

# Vision Blueprint Commercial Regulatory Amendment 27 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region



The Vision Blueprint Commercial Regulatory Amendment 27 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 Commercial Sector of the Snapper Grouper Fishery of the South Atlantic Region.

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Award Number FNA15NMF4410010

# Abbreviations and Acronyms Used in the FMP

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

## Vision Blueprint Commercial Regulatory Amendment 27 for the Snapper Grouper Fishery of the South Atlantic Region

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**Proposed action:**

The actions are to modify commercial regulations such as fishing seasons, trip 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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# Summary

**Why is the South Atlantic Council considering action?**



## What actions are being proposed in this amendment?

Vision Blueprint Commercial Regulatory Amendment 27 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) proposes the following 9 actions for snapper grouper species in the South Atlantic Region:

### 1. Establish a commercial split season for blueline tilefish

**Currently:** The commercial fishing year for blueline tilefish in the South Atlantic EEZ is from January 1 to December 31.

**Preferred Alternative X**

### 2. Establish a commercial split season for red porgy

**Currently** The commercial fishing year for red porgy in the South Atlantic federal waters is from January 1 to December 31. During January, February, March, and April, the seasonal harvest limit of red porgy in or from South Atlantic federal waters is three per person per day or three per person per trip, whichever is more restrictive. From May 1 through December 31, the trip limit is 120 fish.

**Preferred Alternative . X**

### 3. Establish a commercial split season for snowy grouper

**Currently:** The commercial fishing year for snowy grouper in the South Atlantic federal waters is from January 1 to December 31.

**Preferred Alternative X**

### 4. Establish a commercial split season for greater amberjack

**Currently:** The commercial fishing year for greater amberjack in the South Atlantic federal waters is from March 1 to the end of February. During April, commercial harvest is limited to one per person per day or one per person per trip, whichever is more restrictive.

**Preferred Alternative . X**

### 5. Modify the commercial trip limit for vermilion snapper in the second season

**Currently:** The commercial trip limit for vermilion snapper in the South Atlantic federal waters is 1,000 pounds gutted weight (lbs gw) and the commercial ACL is split equally between two 6-month seasons. When 75% of the vermilion snapper seasonal quota is met or is projected to be met, the trip limit is reduced to 500 lbs gw. Any remaining quota from Season 1 transfers to Season 2. Any remaining quota from Season 2 is not carried forward.

**Preferred Alternative . X**

**6. Implement a commercial trip limit for the Other Jacks Complex**

**Currently:** There is no commercial trip limit for the Other Jacks Complex (lesser amberjack, almaco jack, and banded rudderfish).

**Preferred Alternative X**

**7. Modify the seasonal prohibition on commercial harvest and possession of shallow-water groupers**

**Currently:** Commercial 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 federal waters from January 1 through April 30.

**Preferred Alternative . X**

**8. Remove the commercial minimum size limit for certain deep-water species**

**Currently:** The commercial 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**

**9. Decrease the commercial minimum size limit for gray triggerfish off the east coast of Florida**

**Currently:** The commercial 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**

## Purpose for Actions

The purpose of this amendment is to modify commercial regulations such as fishing seasons, trip limits, seasonal closures, and **minimum** size limits for species in the snapper grouper fishery.

## Need for Actions

The need for this amendment is to lengthen commercial fishing seasons, **improve access**, minimize discard mortality, to improve compliance **with the regulations**, and aid in enforcement of regulations in the South Atlantic region.

# Chapter 1. Introduction

## 1.1 What actions are being proposed in this amendment?

Vision Blueprint Commercial Regulatory Amendment 27 (Regulatory Amendment 27) to the Snapper Grouper FMP proposes to modify commercial regulations for species in the snapper grouper fishery, including the modification of fishing seasons and seasonal closures, trip limits, and minimum size limits.

## 1.2 Who is proposing the amendment?

The South Atlantic Fishery Management Council (South Atlantic Council) develops the amendment and submits it to the National Marine Fisheries Service (NMFS) which, on behalf of the Secretary of Commerce, ultimately approves, disapproves, or partially approves the amendment. NMFS also implements the actions in the amendment through the development of regulations through

rulemaking. NMFS is an office of the National Oceanic and Atmospheric Administration. 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/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:

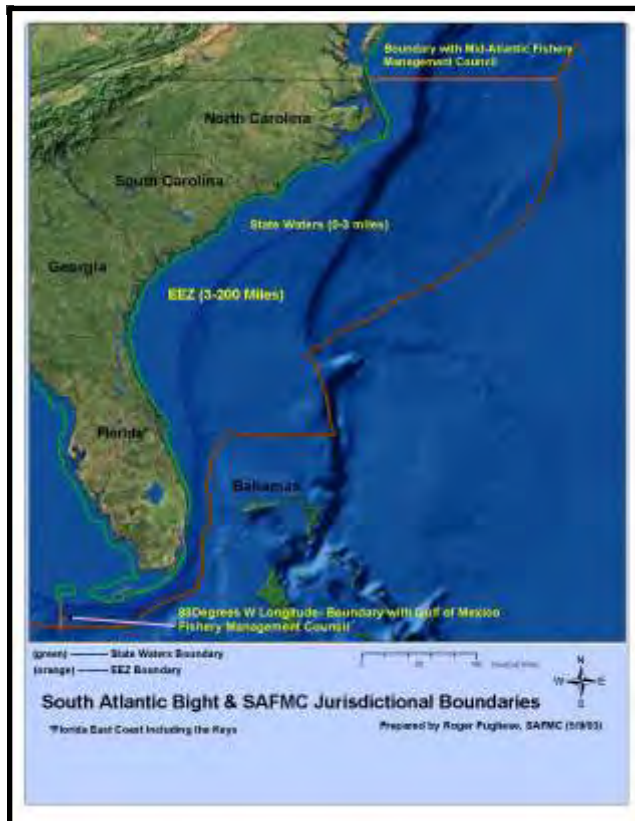
[http://sero.nmfs.noaa.gov/sustainable\\_fisheries/s\\_atl/sg/XXX/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/s_atl/sg/XXX/index.html) and on the South Atlantic Council website at <http://www.safmc.net>.

### *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

### 1.3 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 fifty-five 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 commercial regulations such as fishing seasons, trip limits, seasonal closures, and **minimum** size limits for species in the snapper grouper fishery.

### Need for Actions

The need for this amendment is to lengthen commercial fishing seasons, **improve access**, minimize discard mortality, to improve compliance **with the regulations**, and aid in enforcement of regulations 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. Establish a commercial split season for blueline tilefish

**Alternative 1 (No Action).** The commercial fishing year for blueline tilefish in the South Atlantic Exclusive Economic Zone is from January 1 to December 31.

**Alternative 2.** Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

**Alternative 3.** Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

***IPT input:*** Council may want to consider moving this action to blueline tilefish amendment (Amendment 38) given new stock assessment with updated ACL arriving June 2018 through SEDAR 50. Also, blueline has been very dynamic over the past few years (many regulatory changes) and data have consequently been affected, which has implications for analyses.

***Snapper Grouper AP input:***

- Commercial harvest of blueline and snowy needs to be kept in line, especially important for fishery off the Carolinas after vermilion and gray triggerfish close. However, fishermen are also targeting blueline and snowy early in the year.
- Concern about ongoing assessment. Possibly wait to take action until after assessment results?

***MOTION: AP RECOMMENDS ALTERNATIVE 1, NO ACTION, ON SPLITTING THE COMMERCIAL SEASON FOR BLUELINE TILEFISH  
APPROVED BY AP (UNANIMOUSLY)***

## **Comparison of Alternatives:**

## **2.2 Action 2. Establish a commercial split season for red porgy and modify commercial retention limit**

**Alternative 1 (No Action).** The commercial fishing year for red porgy in the South Atlantic federal waters is from January 1 to December 31. During January, February, March, and April, the seasonal harvest limit of red porgy in or from South Atlantic federal waters is three per person per day or three per person per trip, whichever is more restrictive. From May 1 through December 31, the trip limit is 120 fish.

**Alternative 2.** Maintain the annual January 1 to April 30 seasonal harvest limit for red porgy.

**Sub-Alternative 2a.** Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

**Sub-alternative 2b.** Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

**Others??**

**Alternative 3.** Remove the annual January 1 to April 30 seasonal harvest limit for red porgy.

**Sub-Alternative 3a.** Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

**Sub-Alternative 3b.** Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

**Others??**

### **Per SEDAR1 Update 2012:**

In the terminal 5 years of the assessment, the stock seems to have ceased rebuilding or perhaps even declined slightly. The increase in stock status in the early 2000s appears to have been initiated by strong recruitment events in 2002 and 2005 and a severe reduction in fishing mortality beginning in 2000. The more recent trend of stabilization appears to be supported by below average recruitment and modest increases in fishing mortality since approximately 2007. Base-run estimates of spawning biomass have remained near 50%  $SSB_{MSY}$  since approximately 2006. Current stock status was estimated in the base run to be  $SSB_{2011}/MSST = 0.61$  and  $SSB_{2011}/SSB_{MSY} = 0.47$  (Table 17), indicating that the stock remains in an overfished state.

[http://sedarweb.org/docs/suar/2012\\_SARPUupdate\\_Revised.pdf](http://sedarweb.org/docs/suar/2012_SARPUupdate_Revised.pdf)

**Peak spawning:**

Red porgy spawn from mid-November through mid-April along the southeastern U.S., with a peak during January through March.

[http://sedarweb.org/docs/suar/2006\\_SA\\_red\\_porgy\\_update.pdf](http://sedarweb.org/docs/suar/2006_SA_red_porgy_update.pdf)

***IPT Input:***

- *Suggest adding language in the discussion that this is really a possession limit during the spawning season. The section in the regulations is a little hidden and confusing, mostly because it's not in the bag and possession limits section, so the discussion should be clear about what the seasonal harvest limitation actually is and what it's for.*

***Snapper Grouper AP input:***

- *Discard issue exists but there is also a market issue. Red porgy is important for the market when vermilion snapper and gray triggerfish close.*
- *Concern about moving forward with management changes ahead of the stock assessment.*
- *Consider trip limit modification to address discards and still consider split season. Consider a low trip limit (bycatch allowance) when vermilion and triggerfish are still open.*

*MOTION: CONSIDER TRIP LIMIT MODIFICATION TO ADDRESS DISCARDS AND STILL CONSIDER SPLIT SEASON. ANALYZE A RANGE OF TRIP LIMIT OPTIONS: 30 FISH TO 60 FISH IN SEASON 1 (DURING THE MONTHS OF THE SPAWNING CLOSURE).*

*APPROVED BY AP (UNANIMOUSLY)*

**Comparison of Alternatives:**

## 2.3 Action 3. Establish a commercial split season for snowy grouper

**Alternative 1 (No Action).** The commercial fishing year for snowy grouper in the South Atlantic federal waters is from January 1 to December 31.

**Alternative 2.** Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

**Alternative 3.** Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

### ***Snapper Grouper AP input:***

- *AP reiterates that snowy and blueline seasons, if implemented, should be in line.*

*MOTION: CONSIDER A TRIP LIMIT STEP-DOWN/REDUCTION IN THE SNOWY AND BLUELINE TRIP LIMITS TO COINCIDE WITH OPENING OF SHALLOW-WATER GROUPEr ON MAY 1. CONSIDER OTHER OPTIONS TO LENGTHEN SEASON (INCLUDING STEP-DOWN WHEN A CERTAIN PERCENTAGE OF THE ACL IS MET).  
APPROVED BY AP (UNANIMOUSLY)*

## **Comparison of Alternatives:**

## 2.4 Action 4. Establish a commercial split season for greater amberjack

**Alternative 1 (No Action).** The commercial fishing year for greater amberjack in the South Atlantic federal waters is from March 1 to the end of February. During April, commercial harvest is limited to one per person per day or one per person per trip, whichever is more restrictive.

**Alternative 2.** Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through August 31 and XX% to the period September 1 through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. ~~Commercial harvest would still be prohibited annually in April.~~

**Alternative 3.** Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. ~~Commercial harvest would still be prohibited annually in April.~~

### ***IPT input:***

- *Consider adding language to Alternative 1 that makes it more clear that this is also the (only) fishing season, e.g., “(one fishing season).”*
- *Please remove statement in Alternative 1 regarding possession limit in April as this action does not modify the possession limit (spawning season restriction).*

### ***Snapper Grouper AP input:***

- *AP supports exploring use of commercial split season to lengthen amberjack harvest.*
- *Consider trip limit reduction or step-down to achieve objective of lengthening season and improving access.*

## Comparison of Alternatives

## 2.5 Action 5. Modify the commercial trip limit for vermilion snapper in the second season

**Alternative 1 (No Action).** The commercial trip limit for vermilion snapper in the South Atlantic federal waters is 1,000 pounds gutted weight (lbs gw) and the commercial ACL is split equally between two six-month seasons. For both seasons, when 75% of the vermilion snapper seasonal quota is met or is projected to be met, the trip limit is reduced to 500 lbs gw. Any remaining quota from Season 1 transfers to Season 2. Any remaining quota from Season 2 is not carried forward.

**Alternative 2.** Retain the management measures in the first season (January 1 through June 30). For the second season (July 1 through December 31), change the commercial trip limit to 750 pounds gutted weight and retain the trip limit step down to 500 pounds gutted weight when 75% of the second season quota is met or projected to be met. Implement a 750 lbs gw vermilion snapper commercial trip limit for the second season (July 1 through December 31). The commercial trip limit is reduced to 500 lbs gw when 75% of the second season quota is met or is projected to be met.

**Alternative 3.** Retain the management measures in the first season (January 1 through June 30). For the second season (July 1 through December 31), change the commercial trip limit to 500 pounds gutted weight and remove the trip limit step down to 500 pounds gutted when 75% of the seasonal quota is met or projected to be met. Remove the step-down to 500 lbs gw when 75% of the seasonal quota is met or projected to be met, and implement a 500 lbs gw vermilion snapper commercial trip limit for the second season (July 1 through December 31).

