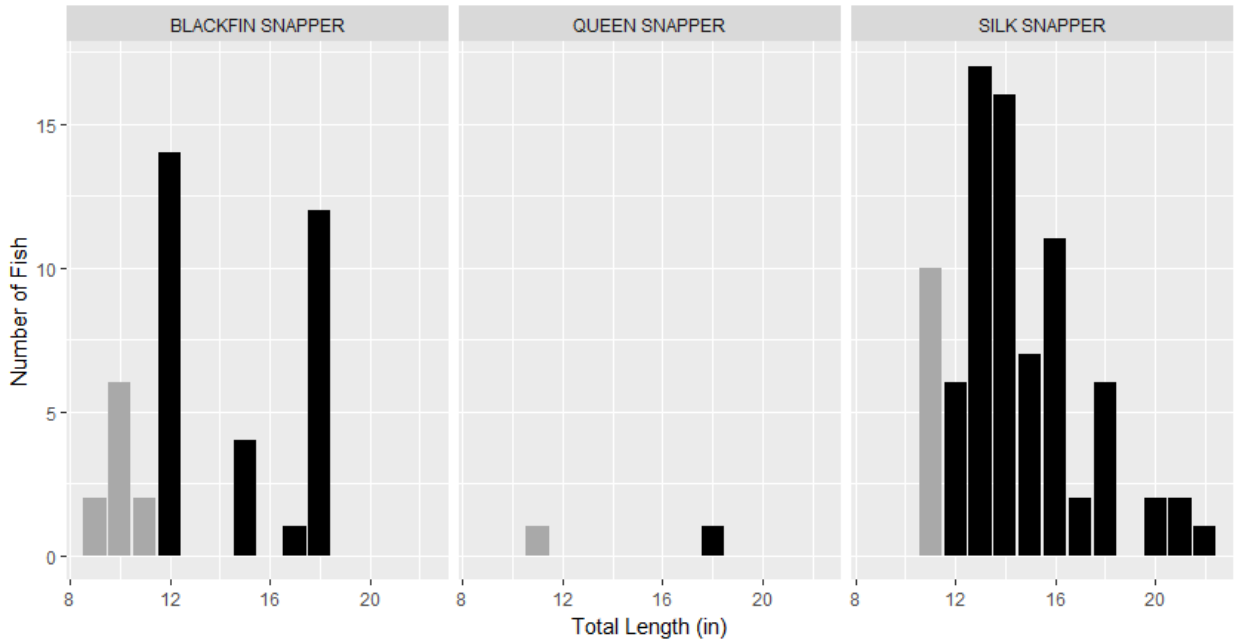

Figure 4.5.1.1. Unexpanded lengths of blackfin, queen, and silk snappers sampled through the MRIP survey from 2004 to 2016. Colors represent less than 12 inches (gray) and 12 inches and greater (black).

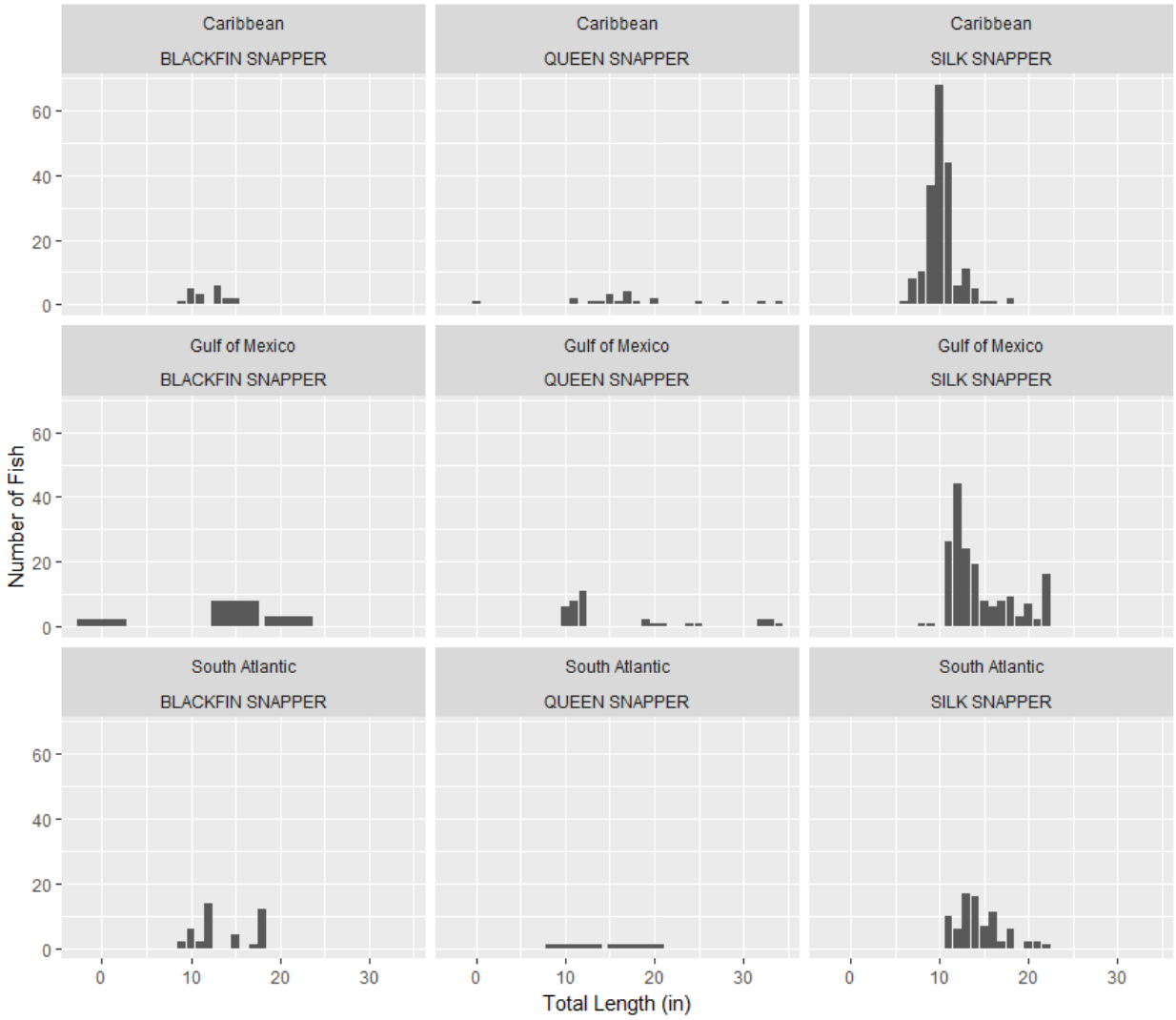

Figure 4.5.1.2. Unexpanded lengths of blackfin, queen, and silk snappers sampled through the MRIP survey from 2004 to 2016 in the Gulf of Mexico, Caribbean, and South Atlantic. Colors represent less than 12 inches (gray) and 12 inches and greater (black).

Available data suggest minimal changes in discard or harvest rates would be expected under **Alternative 2** as queen snapper, silk snapper, and blackfin snapper are not caught in high numbers recreationally. Thus, biological effects of **Alternative 2** would be neutral compared to **Alternative 1 (No Action)** as removing the size limit would have no effect on overall harvest, which is limited by the ACL, and AMs are in place to prevent overages.