***IPT input:*** In 2016: first season step-down on 3/2/16 and closed 3/29/16, second season step-down 8/28/16, closed 10/11/16. Therefore, step-down alternatives may be inadequate to promote season remaining open. Lower trip limit allows longer season and retention of what would otherwise be bycatch. Step-downs add administrative burden and are subject to uncertainty. If the objective is to keep fishery open, then consider a lower trip limit and no step-down. Is the goal to align seasons for gray triggerfish, vermilion snapper, and red porgy?

***Snapper Grouper AP input:***

- AP supports exploring alternatives as presented.
- Perhaps also consider trip limit reduction in first season as well (although some AP members stated concern about weather being a factor in some areas that would disadvantage some fishermen at a lower trip limit than the current one. Also there are not that many species available for market during first season).

**MOTION:** AP RECOMMENDS ALTERNATIVE 2

**Alternative 2.** Implement a 750 lbs gw vermilion snapper commercial trip limit for the second season (July 1 through December 31). The commercial trip limit is reduced to 500 lbs gw when 75% of the second season quota is met or is projected to be met.

*APPROVED BY AP (2 ABSTENTIONS)*

**Comparison of Alternatives:**



## 2.6 Action 6. Implement a commercial trip limit for the Other Jacks Complex

**Alternative 1 (No Action).** There is no commercial trip limit for the Other Jacks Complex (lesser amberjack, almaco jack, and banded rudderfish).

**Alternative 2.** Establish a commercial trip limit for the Other Jacks Complex.

**Sub-alternative 2a.** 500 pounds whole weight (lbs ww)

**Sub-alternative 2b.** 400 lbs ww

**Sub-alternative 2c.** 300 lbs ww

**Alternative 3.** Establish a commercial trip limit for almaco jack **only**.

**Sub-alternative 3a.** 500 lbs ww

**Sub-alternative 3b.** 400 lbs ww

**Sub-alternative 3c.** 300 lbs ww

### ***IPT input:***

- Grouping “Other Jacks” into a complex was supported by the Council and SSC due to the potential misidentification of Jack species. Misidentification issues may reduce the efficacy of a trip limit exclusively for Almaco Jack within the Jacks Complex.

### ***Snapper Grouper AP input:***

- *AP reiterates concern over Almaco Jack. AP had previously recommended removing Almaco from the Complex and implementing a trip limit on that species.*
- *Analysis should include season length under no trip limit and under proposed trip limits.*
- *If possible, break down landings by species to determine whether a single species is driving the harvest.*

## Comparison of Alternatives

## 2.7 Action 7. Modify the seasonal prohibition on commercial harvest and possession of shallow-water groupers

**Alternative 1 (No Action).** Commercial 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 federal waters from January 1 through April 30.

**Alternative 2.** Prohibit commercial harvest and possession of shallow-water grouper species annually by area:

**Sub-alternative 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).

**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 commercial harvest and possession of shallow-water grouper species (excluding black grouper) south of 28° North latitude (approximately off Palm Bay, Florida):

**Sub-alternative 3a.** January – March (3 months)

**Sub-alternative 3b.** February – March (2 months)

**Sub-alternative 3c.** February – April (3 months)

**Sub-alternative 3d.** February – May (4 months)

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

**Sub-alternative 4a.** January – March (3 months)

**Sub-alternative 4b.** January

**Sub-alternative 4c.** February

**Sub-alternative 4d.** March

*NOTE: Black grouper stock assessment is currently ongoing. At the data workshop, problems with species ID between gag and black grouper off South Florida were identified. This could have implications for analyses.*

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

**Sub-alternative 5a.** January – May (5 months)

**Sub-alternative 5b.** February – May (4 months)

**Sub-alternative 5c.** March – June (4 months)

*NOTE: Red grouper assessment will be presented to Council in June 2017*

*Snapper Grouper AP input:*

*MOTION: AP RECOMENDS ALTERNATIVE 1, NO ACTION, FOR MODIFYING THE  
SHALLOW-WATER GROUPER CLOSURE FOR THE COMMERCIAL SECTOR  
APPROVED BY AP (UNANIMOUSLY)*

## **Comparison of Alternatives**

## **2.8 Action 8. Remove the commercial minimum size limits for certain deep-water species**

**Alternative 1 (No Action).** The commercial 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 commercial 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)*

*Note: This motion was approved under discussion of Vision Blueprint Recreational Amendment 26. However, the AP had the same recommendation for the commercial sector.*

### **Comparison of Alternatives**

## **2.9 Action 9. Decrease the commercial minimum size limit for gray triggerfish off the east coast of Florida**

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

**Alternative 2.** Decrease the commercial minimum size limit for gray triggerfish in the 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.

***Snapper Grouper AP input:***

***MOTION: AP RECOMMENDS ALTERNATIVE 2, REDUCING THE MSL FOR GRAY TRIGGERFISH OFF EAST FLORIDA TO 12 INCHES.***

***APPROVED BY AP (1 ABSTENTION)***

***Note: This motion was approved under discussion of Vision Blueprint Recreational Amendment 26. However, the AP had the same recommendation for the commercial sector.***

## **Comparison of Alternatives**

## 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<sup>2</sup>) 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/](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 deepwater 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).

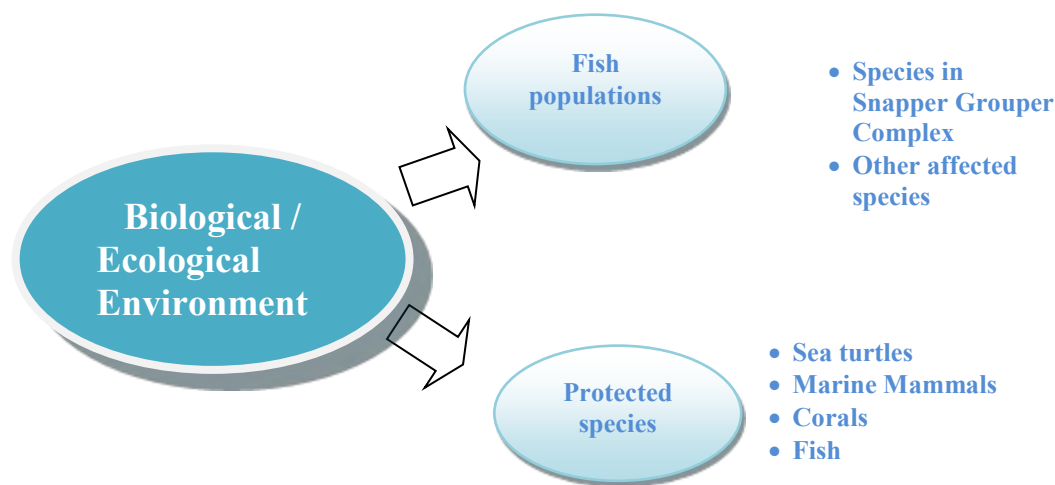
In addition to protecting habitat from fishing related degradation through fishery management plan regulations, the South Atlantic Council, in cooperation with NMFS, actively comments on non-fishing projects or policies that may impact essential fish habitat. With guidance from the Habitat Advisory Panel, 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

### 3.2.2 Bycatch

As summarized in **Appendix D**, the Bycatch Practicability Analysis (BPA), the actions in Regulatory Amendment 27 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 over 50 species, or distinct population segments (DPSs) of species, protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act (MMPA) (Wynne and Schwartz 1999, Waring et al. 2013). The MMPA requires that each commercial fishery be classified by the number of marine mammals they seriously injure or kill. NMFS's List of Fisheries (LOF) classifies U.S. commercial fisheries into three categories based on the number of incidental mortality or serious injury they cause to marine mammals. More information about the LOF and the classification process can be found at: [http://www.nmfs.noaa.gov/pr/interactions/fisheries/2016\\_list\\_of\\_fisheries\\_lof.html](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) 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 (the North Atlantic DPS and the South Atlantic DPS), hawksbill, Kemp's ridley, leatherback, and the Northwest Atlantic DPS of loggerhead); the smalltooth sawfish; five DPSs of Atlantic sturgeon; and seven species of coral (elkhorn coral, staghorn coral, rough cactus coral, pillar coral, lobed star coral, mountainous star coral, and boulder coral) are also protected under the ESA and occur within the action area of the snapper grouper fishery. Portions of designated critical habitat for North Atlantic Right Whale, the Northwest Atlantic DPS of loggerhead sea turtles, and *Acropora* corals occur within the South Atlantic Council's jurisdiction.

NMFS has conducted several Section 7 consultations under the ESA to evaluate the potential adverse effects from the South Atlantic snapper grouper fishery on ESA-listed species and their designated critical habitat. The snapper grouper fishery's effects on ESA-listed species were evaluated as part of larger consultations for multiple fisheries in 1989 and in a Biological Opinion in 2006 (NMFS 2006). On December 1, 2016, NMFS completed the most recent Biological Opinion on the Continued Authorization of Snapper-Grouper Fishing in the U.S. South Atlantic EEZ as Managed under the Snapper-Grouper FMP of the South Atlantic Region (2016 Opinion) (NMFS 2016). In the 2016 Opinion, NMFS concluded that the snapper grouper fishery's continued authorization is not likely to jeopardize the continued existence of the North Atlantic right whale, loggerhead sea turtle Northwest Atlantic DPS, leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle North Atlantic DPS, green sea turtle South Atlantic DPS, hawksbill sea turtle, smalltooth sawfish U.S. DPS, or Nassau grouper. NMFS concluded that the proposed action is not likely to adversely affect designated critical habitat or other ESA-listed species in the South Atlantic Region. Information on recent species listings and critical habitat designations under the ESA, as well as information on how sea turtles, smalltooth sawfish, and Nassau grouper 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 under the ESA. 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, *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 an additional 20 coral species as threatened under the ESA, five of those species occur in the Caribbean, including Florida. The September 10, 2014, final listing rule provided some new information on the threats facing *Acropora*; however, the information did not invalidate the previous determinations. The 2016 Opinion determined that the unlikely interaction of the snapper grouper fishery with listed coral species, in combination with the measures in place to protect listed coral species where they do occur and avoid such interaction, makes any adverse effect on these species from the snapper grouper fishery extremely unlikely to occur, and therefore, discountable. The 2016 Opinion also determined any effects from the snapper grouper fishery on the essential features and the conservation value of elkhorn and staghorn coral critical habitat are expected to be insignificant.

### 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 known 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). On April 6, 2016, NMFS and the U.S. Fish and Wildlife Service 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.

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 routine 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).

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.

Sea turtles are vulnerable to capture by bottom longline and vertical hook-and-line gear. Hook-and-line gear used in the snapper grouper fishery includes commercial bottom longline gear and commercial and recreational vertical line gear (e.g., handline, bandit gear, and rod-and-reel). 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.

As mentioned above, NMFS concluded in the 2016 Opinion that the fishery's continued authorization is not likely to jeopardize the continued existence of the 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. The 2016 Opinion provides additional information on the authorized incidental take of sea turtles in the snapper grouper fishery (NMFS 2016).

### **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 the 2016 Opinion, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect the Atlantic sturgeon.

On June 29, 2016, NMFS published a final rule in the *Federal Register* listing **Nassau grouper** as threatened under the 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.

As mentioned above, NMFS concluded in the 2016 Opinion that the fishery's continued authorization is not likely to jeopardize the continued existence of the smalltooth sawfish U.S. DPS or Nassau grouper. The 2016 Opinion provides additional information on the authorized incidental take of these species in the snapper grouper fishery (NMFS 2016).

### **3.3 Economic Environment**

#### **3.3.1 Economic Description of the Commercial Sector**

The major sources of data summarized in this description are from NMFS Fisheries Economics of the United States (FEUS) 2015, the NMFS SERO Permits Information Management System (PIMS) and the Federal Logbook System (FLS), supplemented by average prices calculated from the Accumulated Landings System (ALS) and price indices taken from the United States Bureau of Economic Analysis. Inflation adjusted revenues and prices are reported in 2015 dollars and adjusted using the gross domestic product deflator for the United States.

In 2015, the domestic United States seafood industry supported approximately 696,000 full- and part-time jobs and generated \$51.9 billion in sales, \$19 billion in income, and \$27 billion in



value added impacts nationwide (NMFS 2017). The nation's commercial fishing sector landed 9.7 billion pounds of finfish and shellfish with a dockside (ex-vessel) value of \$5.2 billion. Over 60% of those landings were made up of ten key species and species groups. None of those national key species or species groups are within the South Atlantic snapper grouper fishery (NMFS 2017).

Commercial fishermen in the South Atlantic Region (Region) landed approximately 106.4 million pounds of finfish and shellfish with a dockside value (revenue) of approximately \$181.8 million in 2015 (NMFS 2017), which is approximately 1% of national landings by weight and 4% by dockside revenue. The Region's commercial fishing industry is heavily reliant on shellfish and crustaceans with approximately 53% of the Region's landings by weight and 59% by dockside revenue occurring from the combined landings of blue crab and shrimp alone (NMFS 2017).

Groupers and snappers are considered among the ten key species/species groups in the Region. Landings of snappers accounted for 2% of the Region's dockside revenue in 2015 and landings of groupers accounted for 2% of that revenue (**Table 3.3.1.1**). The average annual dockside price of groupers in 2015 was \$4.73 per pound and that of snappers was \$3.41 per pound (NMFS 2017). Note that these snappers and groupers may include species that are not federally managed, such as tiger grouper.

**Table 3.3.1.1** Key Commercial Species/Species Groups in the South Atlantic Region, 2015.

Key Species/ Species Group	Dockside revenue (thousands)	Pounds landed (thousands)	Average price per pound	Percent of all dockside revenue	Percent of all pounds landed
Blue crab	\$46,353	40,353	\$1.15	25%	38%
Clams	\$7,028	728	\$9.65	4%	1%
Flounders	\$13,202	4,180	\$3.16	7%	4%
<b>Groupers</b>	<b>\$3,197</b>	<b>676</b>	<b>\$4.73</b>	<b>2%</b>	<b>1%</b>
King mackerels	\$5,637	2,267	\$2.49	3%	2%
Oysters	\$6,643	1,049	\$6.33	4%	1%
Shrimp	\$50,299	22,943	\$2.19	28%	22%
<b>Snappers</b>	<b>\$3,528</b>	<b>1,034</b>	<b>\$3.41</b>	<b>2%</b>	<b>1%</b>
Swordfish	\$4,771	1,592	\$3.00	3%	1%
Tunas	\$4,634	2,076	\$2.23	3%	2%
Total Key	\$145,292	76,898		80%	72%
All Landings	\$181,800	106,388		100%	100%

Source: NMFS FEUS 2015.

The number of species within the snapper grouper fishery has varied in recent years. Up until 2011, there were 73 species in the fishery. In 2012, implementation of the Comprehensive ACL Amendment (SAFMC 2011c) reduced the number of species to 60. In 2013, blue runner was removed (Amendment 27, SAFMC 2013), and four more species were removed in 2016 (Amendment 35, SAFMC 2015c): black snapper, dog snapper, mahogany snapper, and schoolmaster. Consequently, since those five species were removed, there are now 55 species

within the fishery, and five of those species are designated as ecosystem component species with no regulations on harvest. The 50 species with federal regulations that manage their harvest comprise 24 individual species and six species groups, or complexes.

## Permits

Any fishing vessel that harvests and sells snapper grouper species from the South Atlantic EEZ must have a valid South Atlantic commercial snapper grouper permit that is specifically assigned to that vessel. The permit is a limited access permit for either an unlimited quantity of pounds (of species within the fishery) per trip if not otherwise specified or no more than 225 pounds per trip. After a permit expires, it can be renewed or transferred up to one year after the date of expiration. The number of valid or renewable snapper grouper permits declined steadily from 2012 through 2016 (**Table 3.3.1.2**). The permit numbers presented are based on the valid or renewable permits occurring on December 31 of each year, with the exception of 2016, where the permit numbers presented were assessed on July 25, 2016.

**Table 3.3.1.2.** Number of valid or renewable Atlantic commercial snapper grouper permits (2012 through 2016).

Year	Unlimited	225-lb Trip-limited
2012	561	122
2013	557	117
2014	542	113
2015	540	108
2016	527	110
Average	545	114

Source: NMFS SERO Permits Dataset.

Dealers that want to purchase, receive, trade, or barter snapper grouper species or species complexes, excluding wreckfish, caught by federal commercially permitted fishing vessels must have a Gulf and South Atlantic dealer permit. As of March 23, 2016, there were 418 entities with the dealer permit, with over half (57%) residing in Florida (**Table 3.3.1.3**).

**Table 3.3.1.3.** Number and percentage of Gulf and South Atlantic dealer permits by state of residence of permit holder as of March 23, 2016.

State	Number	Percent
FL	240	57.4%
GA	4	1.0%
NC	56	13.4%
SC	25	6.0%
Subtotal	325	77.8%
All Other	93	22.2%
Total	418	100.0%

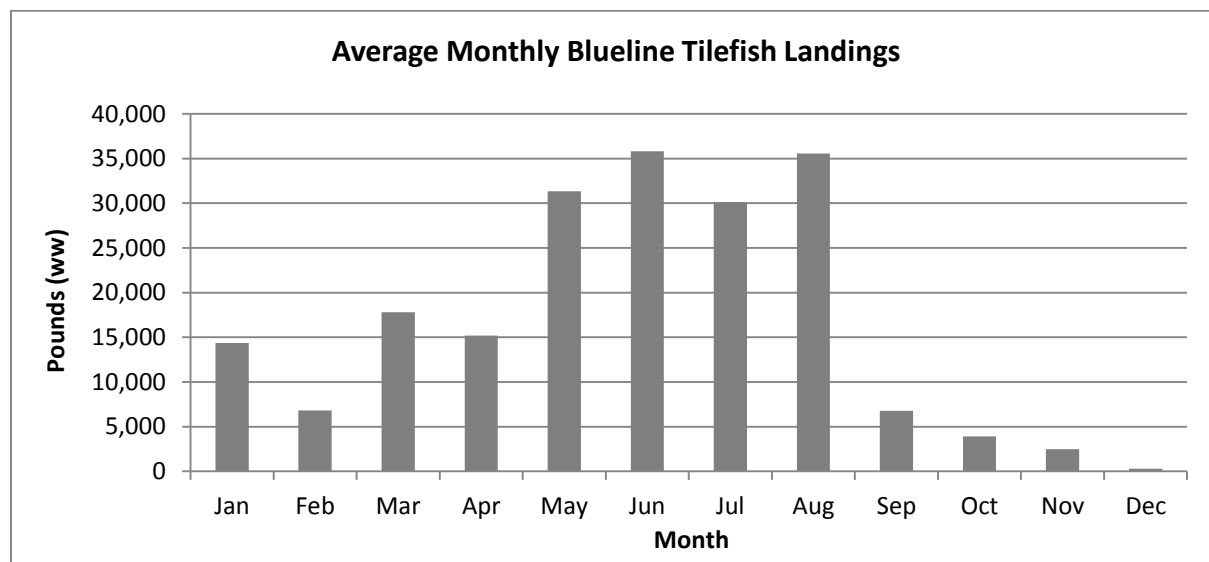
Source: NMFS SERO Permits Dataset.

## Landings, Revenue, and Effort

The following focuses on commercial landings and revenues for the following key species in this amendment: blueline tilefish, red porgy, snowy grouper, greater amberjack, vermilion snapper, the jacks complex (lesser amberjack, almaco jack, banded rudderfish), shallow-water groupers (gag grouper, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, coney), queen snapper, silk snapper, blackfin snapper, and gray triggerfish. Landings data for Georgia were often confidential due to the low number of commercial participants in the snapper grouper fishery originating from this state. As a result, commercial landings from Georgia were combined with those from Florida and are displayed as either Florida/Georgia or FL/GA in many of the following tables examining landings by state.

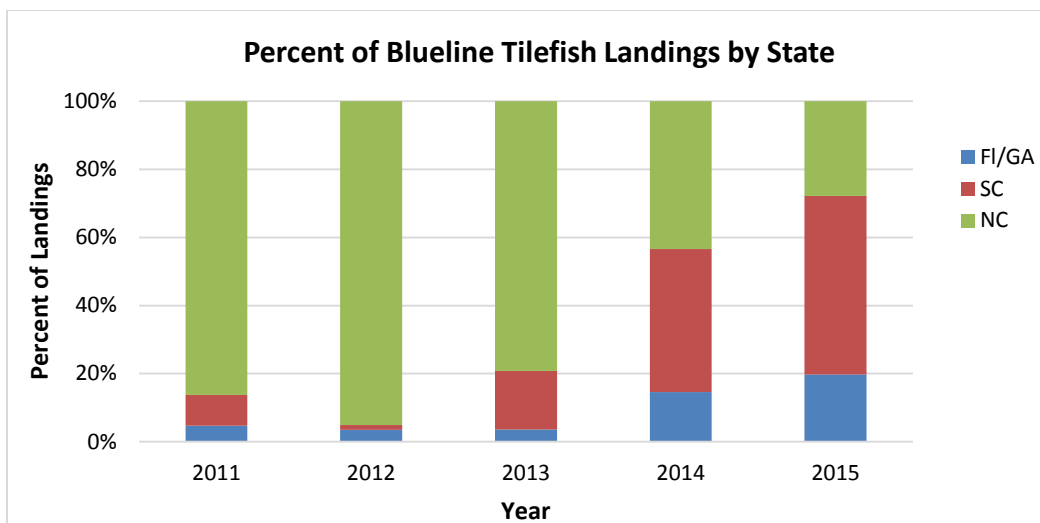
### Blueline Tilefish

Blueline tilefish is within the tilefishes group (Malacanthidae) of the snapper grouper fishery, that includes 2 other species. Average monthly commercial landings of blueline tilefish from 2011-2015 are displayed in **Figure 3.3.1.1**. The landings tend to be the highest in the late spring and summer months.

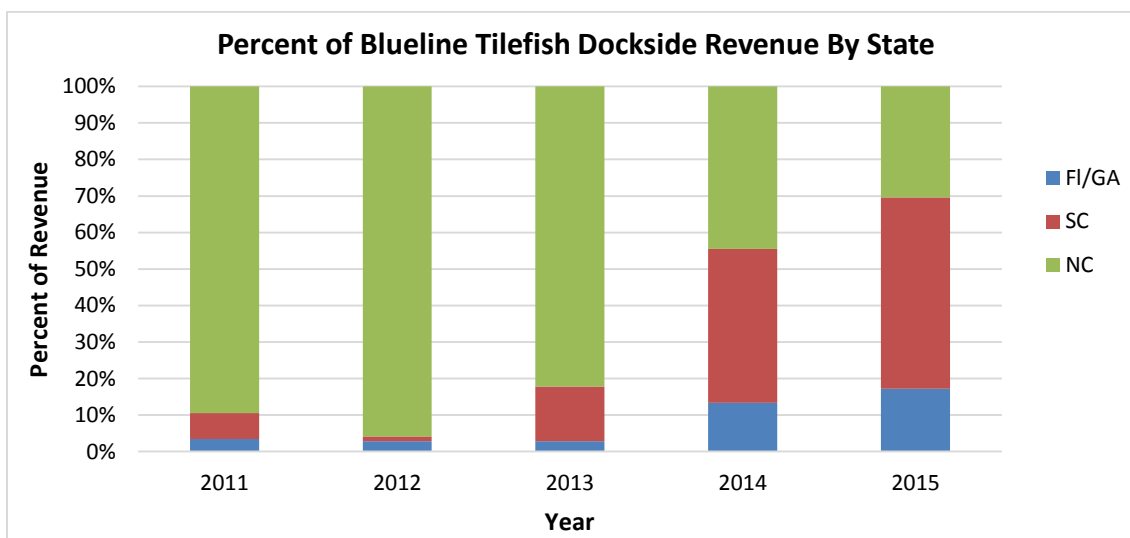


**Figure 3.3.1.1** Average monthly commercial landings (lbs ww) of blueline tilefish harvested from the South Atlantic, 2011-2015. Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, North Carolina accounted for most of blueline tilefish landings both in weight (**Figure 3.3.1.2**) and dockside revenue (**Figure 3.3.1.3**) in most years, however South Carolina accounted for a much larger share in 2014 and 2015. This change in landings was likely due to the early harvest closures that occurred in these years when the commercial ACL was met or projected to be met.

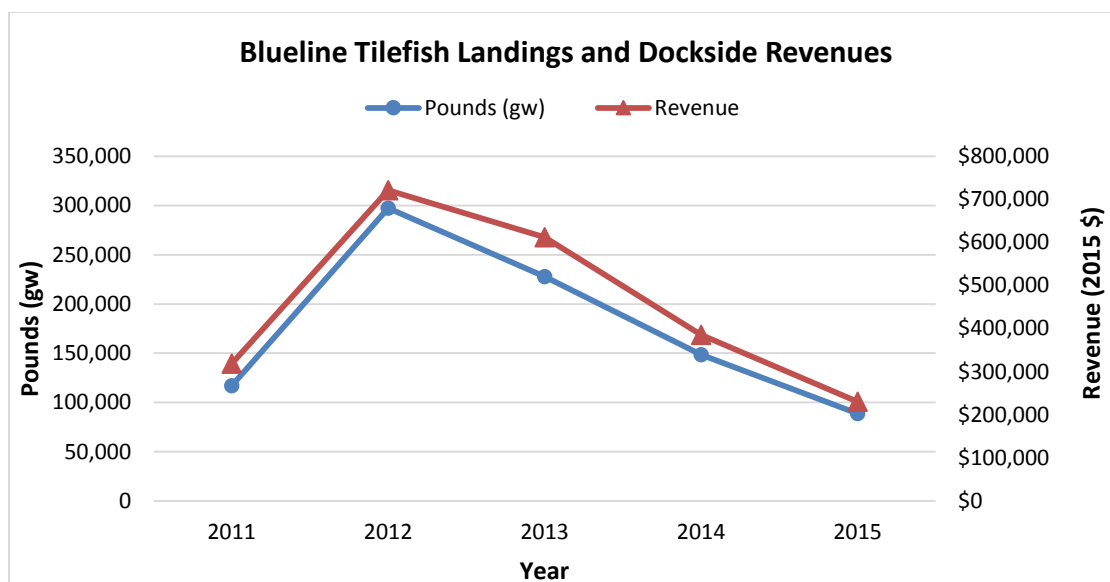


**Figure 3.3.1.2.** Percent of blueline tilefish landings (lbs gw) by state, 2011–2015. Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.3.** Percent of blueline tilefish dockside revenues by state, 2011–2015. Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of blueline tilefish in the South Atlantic ranged from approximately 89,000 lbs gutted weight (gw) to 297,000 lbs gw and averaged 175,852 lbs gw from 2011 through 2015 (**Figure 3.3.1.4, Table 3.3.1.4**). Dockside revenues from those landings ranged from about \$230,000 to \$721,000 and averaged \$453,535 (2015 dollars) (**Figure 3.3.1.4, Table 3.3.1.5**). The average dockside price during those five years was \$2.58 per lb gw (2015 dollars) and an annual average of 122 vessels took 477 commercial trips landing blueline tilefish. Average annual dockside revenue from blueline tilefish landings represented approximately 25% of total dockside revenue from trips that landed blueline tilefish from 2011 through 2015.



**Figure 3.3.1.4.** Annual commercial landings of blueline tilefish by weight (lbs gw) and dockside revenue (2015 \$). Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.4** Number of vessels, number of trips, and landings by year for vessels that landed blueline tilefish from the South Atlantic, 2011-2015.

Year	Number of vessels that caught blueline tilefish	Number of trips that caught blueline tilefish	Blueline tilefish landings (lbs gw)	Other species' landings jointly caught with blueline tilefish (lbs gw)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without blueline tilefish (lbs gw)
2011	98	320	117,102	355,025	2,976	2,795,359
2012	125	537	297,238	386,319	3,627	2,671,637
2013	129	641	227,734	552,690	3,120	2,638,927
2014	137	530	148,461	522,896	4,524	3,590,913
2015	123	355	88,727	288,579	3,925	2,866,511
Average	122	477	175,852	421,102	3634	2,912,669

Source: SEFSC Coastal Fisheries Logbook (May 2017).