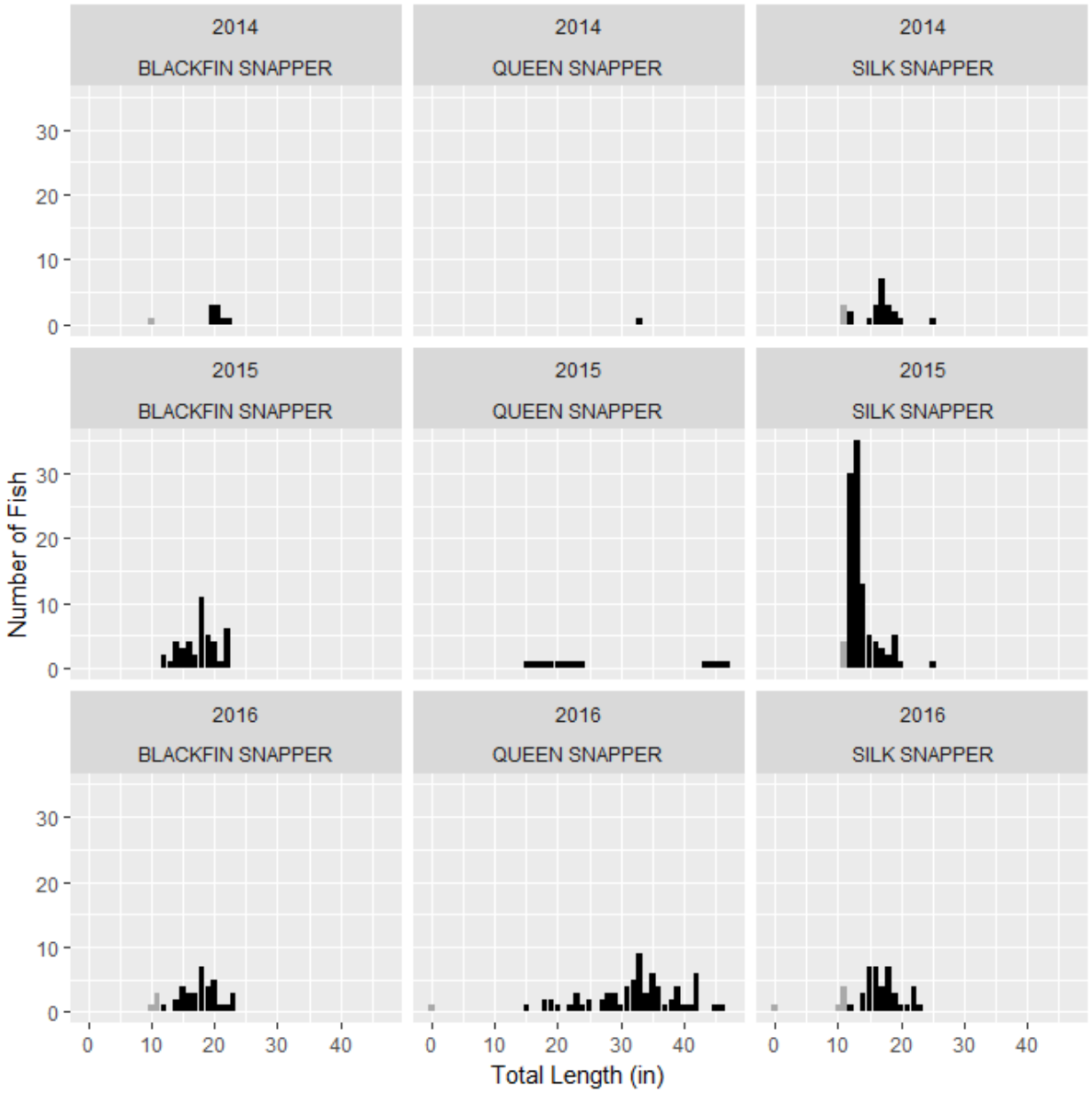

Figure 4.5.1.2. Unexpanded lengths of Blackfin, Queen, and Silk Snappers sampled through the NMFS Southeast Region Headboat Survey program from 2014 to 2016. Colors represent less than 12 inches (gray) and 12 inches and greater (black).

4.5.2 Economic Effects

Due to the relatively rare occurrence of recreational queen snapper, silk snapper, and blackfin snapper on recreational fishing trips, the overall anticipated economic effects of removing the size limit on these species is expected to likely be minimal. There will likely be some direct, positive economic effects as more fish would be available to harvest and fewer regulatory discards required in the fishery. In the recreational sector, the initial increase in fish available for harvest would positively affect consumer surplus for the fishery.

4.5.3 Social Effects

Some social effects of removing the minimum size limits from the deepwater species would be associated with the positive and negative biological effects on the species (see **Section 4.5.1**). Positive effects of removing the minimum size limit would result from reduced discards. This would be expected to contribute to the sustainability of harvest and the health of the deepwater

However, as discussed in **Section 4.5.1**, recreational catch for queen, silk and blackfin snapper is generally at low levels. Removing the minimum size limit (**Alternative 2**) would likely have minimal or no effect on current recreational fishing opportunities or trip satisfaction, similar to expected effects of **Alternative 1 (No Action)**, because these species are not commonly caught on recreational trips.

4.5.4 Administrative Effects

4.6 Action 6. Reduce the recreational minimum size limit for black sea bass

4.6.1 Biological Effects

Alternatives*

1 No Action. The recreational minimum size limit for black sea bass in South Atlantic federal waters is 13 inches total length (TL).

2. Reduce the recreational minimum size limit for black sea bass in South Atlantic federal waters to 12 inches TL.

3. Reduce the recreational minimum size limit for black sea bass in South Atlantic federal waters to 11 inches TL.

* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives

The minimum size limit for black sea bass in federal waters of the South Atlantic was specified in the Original Fishery Management Plan (FMP) to the Snapper Grouper FMP (SAFMC 1983) as eight inches total length (TL). Amendment 9 (SAFMC 1998) increased the minimum size limit for both sectors to10 inches TL. Amendment 13C (SAFMC 2006) increased the recreational size limit from 10 inches TL to 12 inches TL over two years, and reduced the recreational bag limit from 20 to 15 fish per person per day because the species was overfished and undergoing overfishing. Modifying the minimum size limit and the recreational bag limit was projected to reduce catch and end overfishing. Amendment 18A (SAFMC 2012) increased the minimum size limit for the recreational sector to 13 inches TL, and 11 inches TL for the commercial sector, to slow the rate of harvest, and also because larger fish are economically more valuable. The South Atlantic Council determined that it was unnecessary for the size limits to be the same because the commercial and recreational sectors for black sea bass are managed under their own ACLs and AMs.

The SEDAR 25 stock assessment for black sea bass (SEDAR 25 2011) indicated that release mortality of black sea bass is very low (7% for hook-and-line; 1% for black sea bass pot) if fish are returned to the water quickly.

Table 4.6.1.1 shows the numbers and percent (of total catch) of black sea bass that were discarded in from 2014 through 2016 as estimated by the Marine Recreational Information Program (MRIP) in state (<= 3 miles) and federal (> 3 miles) waters. For comparison, **Table 4.6.1.2** shows the distribution of black sea bass landings and percent of landings compared to the total catch for the same time period. Numbers of discards do not appear to vary significantly between state and federal waters. For both state and federal waters, the number of black sea bass being discarded appears to be substantially above that which is landed. Indeed, on average, when compared to the total catch, the percent of black sea bass discarded between 2014 and 2016 was 94%.

Table 4.6.1.1. Numbers of black sea bass discarded (B2) and percent of total catch in the South Atlantic between 2014 and 2016 as estimated by the Marine Recreational Information Program (MRIP) for state waters (<= 3 miles) and federal waters (> 3 miles).

Number of BSB Discards				Percent of BSB Discards		
Year	<= 3 mi	> 3 mi	Total	<= 3 mi	> 3 mi	Total
2014	2,060,023	2,863,174	4,923,197	97.9%	90.7%	93.6%
2015	1,725,703	1,575,180	3,300,883	98.8%	89.3%	94.0%
2016	2,022,670	1,141,448	3,164,119	99.2%	87.1%	94.5%
Avg.	1,936,132	1,859,934	3,796,066	98.6%	89.6%	94.0%

Table 4.6.1.2. Numbers of black sea bass landed (A+B1) and percent of total catch in the South Atlantic between 2014 and 2016 as estimated by the Marine Recreational Information Program (MRIP) for state waters (<= 3 miles) and federal waters (> 3 miles).

BSB Landings (number)				Percent BSB Landings		
Year	<= 3 mi	> 3 mi	Total	<= 3 mi	> 3 mi	Total
2014	44,202	293,339	337,542	2.1%	9.3%	6.4%
2015	21,768	188,431	210,199	1.2%	10.7%	6.0%
2016	16,106	169,355	185,461	0.8%	12.9%	5.5%
Avg.	27,359	217,042	244,400	1.4%	10.4%	6.0%