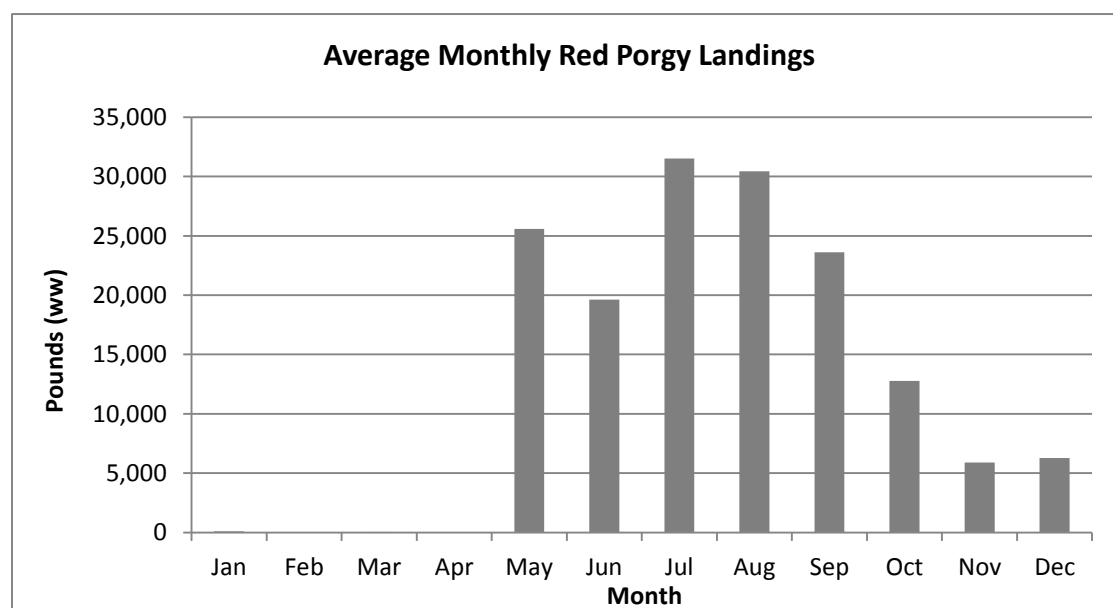
**Table 3.3.1.5** Number of vessels and dockside revenues by year for vessels that landed blueline tilefish from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught blueline tilefish	Dockside revenue from blueline tilefish	Dockside revenue from 'other species' jointly caught with blueline tilefish	Dockside revenue from 'other species' caught on SATL trips without blueline tilefish	Total dockside revenue	Average dockside revenue per vessel
2011	98	\$318,521	\$989,395	\$6,439,642	\$7,747,558	\$79,057
2012	125	\$721,103	\$1,106,153	\$7,299,519	\$9,126,775	\$73,014
2013	129	\$612,171	\$1,731,326	\$7,762,582	\$10,106,079	\$78,342
2014	137	\$385,758	\$1,649,610	\$9,725,377	\$11,760,745	\$85,845
2015	123	\$230,121	\$1,054,180	\$7,975,357	\$9,259,658	\$75,282
Average	129	\$453,535	\$1,306,133	\$7,840,495	\$9,600,163	\$78,308

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Red Porgy

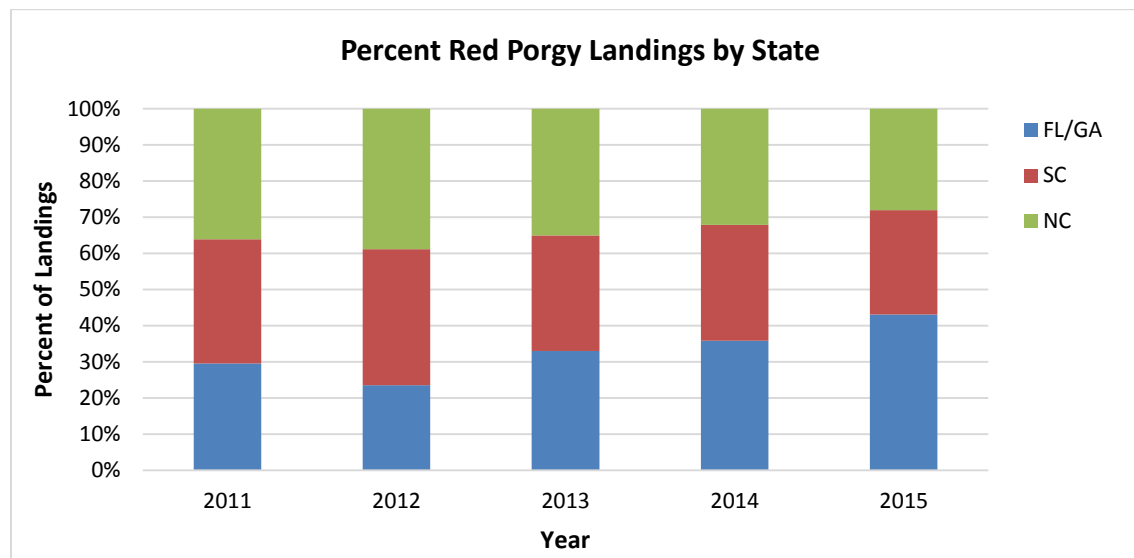
Red porgy is within the porgies group (Sparidae) of the snapper grouper fishery, that includes 6 other species. Average monthly commercial landings of red porgy from 2011-2015 are displayed in **Figure 3.3.1.5**. The landings tend to be the highest in the summer and early falls months. There is a seasonal closure from January through April each year.



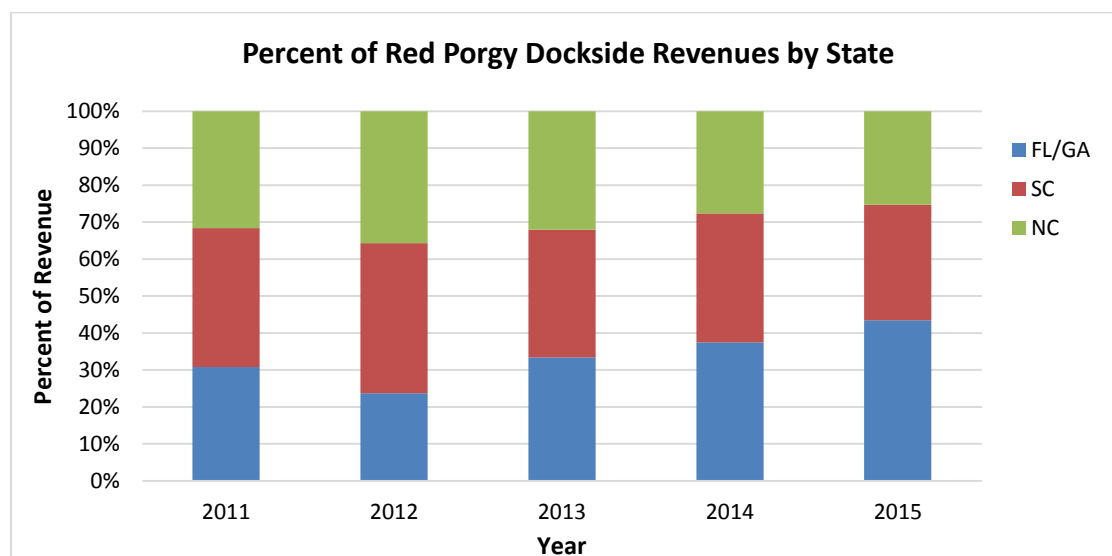
**Figure 3.3.1.5.** Average monthly commercial landings (lbs ww) of red porgy harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset

Among the South Atlantic states, commercial red porgy landings tend to be relatively evenly split between the states. In recent years Florida/Georgia has accounted for a larger portion of landings both in weight (**Figure 3.3.1.6**) and dockside revenue (**Figure 3.3.1.7**).



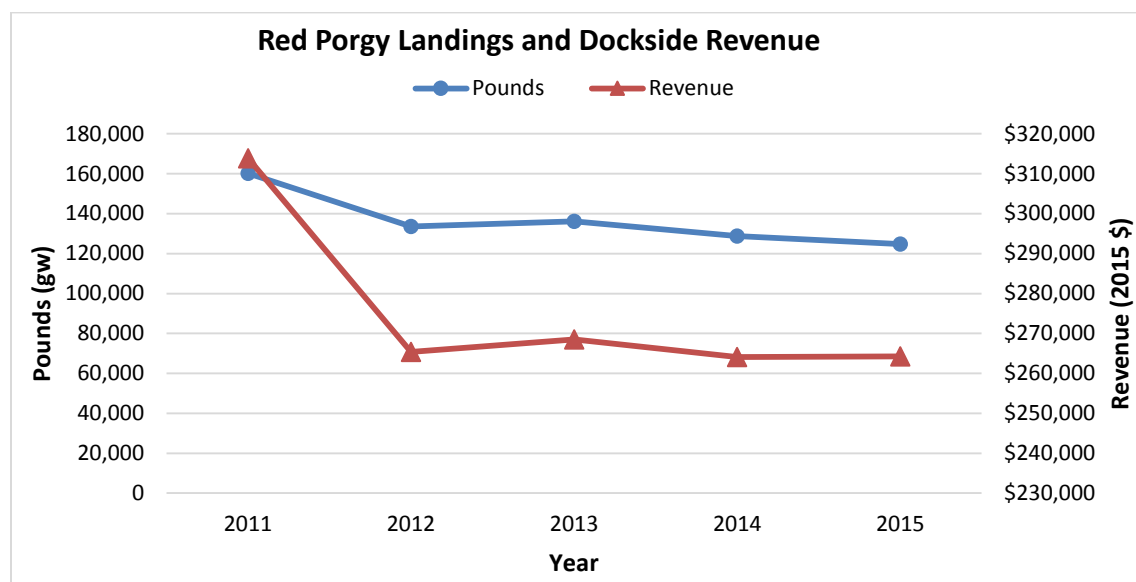
**Figure 3.3.1.6.** Percent of red porgy landings (lbs gw) by state, 2011-2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.7.** Percent of red porgy dockside revenues by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of red porgy in the South Atlantic ranged from approximately 125,000 lbs gutted weight (gw) to 160,000 lbs gw and averaged 80,084 lbs gw from 2011 through 2015 (**Figure 3.3.1.8, Table 3.3.1.6**). Dockside revenues from those landings ranged from about \$264,000 to \$314,000 and averaged \$275,218 (2015 dollars) (**Figure 3.3.1.8, Table 3.3.1.7**). The average dockside price during those five years was \$2.01 per lb gw (2015 dollars) and an annual average of 165 vessels took 1,477 commercial trips landing red porgy. Average

annual dockside revenue from red porgy landings represented approximately 5% of total dockside revenue from trips that landed red porgy from 2011 through 2015.



**Figure 3.3.1.8.** Annual commercial landings of red porgy by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.6** Number of vessels, number of trips, and landings by year for vessels that landed red porgy from the South Atlantic, 2011-2015.

Year	Number of vessels that caught red porgy	Number of trips that caught red porgy	Red porgy landings (lbs gw)	Other species' landings jointly caught with red porgy (lbs gw)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without red porgy (lbs gw)
2011	174	1,588	160,186	1,866,048	2,547	1,862,692
2012	160	1,389	133,652	1,508,907	2,513	1,773,040
2013	170	1,533	136,166	1,617,082	3,189	2,197,052
2014	163	1,535	128,757	1,431,688	3,402	2,268,684
2015	157	1,340	124,826	1,280,747	3,329	2,383,057
Average	165	1,477	136,717	1,540,894	2,996	2,096,905

Source: SEFSC Coastal Fisheries Logbook (May 2017).



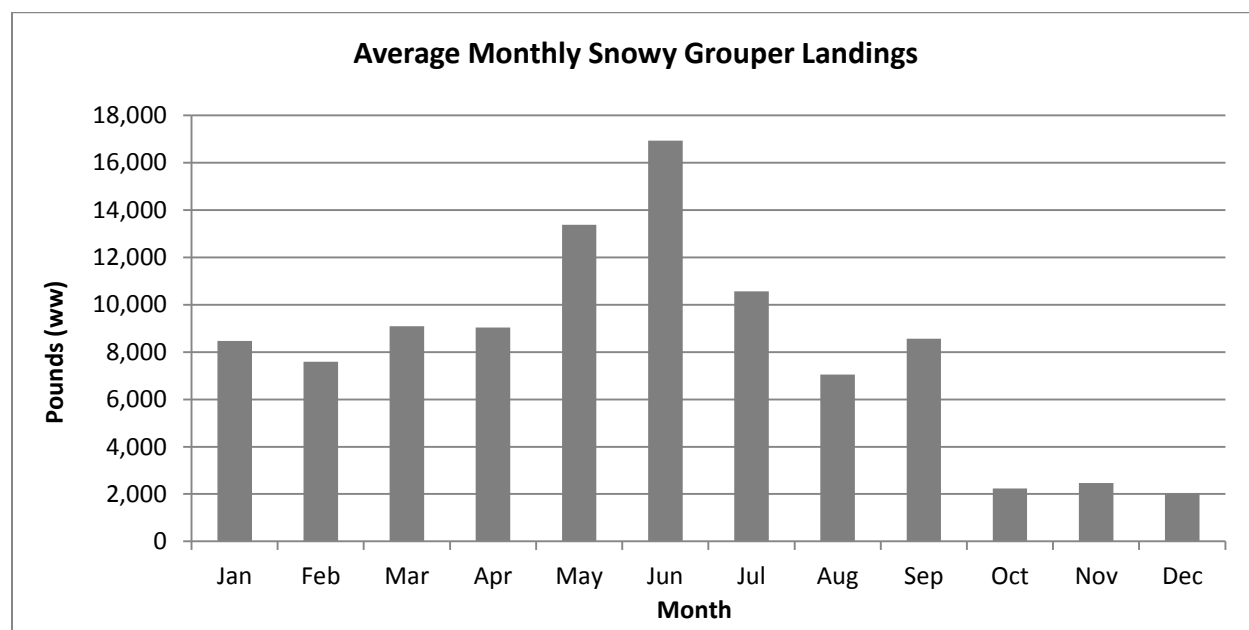
**Table 3.3.1.7.** Number of vessels and dockside revenues by year for vessels that landed red porgy from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught red porgy	Dockside revenue from red porgy	Dockside revenue from 'other species' jointly caught with red porgy	Dockside from 'other species' caught on SATL trips without red porgy	Total dockside revenue	Average total dockside revenue per vessel
2011	174	\$313,882	\$5,856,420	\$4,347,262	\$10,517,564	\$60,446
2012	160	\$265,375	\$4,932,288	\$4,558,426	\$9,756,089	\$60,976
2013	170	\$268,514	\$5,563,361	\$5,722,075	\$11,553,950	\$67,964
2014	163	\$264,082	\$4,868,816	\$6,462,553	\$11,595,451	\$71,138
2015	157	\$264,237	\$4,464,454	\$6,455,953	\$11,184,644	\$71,240
Average	165	\$275,218	\$5,137,068	\$5,509,254	\$10,921,540	\$66,353

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Snowy Grouper

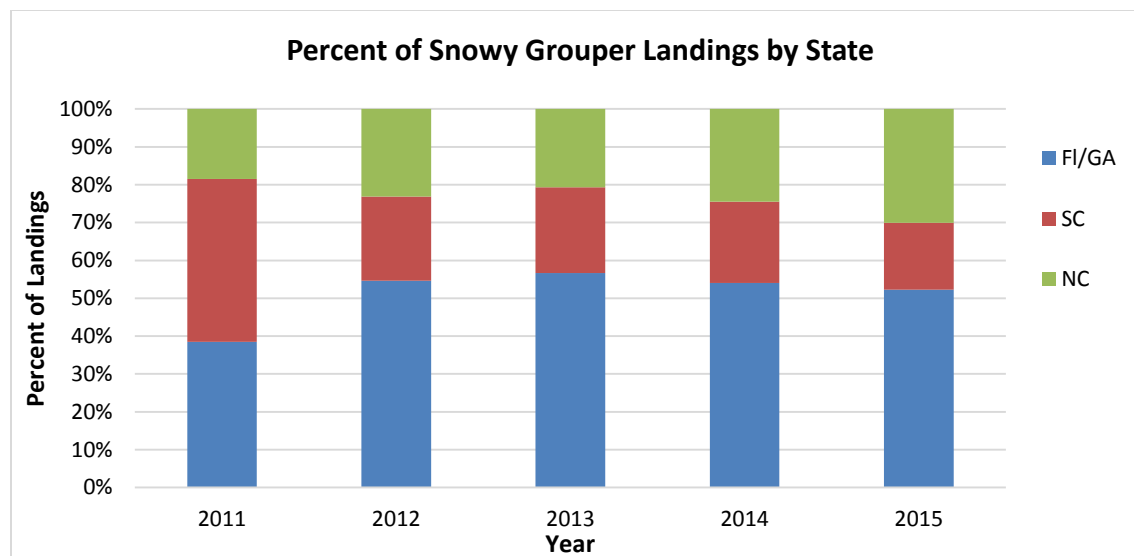
Snowy grouper is within the sea basses and groupers (Serranidae) group of the snapper grouper fishery that includes 19 other species. Average monthly commercial landings of snowy grouper from 2011-2015 are displayed in **Figure 3.3.1.9**. The landings tend to be the highest in the late spring and summer months, with peak landings occurring in June.



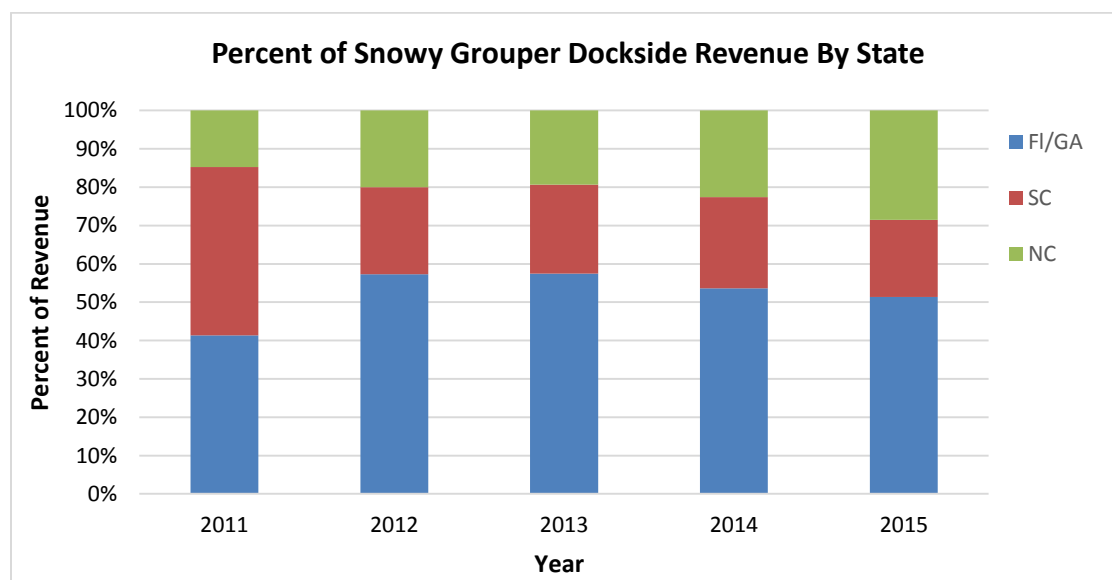
**Figure 3.3.1.9.** Average monthly commercial landings (lbs ww) of snowy grouper harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset

Among the South Atlantic states, Florida/Georgia typically accounts for the majority of commercial snowy grouper landings both in weight (**Figure 3.3.1.10**) and dockside revenue (**Figure 3.3.1.11**). On average, over half of the commercial snowy grouper landings are landed in this area.



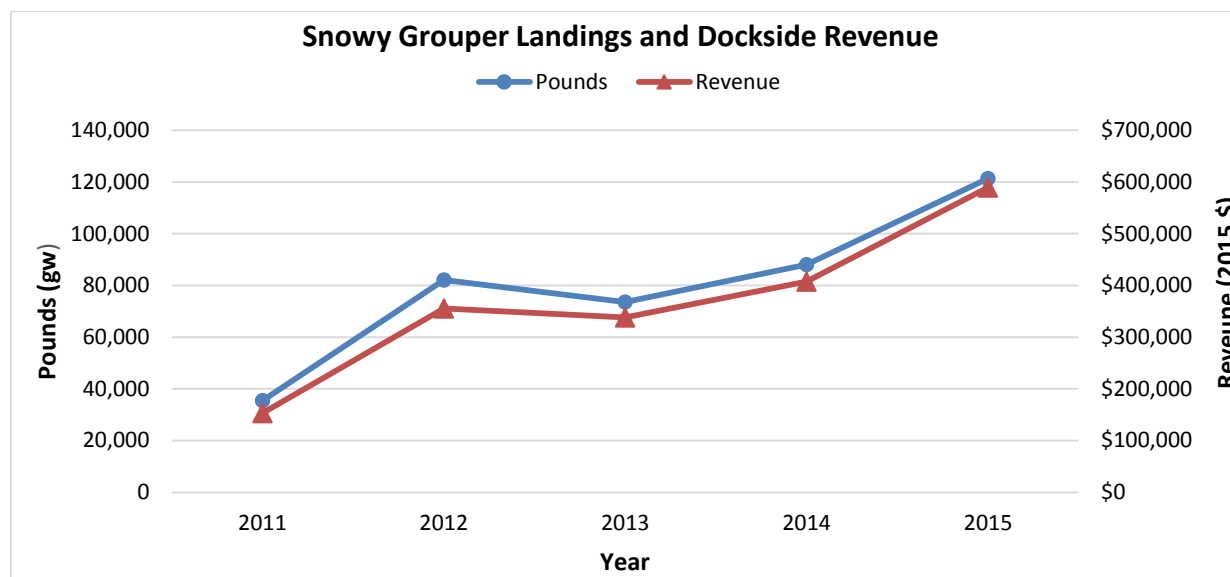
**Figure 3.3.1.10.** Percent of snowy grouper landings (lbs gw) by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.11.** Percent of snowy grouper dockside revenues by state, 2011-2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of snowy grouper in the South Atlantic ranged from approximately 35,000 lbs gw to 121,000 lbs gw and averaged 80,084 lbs gw from 2011 through 2015 (**Figure 3.3.1.12**, **Table 3.3.1.8**). Dockside revenues from those landings ranged from about \$153,000 to \$589,000 and averaged \$368,656 (2015 dollars) (**Figure 3.3.1.12**, **Table 3.3.1.9**). The average dockside price during those five years was \$4.66 per lbs gw (2015 dollars)

and an annual average of 139 vessels took 1,022 commercial trips landing snowy grouper. Average annual dockside revenue from snowy grouper landings represented approximately 12% of total dockside revenue from trips that landed snowy grouper from 2011 through 2015.



**Figure 3.3.1.12.** Annual commercial landings of snowy grouper by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.8** Number of vessels, number of trips, and landings by year for vessels that landed snowy grouper from the South Atlantic, 2011-2015.

Year	Number of vessels that caught snowy grouper	Number of trips that caught snowy grouper	Snowy grouper landings (lbs gw)	Other species' landings jointly caught with snowy grouper (lbs gw)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without snowy (lbs gw)
2011	112	592	35,472	781,593	3,371	3,163,710
2012	129	1,100	82,078	839,557	3,374	2,874,220
2013	133	970	73,573	842,923	3,525	2,838,171
2014	151	1,094	87,989	1,000,489	4,578	3,973,275
2015	169	1,352	121,310	975,908	4,567	3,347,064
Average	139	1,022	80,084	888,094	3,883	3,239,288

Source: SEFSC Coastal Fisheries Logbook (May 2017).

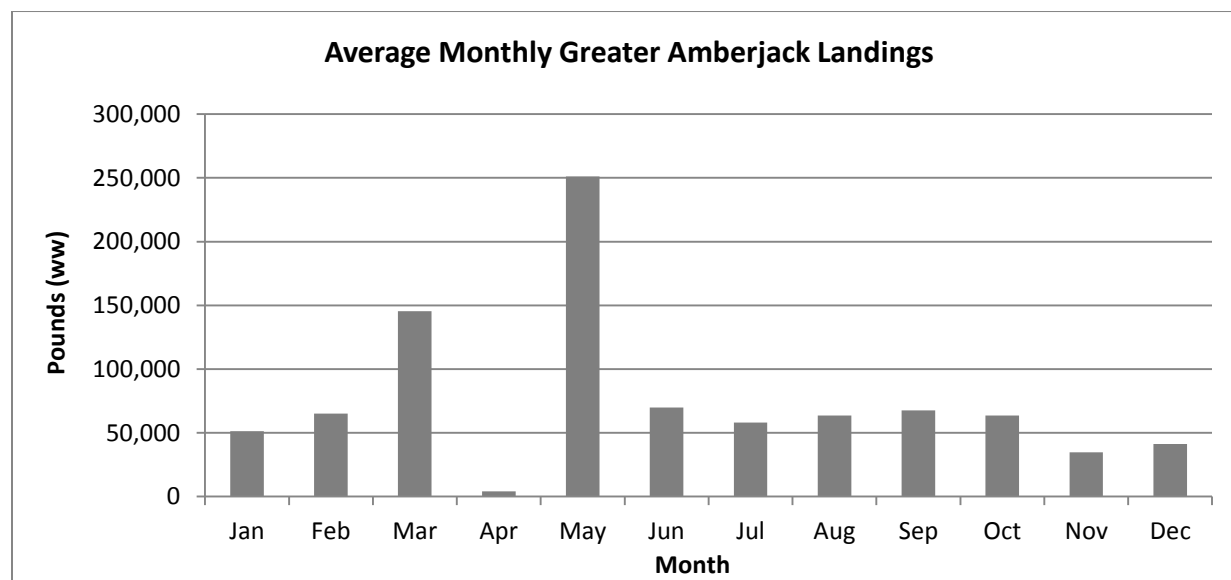
**Table 3.3.1.9.** Number of vessels and dockside revenues by year for vessels that landed snowy grouper from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught snowy grouper	Dockside revenue from snowy grouper	Dockside revenue from 'other species' jointly caught with snowy grouper	Dockside revenue from 'other species' caught on SATL trips without snowy grouper	Total dockside revenue	Average total dockside revenue per vessel
2011	112	\$152,874	\$2,242,434	\$7,216,712	\$9,612,021	\$85,822
2012	129	\$355,232	\$2,395,119	\$7,302,070	\$10,052,420	\$77,926
2013	133	\$338,330	\$2,543,621	\$7,919,016	\$10,800,967	\$81,210
2014	151	\$407,562	\$3,094,917	\$10,238,346	\$13,740,825	\$90,999
2015	169	\$589,281	\$3,238,359	\$8,473,400	\$12,301,040	\$72,787
Average	139	\$368,656	\$2,702,890	\$8,229,909	\$11,301,454	\$81,749

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Greater Amberjack

Greater amberjack is within the jacks group (Carangidae) of the snapper grouper fishery that includes 3 other species. Average monthly commercial landings of greater amberjack from 2011-2015 are displayed in **Figure 3.3.1.13**. The landings tend to be the highest in the spring months, with peak landings occurring in May, right after the annual April spawning season commercial harvest closure.