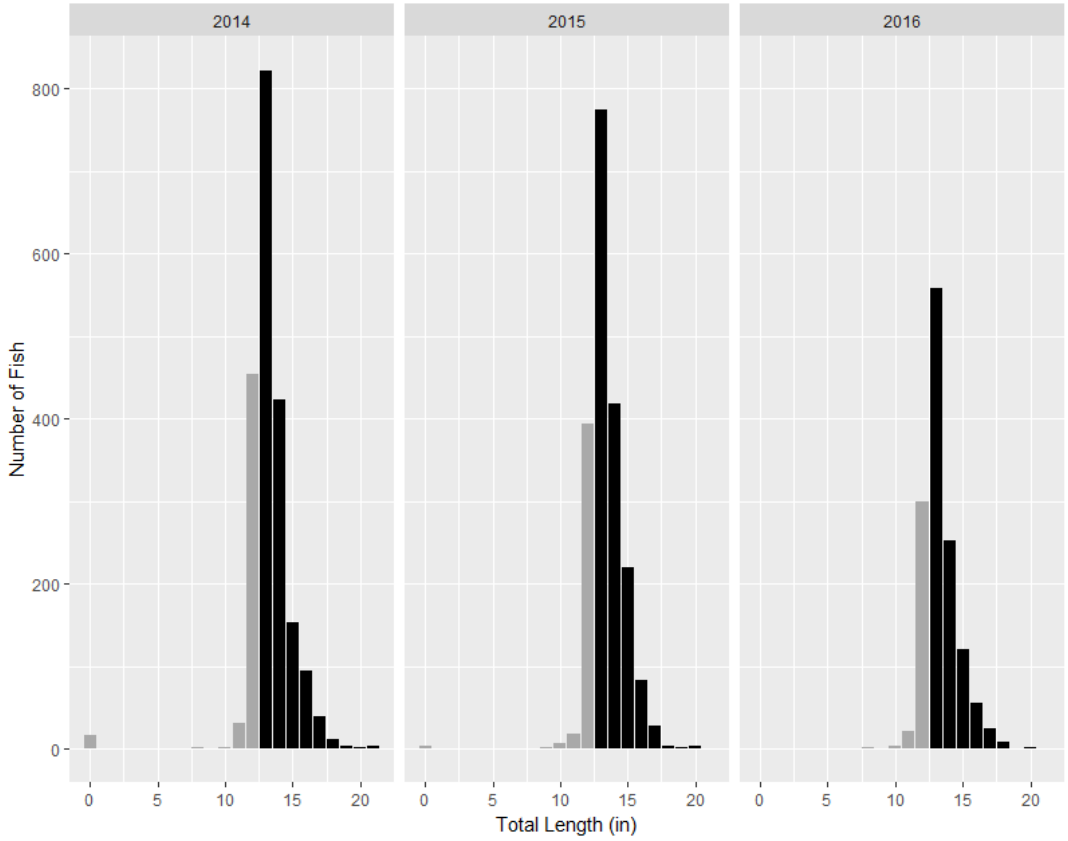

Figure 4.6.1.1. Length frequency of landed black sea bass on headboats in the South Atlantic from 2014-2016. Black is above a 13 inch size limit and gray is below a 13 inch size limit.

A decrease in the recreational minimum size limit of black sea bass, as proposed under **Alternatives 2** and **3**, would likely lead to an increase in landings. However, a recreational ACL is in place to prevent overall harvest from exceeding the sustainable level. Unless the proposed alternatives lead to an in-season closure (and subsequent increase in discards), **Alternatives 2** and **3** are expected to have neutral biological effects. However, an assessment of the status of black sea bass in the South Atlantic is currently underway (SEDAR 56) and results are not anticipated prior to this amendment being finalized under the current development timeline.

The new bag/size limit analysis developed by Council staff and being considered by the Scientific and Statistical Committee relies on information from the most recent stock assessment. In particular, it requires estimates of abundance at age, size at age, and selectivity at age in order to estimate the proportion of discarded fish in the catch that are above or below a given size limit. For black sea bass, the most recent assessment is the SEDAR 25 Update (2013), which has a terminal year of 2012. We are currently five years past that terminal year and the estimates of abundance at age are no longer valid. It may be possible to obtain projected abundance at age from the projections, but there are several issues with doing that. First, projections were only run through 2015. Second, and more importantly, using projected information assumes the population is actually following the trend assumed in the projections. Recent chevron trap data have shown that black sea bass may not be following the trajectory assumed in the projections despite landings remaining below the ACL. Therefore, analyzing the size limit alternatives for black sea bass is not possible at this time given the available data.

4.6.2 Economic Effects

Size limits that result in a smaller spawning stock or lower fecundity would result in more long-term negative economic effects presumably through the availability of decreased numbers of fish in the future. The recreational annual catch limit and accountability measures that are in place are designed to mitigate and reduce these potential negative economic effects. There could also be some direct, likely short-term, positive economic effects as more fish would be available to harvest and fewer regulatory discards required in the fishery. In the recreational sector, the initial increase in fish available for harvest would positively affect consumer surplus for the black seabass fishery. Net operating revenue for charter and head boat trips may be positively affected as well if overall fishing effort increases or trips become less costly due to lower search costs resulting from increased availability of fish of legal length to harvest. The greater the decrease in the minimum size limit (**Alternatives 2** and **3**) from **Alternative 1 (No Action)**, the greater the probability for short-term negative economic effects. However, a decrease in the minimum size limit below **Alternative 1 (No Action)** could also result in greater long-term negative economic effects if the decreased size limit translates into a smaller spawning stock biomass and overall biomass. Presumably, since the biological effects of **Alternatives 2** and **3** are likely neutral, these potential long-term negative economic effects are expected to be minimal.

4.6.3 Social Effects

Black sea bass is a very popular recreational species for fishermen in all South Atlantic states. Some social effects of minimum size limits would be associated with the positive and negative biological effects on black sea bass (**Section 4.6.1**). Reducing the minimum size limit

may benefit recreational fishermen by increasing the number of fish that can be kept, which may improve trip satisfaction. However, allowing more fish to be landed may result in a higher harvest rate, which could result in a shorter subsequent fishing season. The benefits and costs to recreational fishermen would depend on the balance of increasing the number of fish that can be kept while ensuring that an increased harvest rate would not result in a shortened recreational season for the next year. **Alternative 3** would result in the greatest increase in the number of black sea bass that could be kept on recreational trips, followed by **Alternative 2** and then **Alternative 1 (No Action).** However, the larger minimum size limit in **Alternative 1 (No Action)** would be least likely to contribute to a faster harvest rate and potentially shorter subsequent fishing season, followed by **Alternative 2** and then **Alternative 3.**

4.6.4 Administrative Effects

4.7 Action 7. Reduce the recreational minimum size limit for gray triggerfish in federal waters off East Florida

4.7.1 Biological Effects

Alternatives*

1. No Action. The recreational minimum size limit for gray triggerfish in South Atlantic federal waters off the east coast of Florida is 14 inches fork length (FL). The recreational minimum size limit for gray triggerfish in federal waters off Georgia, South Carolina, and North Carolina is 12 inches FL.

2. Reduce the recreational minimum size limit for gray triggerfish in federal waters off the east coast of Florida to 12 inches FL.

* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives

Prior to July 2015 the recreational minimum size limit for gray triggerfish was 12 inches fork length (FL) in Florida. Upon implementation of Amendment 29 (SAFMC 2014) in July 2015, the size limit off the east coast of Florida was increased to 14 inches FL. As the Marine Recreational Information Program (MRIP) obtains lengths of sampled fish as fork lengths, no conversion was needed for the analysis.

Analysis examined data from 2014 to 2016 to determine the potential impact of the proposed reduction in the recreational minimum size limit of gray triggerfish off east Florida. To fill in for unmeasured fish, MRIP imputes lengths other strata which could have an impact on the analysis. **Figure 4.7.1.1** is length plot of imputed and observed lengths provided as a reference. Overall the size distribution of the catch did not change from the period before the increase in the size limit to after. Also, note that the modal length in 2016 for both charter vessels and private recreational was 12-inches FL.

The percentage of fish landed off east Florida that were less than 14 inches was calculated for the time period prior to July 2015 (Reg=1) and thereafter (Reg=2). In addition, the number of triggerfish that were discarded was also examined (**Table 4.7.1.1**).

The increase in the minimum size limit from 12 inches FL to 14 inches FL in July 2015 appears to have affected the number of recreational discards of gray triggerfish. Overall, during the period prior to the minimum size limit change, the recreational sector (private and charter) discarded about 60% of gray triggerfish caught off east Florida (**Table 4.7.1.1**). After the minimum size limit increased to 14 inches FL, the average percentage of discarded fish increased to 78.5%. It appears the majority of the discards are in the private sector.