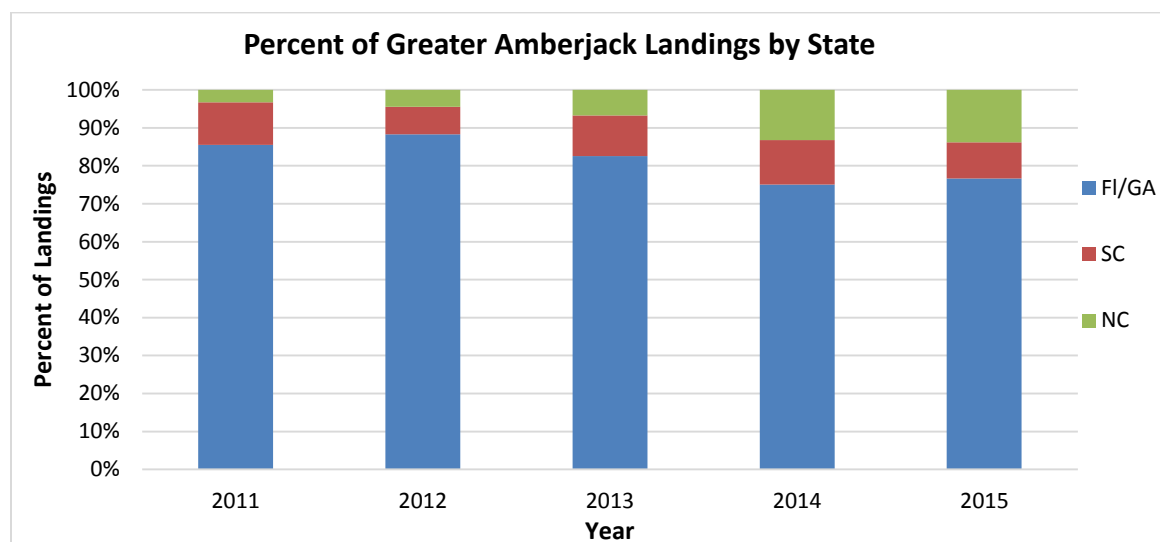


**Figure 3.3.1.13.** Average monthly commercial landings (lbs ww) of greater amberjack harvested from the South Atlantic, 2011-2015.

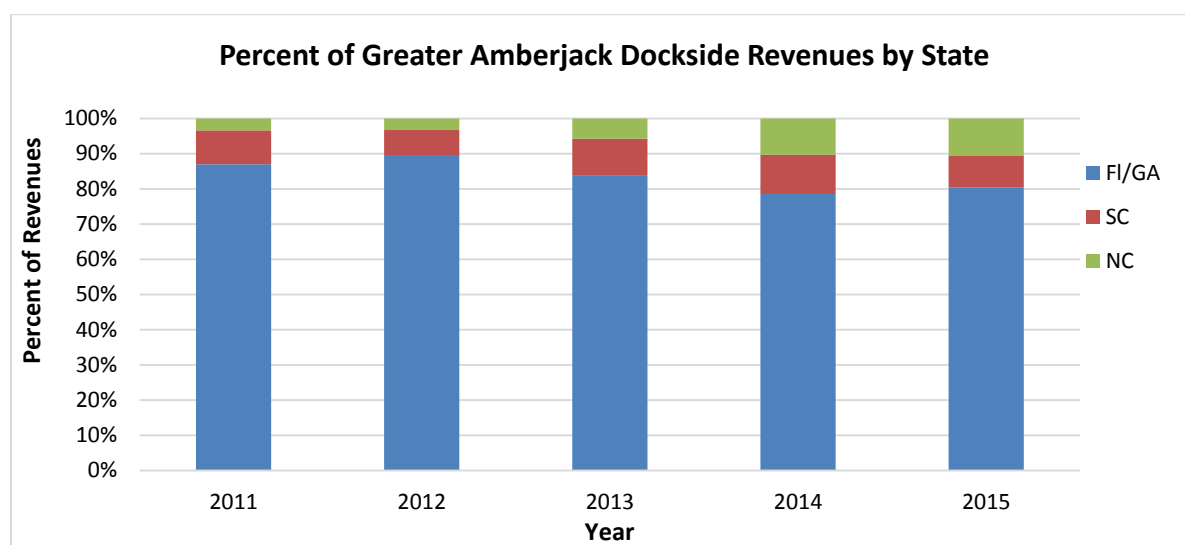
Source: NMFS Commercial ALS Dataset

Among the South Atlantic states, Florida/Georgia accounts for most commercial greater amberjack landings both in weight (**Figure 3.3.1.14**) and dockside revenue (**Figure 3.3.1.15**).

On average, this area accounts for over 80 percent of commercial greater amberjack landings annually.

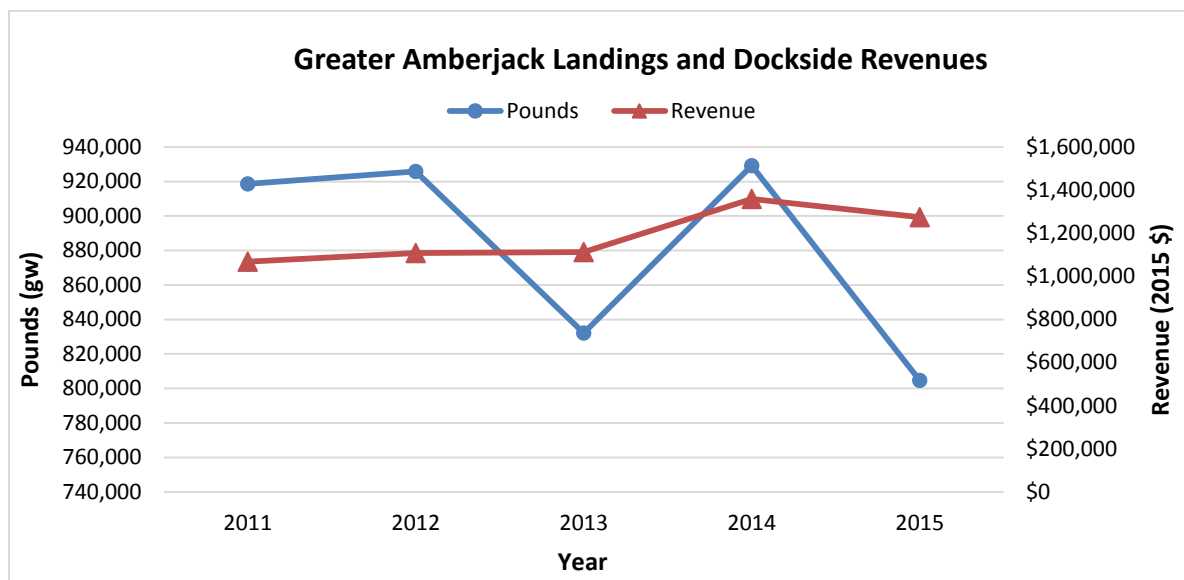


**Figure 3.3.1.14.** Percent of greater amberjack landings (lbs gw) by state, 2011-2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.15.** Percent of greater amberjack dockside revenues by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of greater amberjack in the South Atlantic ranged from approximately 805,000 lbs gw to 929,000 lbs gw and averaged 882,108 lbs gw from 2011 through 2015 (**Figure 3.3.1.16, Table 3.3.1.10**). Dockside revenues from those landings ranged from about \$1,069,000 to \$1,274,000 and averaged \$1,184,000 (2015 dollars) (**Figure 3.3.1.16, Table 3.3.1.11**). The average dockside price during those five years was \$1.34 per lb gw (2015 dollars) and an annual average of 276 vessels took 2,258 commercial trips landing greater amberjack. Average annual dockside revenue from greater amberjack landings represented approximately 21% of total dockside revenue from trips that landed greater amberjack from 2011 through 2015.



**Figure 3.3.1.16.** Annual commercial landings of greater amberjack by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.10.** Number of vessels, number of trips, and landings by year for vessels that landed greater amberjack from the South Atlantic, 2011-2015.

Year	Number of vessels that caught greater amberjack	Number of trips that caught greater amberjack	Greater amberjack landings (lbs ww)	Other species' landings jointly caught with greater amberjack (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without greater amberjack (lbs ww)
2011	269	2,345	918,626	1,606,925	6,784	3,694,086
2012	249	2,063	925,820	1,234,821	6,192	3,144,165
2013	264	2,085	832,216	1,425,240	6,221	3,139,264
2014	269	2,468	929,199	1,325,775	7,316	3,416,356
2015	271	2,329	804,679	1,230,994	7,150	3,632,280
Average	264	2,258	882,108	1,364,751	6,733	3405,230

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.11.** Number of vessels and dockside revenues by year for vessels that landed greater amberjack from the South Atlantic, 2011-2015 (2015 dollars).

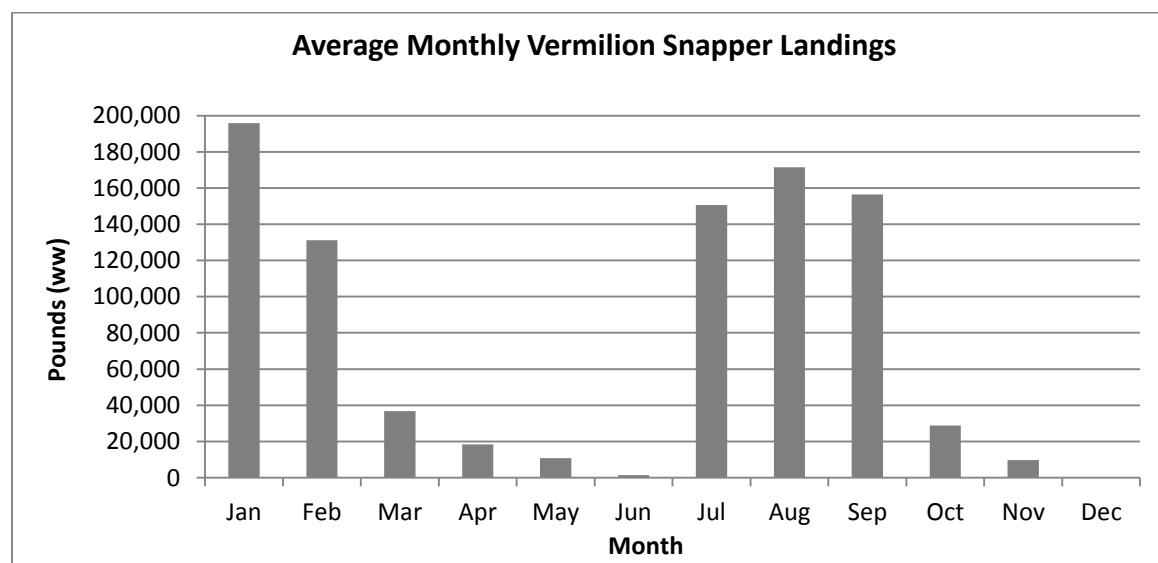
Year	Number of vessels that caught greater amberjack	Dockside revenue from greater amberjack	Dockside revenue from 'other species' jointly caught with greater amberjack	Dockside revenue from 'other species' caught on SATL trips without greater amberjack	Total dockside revenue	Average total dockside revenue per vessel
2011	269	\$1,068,849	\$5,001,887	\$6,778,988	\$12,849,724	\$47,768
2012	249	\$1,108,031	\$3,959,237	\$6,984,216	\$12,051,483	\$48,400
2013	264	\$1,113,391	\$4,860,029	\$7,700,477	\$13,673,897	\$51,795
2014	269	\$1,358,797	\$4,711,597	\$10,128,751	\$16,199,145	\$60,220
2015	271	\$1,274,055	\$4,319,204	\$8,473,400	\$14,066,659	\$51,906
Average	264	\$1,184,625	\$4,570,391	\$8,013,166	\$13,768,182	\$52,018

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Vermilion Snapper

Vermilion snapper is within the snappers group (Lutjanidae) of the snapper grouper fishery that includes 13 other species. Average monthly commercial landings of

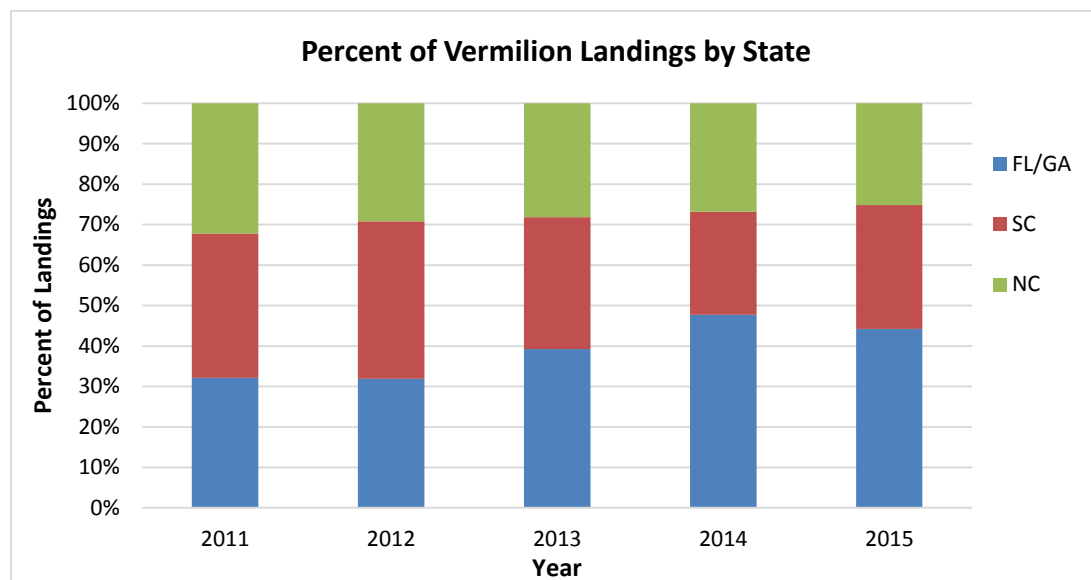
vermillion snapper from 2011-2015 are displayed in **Figure 3.3.1.17**. The landings tend to be the highest in the January and February, and again in July, August, September. This reflects the split season currently in place for vermillion snapper where half of the commercial annual catch limit is designated for January through June and half the annual catch limit designated for July through December. The commercial fishery often closes in between the two seasons when the ACL has been met or is projected to be met.



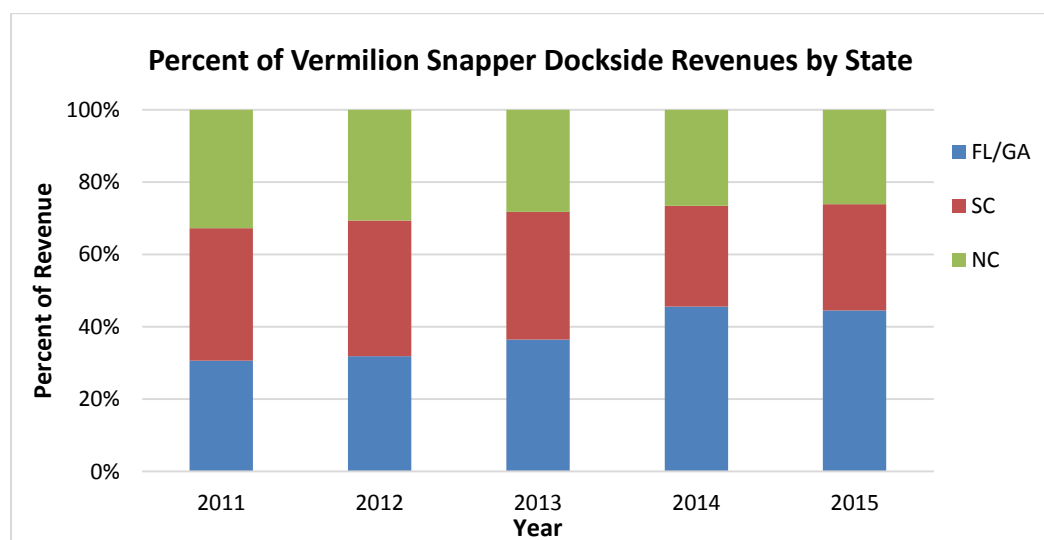
**Figure 3.3.1.17.** Average monthly commercial landings (lbs gw) of vermillion snapper harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, South Carolina accounted for the majority of vermillion snapper landings both in weight (**Figure 3.3.1.18**) and dockside revenue (**Figure 3.3.1.19**) in 2011 and 2012. In recent years, Florida/Georgia has accounted for a larger share of the landings and South Carolina accounting for a smaller share. This was change in landings was likely due to the harvest closures that occurred in these years.



**Figure 3.3.1.18.** Percent of vermillion snapper landings (lbs gw) by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

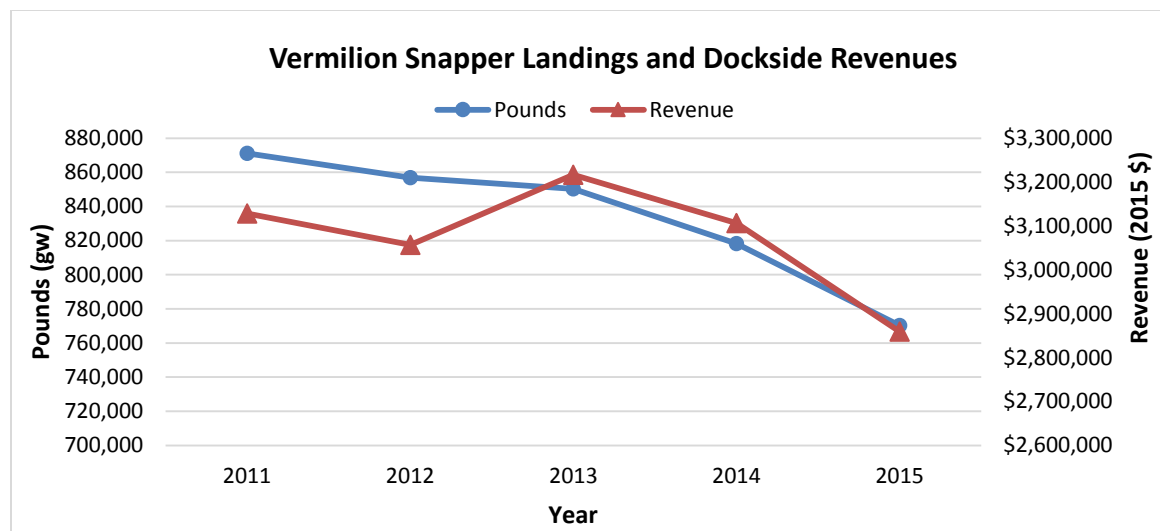


**Figure 3.3.1.19.** Percent of vermillion snapper dockside revenues by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of vermillion snapper in the South Atlantic ranged from approximately 770,000 lbs gw to 871,000 lbs gw and averaged 833,377 lbs gw from 2011 through 2015 (**Figure 3.3.1.16**, **Table 3.3.1.12**). Dockside revenues from those landings ranged from about \$2,859,000 to \$3,217,000 and averaged \$3,073,643 (2015 dollars) (**Figure 3.3.1.20**, **Table 3.3.1.13**). The average dockside price during those five years was \$3.69 per lb gw (2015



dollars) and an annual average of 201 vessels took 1,565 commercial trips landing vermillion snapper. Average annual dockside revenue from vermillion snapper landings represented approximately 56% of total dockside revenue from trips that landed vermillion snapper from 2011 through 2015.



**Figure 3.3.1.20.** Annual commercial landings of vermillion snapper by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.12** Number of vessels, number of trips, and landings by year for vessels that landed vermillion snapper from the South Atlantic, 2011-2015.

Year	Number of vessels that caught vermillion snapper	Number of trips that caught vermillion snapper	Vermilion snapper landings (lbs ww)	Other species' landings jointly caught with vermillion snapper (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without vermillion snapper (lbs ww)
2011	187	1,307	871,129	929,850	3,614	2,380,683
2012	190	1,354	856,787	840,234	3,608	2,279,943
2013	202	1,645	850,383	1,011,293	3,567	2,178,460
2014	220	1,797	818,276	979,657	5,460	2,920,601
2015	206	1,723	770,309	958,474	4,810	2,111,155
Average	201	1,565	833,377	943,902	4212	2,374,168

Source: SEFSC Coastal Fisheries Logbook (May 2017).

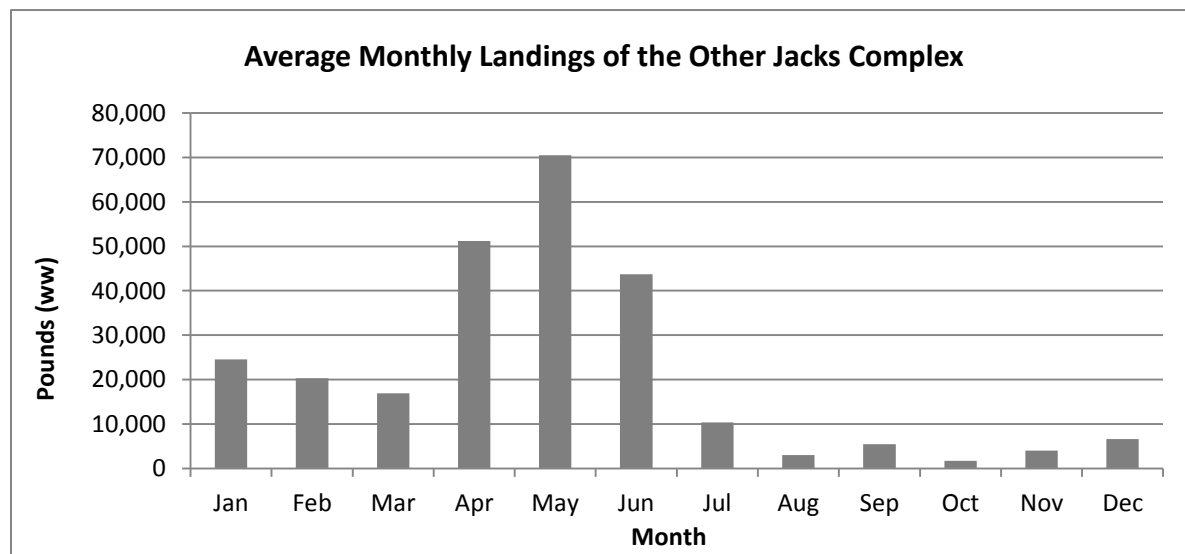
**Table 3.3.1.13.** Number of vessels and dockside revenues by year for vessels that landed vermilion snapper from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught vermilion snapper	Dockside revenue from vermilion snapper	Dockside revenue from 'other species' jointly caught with vermilion snapper	Dockside revenue from 'other species' caught on SATL trips without vermilion snapper	Total dockside revenue	Average total dockside revenue per vessel
2011	187	\$3,128,589	\$2,094,278	\$5,820,836	\$11,043,703	\$59,057
2012	190	\$3,057,108	\$2,084,457	\$6,014,690	\$11,156,254	\$58,717
2013	202	\$3,216,649	\$2,688,599	\$6,707,861	\$12,613,109	\$62,441
2014	220	\$3,106,545	\$2,611,943	\$9,410,064	\$15,128,551	\$68,766
2015	206	\$2,859,327	\$2,638,561	\$6,862,347	\$12,360,235	\$60,001
Average	201	\$3,073,643	\$2,423,567	\$6,963,160	\$12,460,371	\$61,797

Source: SEFSC Coastal Fisheries Logbook (May 2017).

#### **Other Jacks Complex (Lesser Amberjack, Almaco Jack, Banded Rudderfish)**

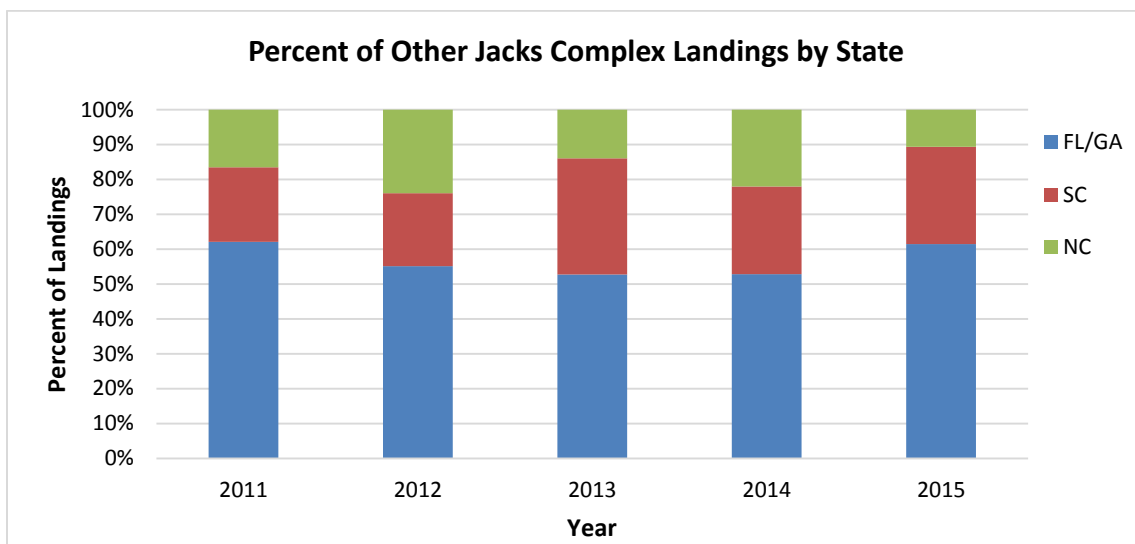
The other jacks complex (lesser amberjack, almaco jack, banded rudderfish) falls within the jacks group (Carangidae) of the snapper grouper fishery that includes 1 other species. Average monthly commercial landings of the other jacks complex from 2011-2015 are displayed in **Figure 3.3.1.21**. The landings tend to be the highest in the late spring and early summer months and the commercial landings for the complex are typically dominated by almaco jack.



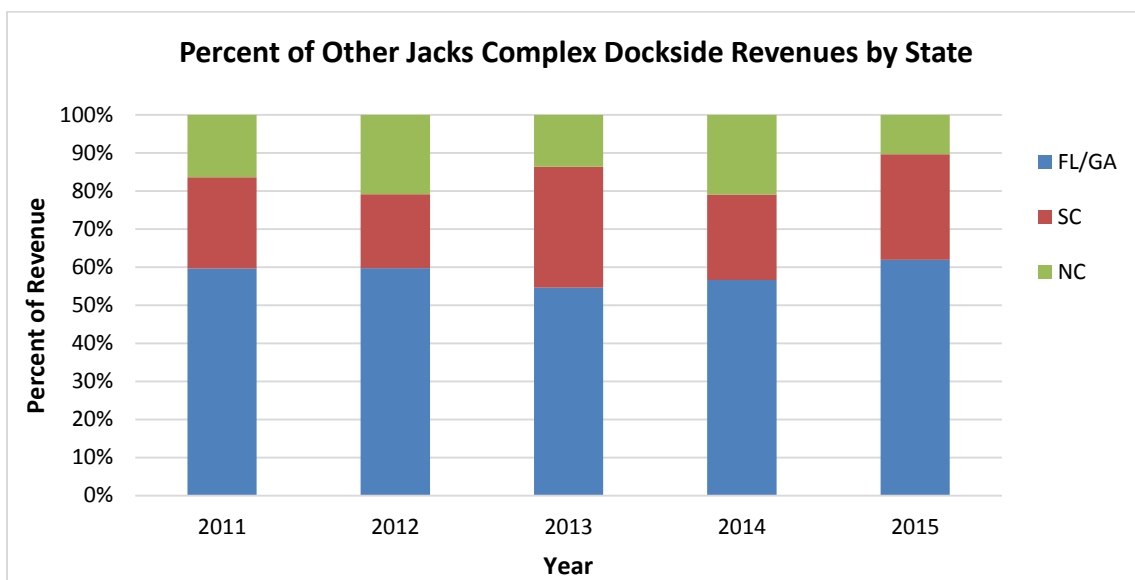
**Figure 3.3.1.21.** Average monthly commercial landings (lbs ww) of the other jacks complex harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, Florida/Georgia accounted for the majority of landings of the jacks complex both in weight (**Figure 3.3.1.22**) and dockside revenue (**Figure 3.3.1.23**).