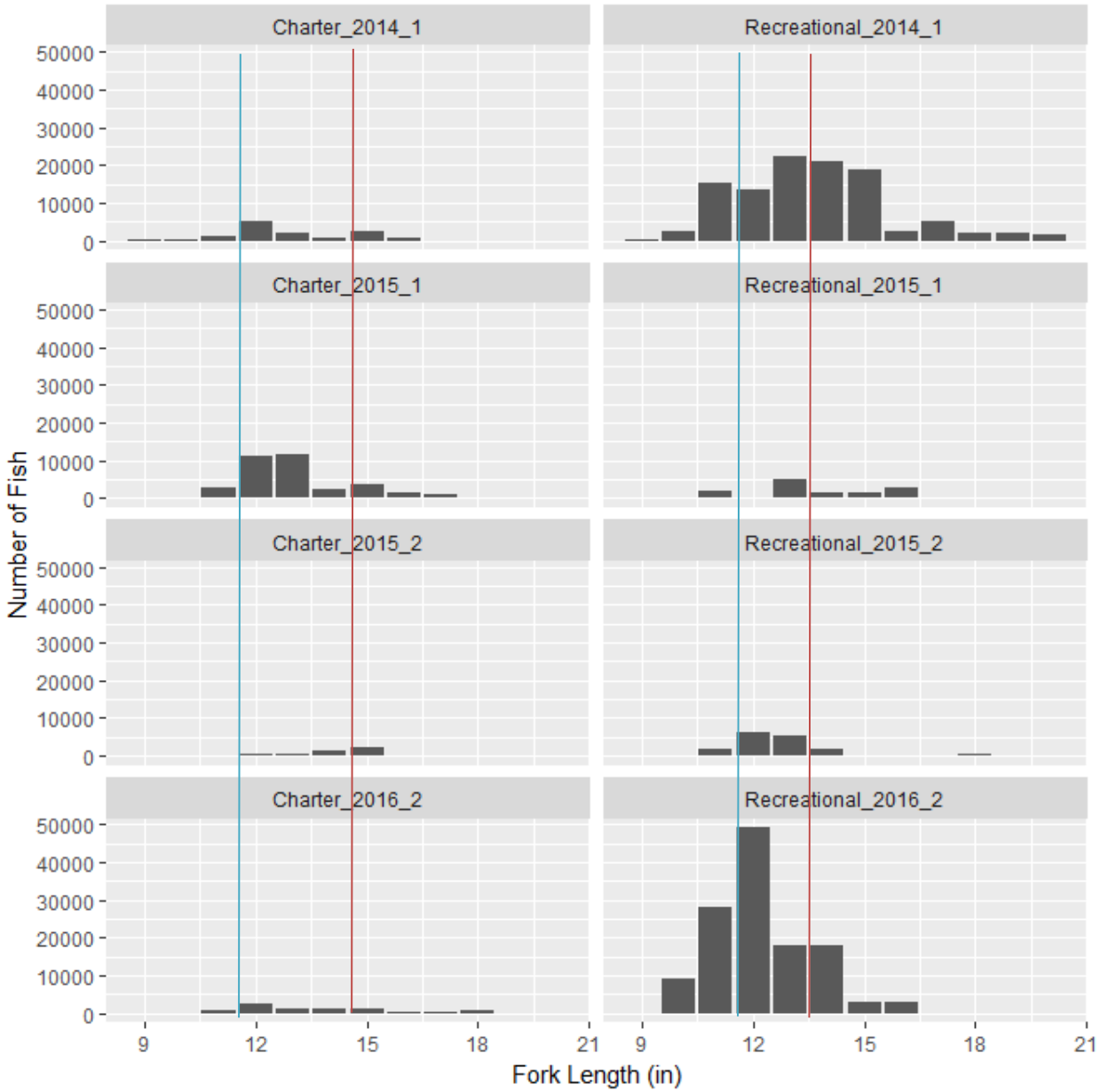

Figure 4.7.1.1. Length distribution (inches fork length) of gray triggerfish landings off east Florida (including Monroe County) prior to (Reg=1, 12-inch minimum size limit) and after (Reg=2, 14-inch minimum size limit) the change in minimum size limit that took effect in July 2015 for charter (left panels) and private recreational components. Blue lines denote the 12-inch size limit and red lines indicate the 14-inch size limit.

Table 4.7.1.1. Estimates of gray triggerfish caught from Combined, Charter Boat, and Private Recreational landings in Florida. Estimates include: A (observed catch), B1 (unobserved reported catch), B2 (released fish), weight of catch in (kg), and percent of total catch released. Reg=1 denotes period prior to size limit increase (July 2015); Reg=2 denotes period after size limit increase.

Charter and Private Recreational Combined						
Reg	**Year**	**A + B1**	**B2**	**A, B1, B2**	**wgt_ab1 (kg)**	**% Released Num**
1	2014	119,041	122,112	241,154	132,183	51%
1	2015	46,533	103,576	150,108	46,485	69%
2	2015	19,825	74,853	94,678	18,635	79%
2	2016	135,829	495,810	631,639	107,232	78%
Charter						
Reg	**Year**	**A + B1**	**B2**	**A, B1, B2**	**wgt_ab1 (kg)**	**% Released Num**
1	2014	12,167	12,278	24,445	11,799	50%
1	2015	33,760	8,855	42,615	32,370	21%
2	2015	4,340	9,236	13,576	5,198	68%
2	2016	7,915	12,589	20,504	8,632	61%
Private						
Reg	**Year**	**A + B1**	**B2**	**A, B1, B2**	**wgt_ab1 (kg)**	**% Released Num**
1	2014	106,874	109,834	216,709	120,384	51%
1	2015	12,773	94,721	107,493	14,115	88%
2	2015	15,485	65,617	81,102	13,437	81%
2	2016	127,914	483,221	611,135	98,600	79%

NOTE: Tables and figures below not included in Decision Document due to lack of time. Need to sort out appropriate titles and include discussion

Table 4.7.1.2. Number of gray triggerfish kept, released, and total caught on Florida headboats from 2014 to 2016 based on logbook reports.

Year	Kept	Released	Total	Percent Released Number
2014	78,368	656,609	734,977	89%
2015	62,833	655,883	718,716	91%
2016	50,703	548,779	599,482	92%

Table 4.7.1.3. Average number of gray triggerfish kept and caught on Florida headboats from 2014 to 2016 based on logbook reports.

Year	Kept/Vessel	Caught/Vessel
2014	15.5	145.4
2015	13.3	152.3
2015	10.8	127.5

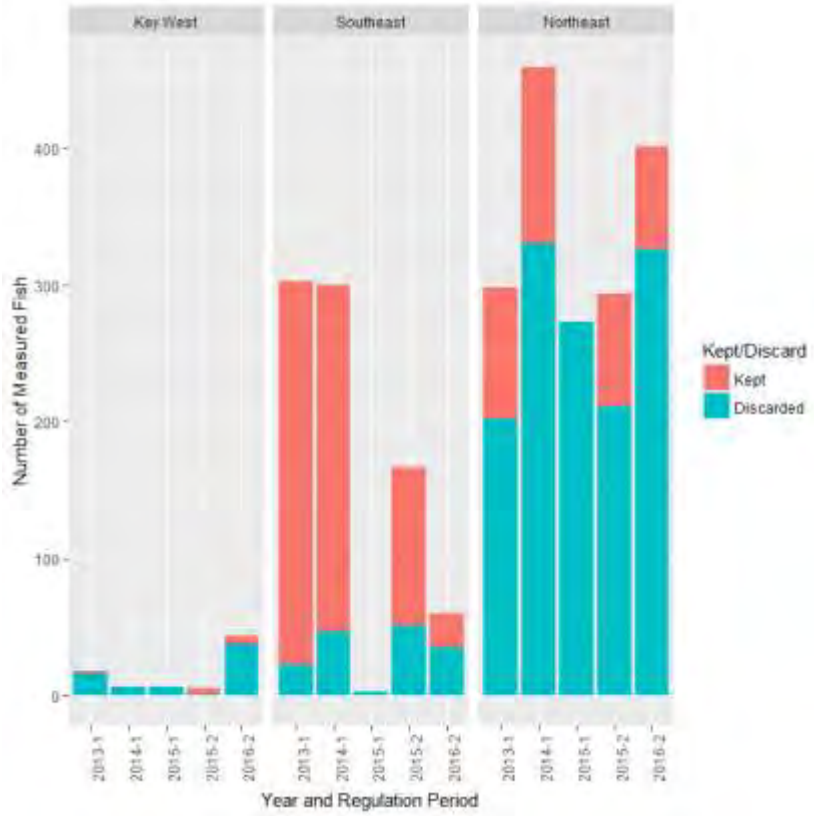

Figure 4.7.1.2. Observer based number of triggerfish kept or released from 2013 to 2016 by area on headboats. Regulation period 1 has a 12 inch size limit and period 2 has 14 inch size limit.

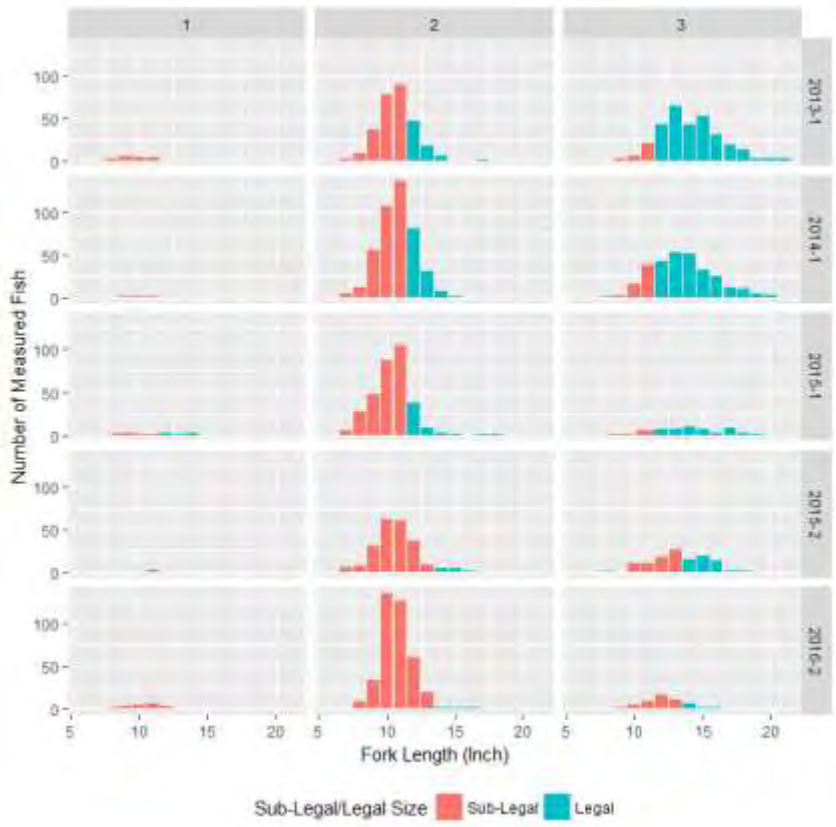

Figure 4.7.1.1. Observer based number of triggerfish kept or released from 2013 to 2016 by area on headboats. Regulation period 1 has a 12 inch size limit and period 2 has 14 inch size limit. 1=Key West, 2=Southeast, and 3=Northeast.

Decreasing the minimum size limit to 12 inches FL as proposed under **Alternative 2** could lead to higher recreational landings overall. Recreational landings of gray triggerfish in 2013 and 2014 in the South Atlantic exceeded the recreational ACL by 6% and 22%, respectively. Landings in 2015 did not reach the recreational ACL (88%). However, it is difficult to establish a baseline to compare potential effects since the change in the size limit occurred very recently and established different size limits for the species in Florida and the rest of the South Atlantic states. Unless recreational landings were projected to reach the recreational ACL as a result of a decrease in the size limit, the biological effects of **Alternative 2** would be neutral.

4.7.2 Economic Effects

Size limits that result in a smaller spawning stock or lower fecundity would result in more long-term negative economic effects presumably through the availability of decreased numbers of fish in the future. The recreational annual catch limit and accountability measures that are in place are designed to mitigate and reduce these potential negative economic effects. There could also be some direct, likely short-term, positive economic effects as more fish would be available to harvest and fewer regulatory discards required in the fishery. In the recreational sector, the initial increase in fish available for harvest would positively affect consumer surplus for the gray triggerfish fishery off of Florida. Net operating revenue for charter and head boat trips may be positively affected as well if overall fishing effort increases or trips become less costly due to

lower search costs due to increased availability of fish of legal length to harvest. The greater the decrease in the minimum size limit from **Alternative 1 (No Action)**, the greater the probability for short-term negative economic effects. However, a decrease in the minimum size limit below **Alternative 1 (No Action)** could also result in greater long-term negative economic effects if the decreased size limit translates into a smaller spawning stock biomass and overall biomass of fish available to harvest. Overall, the size limit in **Alternative 2** brings the size limit for grey triggerfish caught off of Florida in-line with the rest of the South Atlantic states, with the biological effects likely to be neutral. As such, these potential long-term negative economic effects are expected to be minimal.

4.7.3 Social Effects

As discussed in **Section 4.6.3**, some social effects of minimum size limits would be associated with the biological effects on gray triggerfish (**Section 4.7.1**). Additionally, there is a trade-off with reducing the minimum size limit in that an increase in the number of fish that can be kept may improve recreational trip satisfaction, but may also contribute to the harvest rate and associated accountability measure if landings reach the ACL sooner in the fishing year.

Reducing the minimum size limit (**Alternative 2**) may benefit recreational fishermen by increasing the number of fish that can be kept, which may improve trip satisfaction for Florida fishermen, and would also make the minimum size limit consistent for all South Atlantic states. **Alternative 2** would also be expected to reduce the number of discards.

There is a greater likelihood that landings and rate of harvest would increase under the minimum size limit in **Alternative 2** than the minimum size limit in **Alternative 1 (No Action)**. The accountability measure for gray triggerfish is an in-season closure for the whole South Atlantic, which extends the potential negative effects of **Alternative 2** to all recreational fishermen targeting gray triggerfish. The benefits and costs to recreational fishermen would depend on the balance of increasing the number of fish that can be kept while ensuring that an increased harvest rate would not result in a shortened recreational season.

4.7.4 Administrative Effects

Selection of **Alternative 2** would result in consistent regulations with state waters off the east coast of Florida and the other South Atlantic states, but create inconsistent regulations between the west coast of Florida in state and federal (pending a size limit increase) waters. However, neither **Alternatives 1 (No Action),** nor **Alternative 2** would allow for consistent minimum size limit regulations for gray triggerfish in the Gulf of Mexico and South Atlantic, which is particularly troublesome for fishermen and law enforcement in the Florida Keys. Additionally, **Alternative 1 (No Action)** and **Alternative 2** could have some negative effects on recreational and fishermen harvesting gray triggerfish in the EEZ off states that currently do not have size limits by limiting the number of fish that can be kept.

Chapter 5. Council's Choice for the Preferred Alternatives

5.1 Action 1. Establish a recreational aggregate bag limit and recreational season for deep-water species

5.1.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

5.1.2 Law Enforcement AP Comments and Recommendations

5.1.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.1.4 Public Comments and Recommendations

5.1.5 South Atlantic Council's Conclusion

5.2.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

5.2 Action 2. Establish a recreational aggregate bag limit for shallow-water grouper species

5.2.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

5.2.2 Law Enforcement AP Comments and Recommendations

5.2.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.2.4 Public Comments and Recommendations

5.2.5 South Atlantic Council's Conclusion

5.2.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

5.3 Action 3. Modify the 10-snapper and 20-fish recreational aggregate bag limits

5.3.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

5.3.2 Law Enforcement AP Comments and Recommendations

5.3.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.3.4 Public Comments and Recommendations

5.3.5 South Atlantic Council's Conclusion

5.3.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

5.4 Action 4. Modify the seasonal prohibition on recreational harvest and possession of shallow-water groupers

5.4.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

5.4.2 Law Enforcement AP Comments and Recommendations

5.4.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.4.4 Public Comments and Recommendations

5.4.5 South Atlantic Council's Conclusion

5.4.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

5.5 Action 5. Remove the recreational minimum size limit for deep-water snapper species

5.5.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

5.5.2 Law Enforcement AP Comments and Recommendations

5.5.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.5.4 Public Comments and Recommendations

5.5.5 South Atlantic Council's Conclusion

5.5.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

5.6 Action 6. Reduce the recreational minimum size limit for black sea bass

5.6.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

5.6.2 Law Enforcement AP Comments and Recommendations

5.6.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.6.4 Public Comments and Recommendations

5.6.5 South Atlantic Council's Conclusion

5.6.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

5.7 Action 7. Reduce the recreational minimum size limit for gray triggerfish in federal waters off East Florida

5.7.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

5.7.2 Law Enforcement AP Comments and Recommendations

5.7.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.7.4 Public Comments and Recommendations

5.7.5 South Atlantic Council's Conclusion

5.7.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

Chapter 6. Cumulative Effects

Chapter 7. List of Interdisciplinary Plan Team (IPT) Members

Name	Agency/Division	Title
Brian Cheuvront	SAFMC	Deputy Executive Director for Management
Myra Brouwer	SAFMC	IPT Lead/Fishery Biologist
Kari McLauchlin	SAFMC	Social Scientist
Chip Collier	SAFMC	Fishery Scientist
John Hadley	SAFMC	Fishery Economist
Roger Pugliese	SAFMC	Senior Fishery biologist
Mike Errigo	SAFMC	Data analyst
Mary Vara	SERO/SF	IPT Lead/Fishery Biologist
Rick DeVictor	SERO/SF	South Atlantic Branch Chief
Joelle Godwin	SERO/SF	Technical Writer and Editor
Nick Farmer	SERO/SF	Data Analyst
Tony Lamberte	SERO/SF	Economist
Christina Package-Ward	SERO/SF	Social Scientist
Jennifer Lee	SERO/PR	Fishery Biologist
David Dale	SERO/HC	EFH Specialist
Noah Silverman	NMFS/SER	Regional NEPA Coordinator
Monica Smit-Brunello	NOAA GC	General Counsel
	SERO/OLE	Criminal Investigator
Scott Crosson	SEFSC	Economist
Erik Williams	SEFSC	

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

Chapter 8. Agencies and Persons Consulted

Responsible Agency

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

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

Environmental Assessment:

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

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Appendix A. Considered But Rejected Alternatives

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Appendix B. Glossary

Allowable 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 % of total fish discarded that do not survive being captured and released at sea.

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

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

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

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

F: Fishing mortality.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Recruitment Overfishing: The rate of fishing above which the recruitment to the exploitable stock becomes significantly reduced. This is characterized by a greatly reduced spawning stock,

a decreasing proportion of older fish in the catch, and generally very low recruitment year after year.

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

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

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

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

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

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

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

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

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

Appendix C. History of Management

South Atlantic Snapper Grouper History of Management
Last Updated: 2/16/17

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

*Shaded rows indicate FMP Amendments

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
FMP (1983)	08/31/83	PR: 48 FR 26843 FR: 48 FR 39463	-12" total length (TL) limit – red snapper, yellowtail snapper, red grouper, Nassau grouper; -8" limit – black sea bass; -4" trawl mesh size; -Gear limitations – poisons, explosives, fish traps, trawls; -Designated modified habitats or artificial reefs as Special Management Zones (SMZs).
Regulatory Amendment #1 (1987)	03/27/87	PR: 51 FR 43937 FR: 52 FR 9864	-Prohibited fishing in SMZs except with hand-held hook-and-line and spearfishing gear; -Prohibited harvest of goliath grouper in SMZs.
Amendment #1 (1988a)	01/12/89	PR: 53 FR 42985 FR: 54 FR 1720	-Prohibited trawl gear to harvest fish south of Cape Hatteras, NC and north of Cape Canaveral, FL; -Directed fishery defined as vessel with trawl gear and ≥200 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.
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.

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Fishery Closure Notice	8/8/90	55 FR 32635	- Fishery closed because the commercial quota of 2 million pounds was reached.
Notice of Control Date	09/24/90	55 FR 39039	-Anyone entering federal wreckfish fishery in the EEZ off S. Atlantic states after 09/24/90 was not assured of future access if limited entry program developed.
Regulatory 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.
Emergency Rule Extension	11/1/90	55 FR 40181	-Extended the measures implemented via emergency rule on 8/3/90.
Amendment #3 (1990b)	01/31/91	PR: 55 FR 39023 FR: 56 FR 2443	-Added wreckfish to the FMU; -Defined optimum yield (OY) and overfishing; -Required permit to fish for, land or sell wreckfish; -Required catch and effort reports from selected, permitted vessel; -Established control date of 03/28/90; -Established a fishing year for wreckfish starting April 16; -Established a process to set annual quota, with initial quota of 2 million pounds; provisions for closure; -Established 10,000 pound trip limit; -Established a spawning season closure for wreckfish from January 15 to April 15; -Provided for annual adjustments of wreckfish management measures.
Notice of Control Date	07/30/91	56 FR 36052	-Anyone entering federal snapper grouper fishery (other than for wreckfish) in the EEZ off S. Atlantic states after 07/30/91 was not assured of future access if limited entry program developed.
Amendment #4 (1991)	01/01/92	PR: 56 FR 29922 FR: 56 FR 56016	-Prohibited gear: fish traps except black sea bass traps north of Cape Canaveral, FL; entanglement nets; longline gear inside 50 fathoms; bottom longlines to harvest wreckfish; powerheads and bangsticks in designated SMZs off S. Carolina. -Defined overfishing/overfished and established rebuilding timeframe: red snapper and groupers ≤ 15 years (year 1 = 1991); other snappers, greater amberjack, black sea bass, red porgy ≤ 10 years (year 1 = 1991); -Required permits (commercial & for-hire) and specified data collection regulations;

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			-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; -Spawning season closure – commercial harvest mutton snapper >snapper aggregate prohibited during May and June; -Charter/headboats and excursion boat possession limits extended.
Amendment #5 (1992a)	04/06/92	PR: 56 FR 57302 FR: 57 FR 7886	For wreckfish: -Established limited entry system with individual transferable quotas (ITQs); -Required dealer to have permit; -Rescinded 10,000 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).

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Emergency Rule	8/31/92	57 FR 39365	For Black Sea Bass (bsb): -Modified definition of bsb pot; -Allowed multi-gear trips for bsb; -Allowed retention of incidentally-caught fish on bsb trips.
Emergency Rule Extension	11/30/92	57 FR 56522	For Black Sea Bass: -Modified definition of bsb pot; -Allowed multi-gear trips for bsb; -Allowed retention of incidentally-caught fish on bsb trips.
Regulatory Amendment #4 (1992b)	07/06/93	FR: 58 FR 36155	-For Black Sea Bass: -Modified definition of bsb pot; -Allowed multi-gear trips for bsb; -Allowed retention of incidentally-caught fish on bsb trips.
Regulatory Amendment #5 (1992c)	07/31/93	PR: 58 FR 13732 FR: 58 FR 35895	-Established 8 SMZs off South Carolina, where only hand-held, hook-and-line gear and spearfishing (excluding powerheads) was allowed.
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.

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Regulatory Amendment #6 (1994b)	05/22/95	PR: 60 FR 8620 FR: 60 FR 19683	-Established actions which applied only to EEZ off Atlantic coast of FL: Bag limits – 5 hogfish/person/day (recreational only), 2 cubera snapper/person/day > 30" TL; 12" TL – gray triggerfish.
Notice of Control Date	04/23/97	62 FR 22995	-Anyone entering federal black sea bass pot fishery off South Atlantic states after 04/23/97 was not assured of future access if limited entry program developed.
Interim Rule Request	1/16/98		-The South Atlantic Fishery Management Council (Council) requested all Amendment 9 measures except black sea bass pot construction changes be implemented as an interim request under the Magnuson-Stevens Act.
Action Suspended	5/14/98		-NMFS informed the Council that action on the interim rule request was suspended.
Emergency Rule Request	9/24/98		-Council requested Amendment 9 be implemented via emergency rule.
Amendment #8 (1997)	12/14/98	PR: 63 FR 1813 FR: 63 FR 38298	-Established program to limit initial eligibility for snapper grouper fishery: -Must have demonstrated landings of any species in the snapper grouper FMU in 1993, 1994, 1995 or 1996; and have held valid snapper grouper permit between 02/11/96 and 02/11/97; -Granted transferable permit with unlimited landings if vessel landed ≥ 1,000 pounds (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, OY, and overfishing definitions; -Expanded the Council's habitat responsibility; -Allowed retention of snapper grouper species in excess of bag limit on permitted vessel with a single bait net or cast nets on board; -Allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule.
Regulatory Amendment #7 (1998a)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.

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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.
Emergency Action	9/3/99	64 FR 48326	-Reopened the Amendment 8 permit application process.
Emergency Interim Rule	09/08/99, expired 08/28/00	64 FR 48324 and 65 FR 10040	-Prohibited harvest or possession of red porgy.
Amendment #10 Comprehensive Essential Fish Habitat Amendment (1998c)	07/14/00	PR: 64 FR 37082 and 64 FR 59152 FR: 65 FR 37292	-Identified essential fish habitat (EFH) and established habitat areas of particular concern (HAPC) for species in the snapper grouper FMU.

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Amendment #11 Comprehensive Sustainable Fisheries Act Amendment (1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	-Maximum sustainable yield (MSY) proxy: goliath and Nassau grouper = 40% static spawning potential ratio (SPR); all other species = 30% static SPR; -OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR -Overfished/overfishing evaluations: BSB: overfished (minimum stock size threshold (MSST)=3.72 mp, 1995 biomass=1.33 mp); undergoing overfishing (maximum fishing mortality threshold (MFMT)=0.72, F1991-1995=0.95) Vermilion snapper: overfished (static SPR = 21-27%) Red porgy: overfished (static SPR = 14-19%). Red snapper: overfished (static SPR = 24-32%) Gag: overfished (static SPR = 27%) Scamp: no longer overfished (static SPR = 35%) Speckled hind: overfished (static SPR = 8-13%) Warsaw grouper: overfished (static SPR = 6-14%) Snowy grouper: overfished (static SPR = 5-15%) White grunt: no longer overfished (static SPR = 29-39%) Golden tilefish: overfished (couldn't estimate static SPR) Nassau grouper: overfished (couldn't estimate static SPR) Goliath grouper: overfished (couldn't estimate static SPR) -overfishing level: goliath and Nassau grouper = F>F40% static SPR; all other species: = F>F30% static SPR Approved definitions for overfished and overfishing. MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. MFMT = $F_{MSY.}$
Amendment #12 (2000a)	09/22/00	PR: 65 FR 35877 FR: 65 FR 51248	For Red porgy: -MSY=4.38 mp; OY=45% static SPR; MFMT=0.43; MSST=7.34 mp; rebuilding timeframe=18 years (1999=year 1); -no sale of red porgy during Jan-April; -1 fish bag limit; -50 lb. bycatch commercial trip limit May-December; -Modified management options and list of possible framework actions.

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Regulatory Amendment #8 (2000b)	11/15/00	PR: 65 FR 41041 FR: 65 FR 61114	-Established 12 SMZs at artificial reefs off Georgia; revised boundaries of 7 existing SMZs off Georgia to meet CG permit specs; restricted fishing in new and revised SMZs.
Amendment #9 (1998b) resubmitted	10/13/00	PR: 63 FR 63276 FR: 65 FR 55203	-Commercial trip limit for greater amberjack.
Amendment #13A (2003)	04/26/04	PR: 68 FR 66069 FR: 69 FR 15731	-Extended for an indefinite period the regulation prohibiting fishing for and possessing snapper grouper species within the *Oculina* Experimental Closed Area.
Notice of Control Date	10/14/05	70 FR 60058	-Considered management measures to further limit participation or effort in the commercial fishery for snapper grouper species (excluding wreckfish).
Amendment #13C (2006)	10/23/06	PR: 71 FR 28841 FR: 71 FR 55096	-End overfishing of snowy grouper, vermilion snapper, black sea bass, and golden tilefish. Increase allowable catch of red porgy. Year 1 = 2006; 1. <u>Snowy Grouper</u> Commercial: -Quota = 151,000 lb gutted 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. <u>Golden Tilefish</u> 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: Limited possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit; 3. <u>Vermilion Snapper</u> Commercial: Quota of 1,100,000 lb gw; Recreational: 12” TL size limit. 4. <u>Black Sea Bass</u>

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			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; -Required use of at least 2" mesh for the entire back panel of black sea bass pots effective 6 months after publication of the final rule; -Required black sea bass pots be removed from the water when the quota is met; -Changed fishing year from calendar year to June 1 – May 31; Recreational: Recreational allocation of 633,000 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; -Reduced recreational bag limit from 20 to 15 per person per day; -Changed fishing year from the calendar year to June 1 through May 31. 5. Red Porgy Commercial and recreational: -Retained 14" TL size limit and seasonal closure (retention limited to the bag limit); -Specified a commercial quota of 127,000 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; -Increased commercial trip limit from 50 lb ww to 120 red porgy (210 lb gw) during May through December;--Increased recreational bag limit from one to three red porgy per person per day.
Notice of Control Date	3/8/07	72 FR 60794	-Considered measures to limit participation in the snapper grouper for-hire sector.
Amendment #14 (2007)	2/12/09	PR: 73 FR 32281 FR: 74 FR 1621	-Established eight deep-water Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deep-water snapper grouper species.
Amendment #15A (2008a)	3/14/08	73 FR 14942	- Established rebuilding plans and status determination criteria for snowy grouper, black sea bass, and red porgy.
Notice of Control Date	12/4/08	74 FR 7849	-Established a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic.
Notice of Control Date	12/4/08	74 FR 7849	-Established control date for black sea bass pot sector in the South Atlantic.

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Amendment #15B (2008b)	2/15/10	PR: 74 FR 30569 FR: 74 FR 58902	-Prohibited the sale of snapper-grouper harvested or possessed in the EEZ under the bag limits and prohibited the sale of snapper-grouper harvested or possessed under the bag limits by vessels with a Federal charter vessel/headboat permit for South Atlantic snapper-grouper were harvested; -Reduced the effects of incidental hooking on sea turtles and smalltooth sawfish; -Adjusted commercial permit renewal periods and transferability requirements; -Revised the management reference points for golden tilefish; -Implemented plan to monitor and assess bycatch; -Required a vessel that fished in the EEZ, if selected by NMFS, to carry an observer and install electronic logbook and/or video monitoring equipment provided by NMFS; -Established reference points for golden tilefish; -Established allocations for snowy grouper (95% commercial & 5% recreational); -Established allocations for red porgy (50% commercial & 50% recreational).
Amendment #16 (2009a)	7/29/09	PR: 74 FR 6297 FR: 74 FR 30964	-Specified status determination criteria for gag and vermilion snapper; For gag: -Specified interim allocations 51% commercial & 49% recreational; -Recreational and commercial shallow shallow-water grouper spawning closure January through April; -Directed commercial quota= 352,940 lb gw; -Reduced 5-fish aggregate grouper bag limit, including tilefish species, to a 3-fish aggregate; -Captain and crew on for-hire trips cannot retain the bag limit of vermilion snapper and species within the 3-fish grouper aggregate; For vermilion snapper: -Specified interim allocations 68% commercial & 32% recreational; -Directed commercial quota split Jan-June=315,523 lb gw and 302,523 lb gw July-Dec; -Reduced bag limit from 10 to 4 and a recreational closed season November through March; -Required venting and dehooking tools when catching snapper grouper species to reduce recreational and commercial bycatch mortality.

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Amendment #19 Comprehensive Ecosystem-Based Amendment 1 (CE-BA1) (2009b)	7/22/10	PR: 75 FR 14548 FR: 75 FR 35330	-Amended coral, coral reefs, and live/hardbottom habitat FMP to establish deep-water coral HAPCs; -Created a "shrimp fishery access area" (SFAA) within the Stetson-Miami Terrace CHAPC boundaries; -Created allowable "golden crab fishing areas" with the Stetson-Miami Terrace CHAPC and Pourtales Terrace CHAPC boundaries; -Amended the golden crab FMP to require vessel monitoring.
Amendment #17A (2010a)	12/3/10 red snapper closure; circle hooks 3/3/2011	PR: 75 FR 49447 FR: 75 FR 76874	-Required use of non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear north of 28 deg. N latitude in the South Atlantic EEZ; -Specified an annual catch limit (ACL) and an accountability measure (AM) for red snapper with management measures to reduce the probability that catches will exceed the stocks' ACL; -Specified a rebuilding plan for red snapper; -Specified status determination criteria for red snapper; -Specified a fishery-independent monitoring program for red snapper. -Implemented an area closure for snapper-grouper species.
Emergency Rule	12/3/10	75 FR 76890	-Delayed the effective date of the area closure for snapper grouper species implemented through Amendment 17A.
Amendment #17B (2010b)	1/30/11	PR: 75 FR 62488 FR: 75 FR 82280	-Specify ACL of 0 and prohibit fishing for speckled hind and warsaw grouper; -Prohibited harvest of 6 deep-water species seaward of 240 feet to curb bycatch of speckled hind and warsaw grouper (snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper, silk snapper). -Specify allocations, ACLs and AMs for golden tilefish; -Modified management measures as needed to limit harvest to the ACL or ACT; -Updated the framework procedure for specification of total allowable catch; -Specified ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing (snowy grouper, black grouper, black sea bass, red grouper, vermilion snapper, gag, speckled hind, warsaw grouper, golden tilefish);

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

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Amendment #23 Comprehensive Ecosystem-based Amendment 2 (CE-BA2) (2011f)	1/30/12	PR: 76 FR 69230 FR: 76 FR 82183	-Designated the Deep-water MPAs as EFH-HAPCs; -Modify management measures for Octocoral; -Limit harvest of snapper grouper species in SC SMZs to the bag limit; -Modify sea turtle release gear; -Designated new EFP for pelagic Sargassum habitat.
Amendment #18A (2012a)	7/1/12	PR: 77 FR 16991 FR: 77FR3 2408	-Limited participation and effort in the black sea bass sector; -Modifications to management of the black sea bass pot sector; -Improved data reporting (accuracy, timing, and quantity of fisheries statistics).
Amendment #20A (2012b)	10/26/12	PR: 77 FR 19165 FR: 77 FR 59129	- Individual transfer quota (ITQ) program for wreckfish: -Defined and reverted inactive shares; -Redistributed reverted shares; -Established a share cap; -Established an appeals process.
Regulatory Amendment #12 (2012c)	10/9/12	PR: 77 FR 42688 FR: 77 FR 61295	-Revised the ACL and OY for golden tilefish; -Revised recreational AMs for golden tilefish;
Amendment #18B (2013a)	5/23/13	PR: 77 FR 75093 FR: 77 FR 23858	For Golden Tilefish: -Limited participation and effort in the commercial sector through establishment of a longline endorsement; -Established eligibility requirements and allowed transferability of longline endorsement; -Established an appeals process; -Modified trip limits; -Specified allocations ACLs for gear groups (longline and hook and line); -Adjusted the fishing year.
Amendment #28 (2013b)	8/23/13	PR: 78 FR 25047 FR: 78 FR 44461	-Established regulations to allow harvest of red snapper in the South Atlantic (formula used to compute ACLs, AMs, fishing seasons).

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Regulatory Amendment #13 (2013c)	7/17/13	PR: 78 FR 17336 FR: 78 FR 36113	-Revised the ABCs, ACLs (including sector ACLs), and ACTs for 37 species implemented by the Comprehensive ACL Amendment (see final rule for list of species). The revisions may prevent a disjunction between the established ACLs and the landings used to determine if AMs are triggered.
Regulatory Amendment #15 (2013d)	9/12/13	PR: 78 FR 31511 FR: 78 FR 49183	-Modified ACLs and OY for yellowtail snapper; -Modified the commercial and recreational yellowtail snapper fishing years and commercial spawning season closure; -Modified the gag commercial ACL and AM to remove the requirement that all other shallow-water groupers (black grouper, red grouper, scamp, red hind, rock hind, graysby, coney, yellowmouth grouper, and yellowfin grouper) are prohibited from harvest in the South Atlantic when the gag commercial ACL is met or projected to be met.
Regulatory Amendment #18 (2013e)	9/5/13	PR: 78 FR 26740 FR: 78 FR 47574	-Revised ACLs and OY for vermilion snapper; -Modified commercial trip limit for vermilion snapper; -Modified commercial fishing season and recreational closed season for vermilion snapper; -Revised ACLs and OY for red porgy.
Regulatory Amendment #19 (2013f)	ACL: 9/23/13 Pot closure: 10/23/13	PR: 78 FR 39700 FR: 78 FR 58249	-Specified ABC, and adjusted the ACL, recreational ACT and OY for black sea bass; -Implemented an annual closure on the use of black sea bass pots from November 1 to April 30.
Amendment #27 (2013g)	1/27/2014	PR:78 FR 78770 FR: 78 FR 57337	-Established the South Atlantic Council as the responsible entity for managing Nassau grouper throughout its range including federal waters of the Gulf of Mexico; -Modified the crew member limit on dual-permitted snapper grouper vessels; -Modified the restriction on retention of bag limit quantities of some snapper grouper species by captain and crew of for-hire vessels; -Minimized regulatory delay when adjustments to snapper grouper species' ABC, ACLs, and ACTs are needed as a result of new stock assessments; -Removed blue runner from snapper grouper FMP; -Addressed harvest of blue runner by commercial fishermen who do not possess a South Atlantic Snapper Grouper Permit.

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 #31 Joint South Atlantic and Gulf of Mexico Generic Headboat Reporting Amendment (2013h)	1/27/2014	PR:78 FR 59641 FR: 78 FR 78779	-Included under the Generic charter/headboat reporting amendment, that modified required logbook reporting for headboat vessels to require electronic reporting, regarding snapper grouper landings.
Regulatory Amendment #14 (2014a)	12/8/2014	PR: 79 FR 22936 FR: 79 FR 66316	-Modified the commercial and recreational fishing year for greater amberjack; -Modified the commercial and recreational sector fishing years for black sea bass; -Modified the recreational AM for black sea bass; -Modified the recreational AM for vermilion snapper; -Modify the commercial trip limit for gag.
Regulatory Amendment # 21 (2014b)	11/6/2014	PR: 79 FR 44735 FR: 79 FR 60379	-Modified the definition of the overfished threshold (MSST) for red snapper, blueline tilefish, gag, black grouper, yellowtail snapper, vermilion snapper, red porgy, and greater amberjack.
Amendment #29 (2014c)	7/1/2015	NOA:79 FR 69819 PR: 79 FR 72567 FR: 80 FR 30947	-Updated the ABC control rule to incorporate methodology for determining the ABC of unassessed species; -Adjusted the ABCs for fourteen unassessed snapper-grouper species (see final rule); -Adjusted the ACLs and ACTs for three species complexes and four snapper-grouper species based on revised ABCs; -Established ACLs for unassessed species; -Modified gray triggerfish minimum size limits; -Established a commercial split season and commercial trip limits for gray triggerfish.
Blueline Tilefish Emergency Rule	4/17/2014 through 10/10/2014 or 4/18/2015	PR: 79 FR 21636 FR:79 FR 61262	-Removed the blueline tilefish portion from the deep-water complex ACL; -Established separate commercial and recreational ACLs and AMs for blueline tilefish.

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

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			porgy, knobbed porgy, whitebone porgy, scup, and saucereye porgy); -Modified the AM for commercial golden crab fishery; -Adjusted sector allocations for dolphin.
Amendment #35 (2015d)	6/22/2016	NOA:81 FR 6222 PR:81 FR 11502 FR:81 FR 32249	-Removed black snapper, dog snapper, mahogany snapper, and schoolmaster from the Snapper-Grouper FMP; -Clarified regulations governing the use of Golden Tilefish Longline Endorsements.
Regulatory Amendment #16 (2016a)	12/29/2016 (closure) 1/30/2017 (gear markings)	NOI: 78 FR 72868 PR: 81 FR 53109	-Revise the prohibition of fishing with black sea bass pots from Nov.1-April 30. -Add additional gear marking requirements for black sea bass pot gear.
Regulatory Amendment #25 (2016b)	This rule is effective 8/12/2016, except for the amendments to §622.187(b) (2), §622.191 (a)(10), and §622.193(z) that are effective 7/13/2016.	PR:81 FR 34944 FR:81 FR 45245	-Revised commercial and recreational ACL for blueline tilefish; -Revised the recreational bag limit for black sea bass; -Revised the commercial and recreational fishing year for yellowtail snapper.
Amendment #37 (2016c)	TBD	NOI: 80 FR 45641 NOA:81 FR 69774 PR: 81 FR 91104	-Modify the hogfish fishery management unit; -Specify fishing levels for the two South Atlantic hogfish stocks; -Establish a rebuilding plan for the Florida Keys/East Florida stock; -Establish/revised management measures for both hogfish stocks in the South Atlantic Region, such as size limits, recreational bag limits, and commercial trip limits.
Amendment # 26 Comprehensive Ecosystem-Based Amendment 3 (CE-BA3)	TBD	TBD	-Modifies bycatch and discard reporting for commercial and for-hire vessels.

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(OR – Bycatch Reporting Amendment)			
Amendment #36	TBD	TBD	-Establish SMZs to enhance protection for snapper-grouper species in spawning condition including speckled hind and warsaw grouper.
Amendment #41	TBD	TBD	-Update the MSY, ABC, ACL, OY, minimum stock size threshold, designate spawning months for regulatory purposes, and revise management measures for mutton snapper.

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Appendix D. Bycatch Practicability Analysis

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Appendix E. Regulatory Impact Review

Appendix F. Regulatory Flexibility Analysis

Appendix G. Other Applicable Laws

Appendix H. Essential Fish Habitat and Ecosystem-based Management

South Atlantic Fishery Management Council Habitat Conservation, Ecosystem Coordination and Collaboration

The South Atlantic Fishery Management Council (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 deep-water Coral HAPCs to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine, deep-water 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 Deep-water Ecosystem Management

The South Atlantic Council manages coral, coral reefs and live/hard bottom habitat, including deep-water 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 deep-water 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 deep-water coral ecosystems in the South Atlantic region. Management actions in Comprehensive Ecosystem-Based Amendment (CE-BA 1) (SAFMC 2009b) established deep-water coral HAPCs (C- HAPCs) to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine deep-water 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 deep-water 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 deep-water Coral HAPCs designated under CE-BA 1; and amended the Snapper Grouper FMP to designate EFH-HAPCs for golden and blueline tilefish and the deep-water 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 IOOS whose primary source of funding is through a 5-year cooperative agreement titled "Coordinated Monitoring, Prediction, and Assessment to Support Decision-Makers Needs for Coastal and Ocean Data and Tools". However, SECOORA 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, Deep-water 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 deep-water 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 deep-water 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 deep-water ecosystems while providing for traditional fisheries for the Golden Crab and Royal Red shrimp in areas where they do not impact deep-water 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 deep-water 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 deep-water 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 deep-water 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.

Deep-water 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 these 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 Deep-water Coral HAPCs as EFH-HAPCs under the Coral FMP as follows:

Deep-water 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 deep-water 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 deep-water 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 deep-water 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).

References:

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Appendix I. Fishery Impact Statement

Appendix J. Recreational and Commercial Data Analyses of Management Alternatives