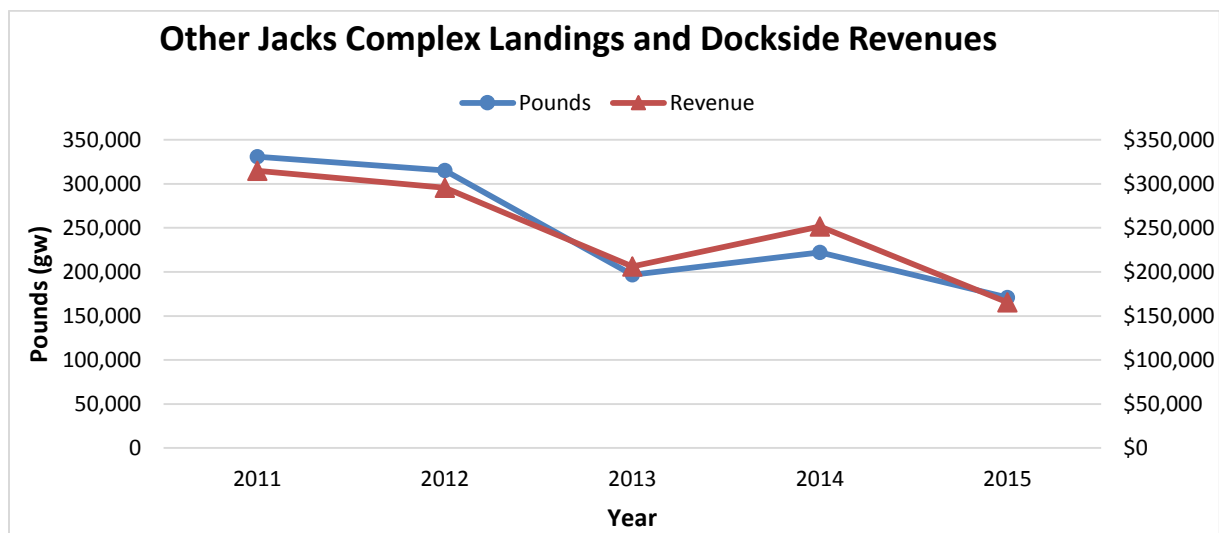


**Figure 3.3.1.22.** Percent of other jacks complex landings (lbs gw) by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.23.** Percent of other jacks complex dockside revenues by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of the other jacks complex in the South Atlantic ranged from approximately 171,000 lbs gw to 331,000 lbs gw and averaged 247,123 lbs gw from 2011 through 2015 (**Figure 3.3.1.24, Table 3.3.1.14**). Dockside revenues from those landings ranged from about \$315,000 to \$166,000 and averaged \$246,842 (2015 dollars) (**Figure 3.3.1.24, Table 3.3.1.15**). The average dockside price during those five years was \$1.00 per lb gw (2015 dollars) and an annual average of 214 vessels took 1,392 commercial trips landing species from the other jacks complex. Average annual dockside revenue from landings of the other jacks complex represented approximately 6% of total dockside revenue from trips that landed species from the other jacks complex from 2011 through 2015.



**Figure 3.3.1.24.** Annual commercial landings species from the other jacks complex by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.14** Number of vessels, number of trips, and landings by year for vessels that landed species from the other jacks complex from the South Atlantic, 2011-2015.

Year	Number of vessels that caught species from the other jacks complex	Number of trips that caught species from the other jacks complex	Other jacks complex landings (lbs ww)	Other species' landings jointly caught with species from the other jacks complex (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without species from the other jacks complex (lbs ww)
2011	244	1,918	330,632	2,221,408	6,723	3,389,449
2012	222	1,342	315,152	1,217,056	5,850	3,236,341
2013	189	1,027	196,828	1,051,340	5,196	3,186,889
2014	209	1,420	221,987	1,301,134	6,499	3,397,632
2015	204	1,254	171,015	1,099,686	6,096	3,110,312
Average	214	1,392	247,123	1,378,125	6,073	3,264,125

Source: SEFSC Coastal Fisheries Logbook (May 2017).

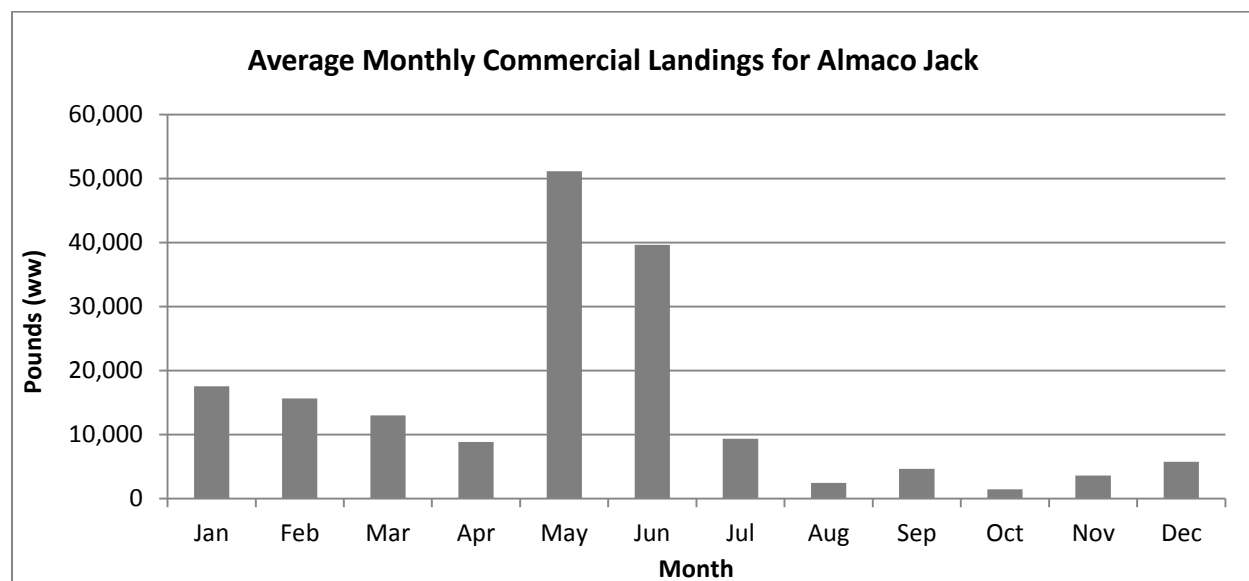
**Table 3.3.1.15.** Number of vessels and dockside revenues by year for vessels that landed species from the other jacks complex from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught species from the other jacks complex	Dockside revenue from species from the other jacks complex	Dockside revenue from 'other species' jointly caught with species from the other jacks complex	Dockside revenue from 'other species' caught on SATL trips without species from the other jacks complex	Total dockside revenue	Average total dockside revenue per vessel
2011	244	\$314,923	\$6,515,335	\$7,525,393	\$14,355,651	\$58,835
2012	222	\$295,718	\$3,652,788	\$8,962,245	\$12,910,751	\$58,157
2013	189	\$206,263	\$3,318,546	\$9,399,169	\$12,923,978	\$68,381
2014	209	\$251,651	\$4,279,513	\$10,940,136	\$15,471,300	\$74,025
2015	204	\$165,653	\$3,350,420	\$10,762,203	\$14,278,276	\$69,992
Average	214	\$246,842	\$4,223,320	\$9,517,829	\$13,987,991	\$65,878

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Almaco Jack

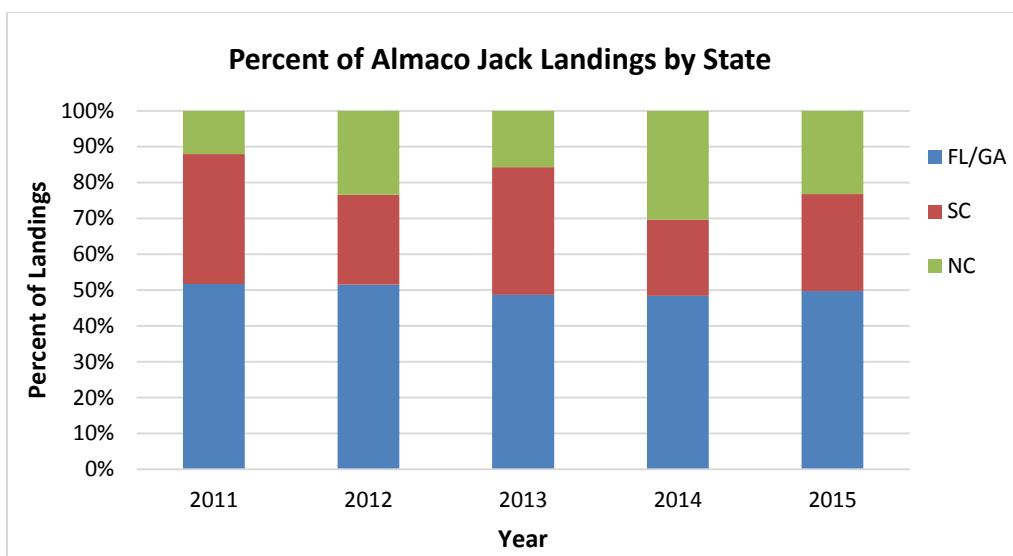
Average monthly commercial landings of almaco jacks from 2011-2015 are displayed in **Figure 3.3.1.25**. Commercial landings tend to be the highest in May and June.



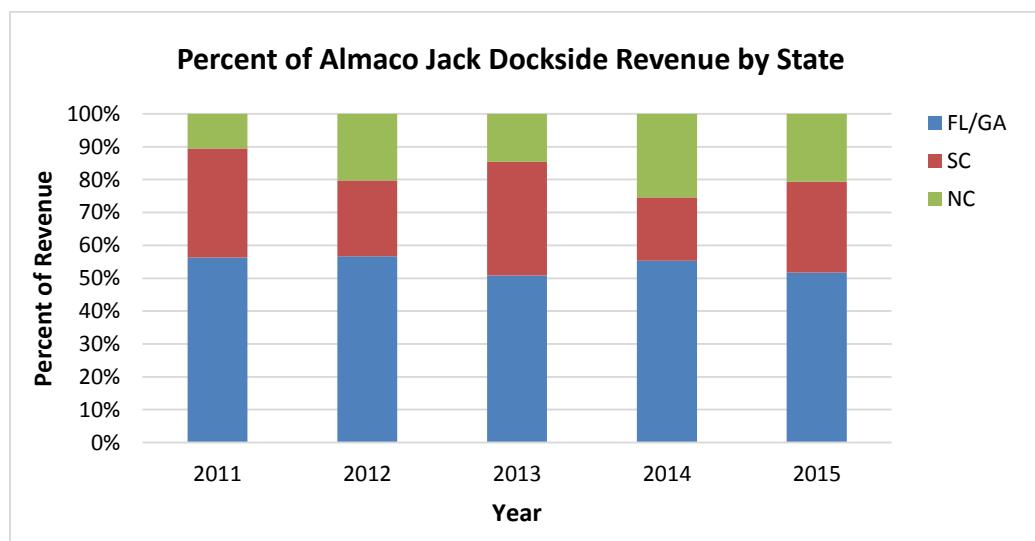
**Figure 3.3.1.25.** Average monthly commercial landings (lbs ww) of almaco jack harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, Florida/Georgia accounted for the majority of almaco jack landings both in weight (**Figure 3.3.1.26**) and dockside revenue (**Figure 3.3.1.27**), typically followed by South Carolina and North Carolina.

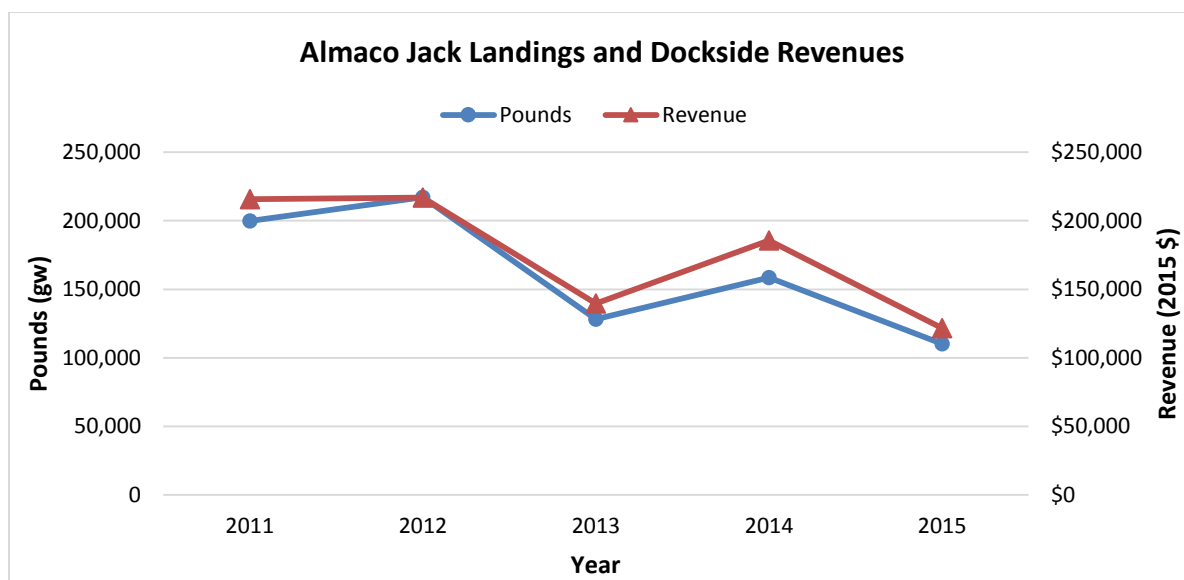


**Figure 3.3.1.26.** Percent of almaco jack landings (lbs gw) by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.27.** Percent of almaco jack dockside revenues by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of almaco jack in the South Atlantic ranged from approximately 110,000 lbs gw to 217,000 lbs gw and averaged 162,811 lbs gw from 2011 through 2015 (**Figure 3.3.1.28, Table 3.3.1.16**). Dockside revenues from those landings ranged from about \$122,000 to \$217,000 and averaged \$175,969 (2015 dollars) (**Figure 3.3.1.28, Table 3.3.1.17**). The average dockside price during those five years was \$1.08 per lb gw (2015 dollars) and an annual average of 163 vessels took 1,057 commercial trips landing almaco jack. Average annual dockside revenue from landings of almaco jack represented approximately 5% of total dockside revenue from trips that landed almaco jack from 2011 through 2015.



**Figure 3.3.1.28.** Annual commercial landings of almaco jack by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.16** Number of vessels, number of trips, and landings by year for vessels that landed almaco jack from the South Atlantic, 2011-2015.

Year	Number of vessels that caught almaco jack	Number of trips that caught almaco jack	Almaco jack landings (lbs ww)	Other species' landings jointly caught with almaco jack (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without almaco jack (lbs ww)
2011	178	1,435	199,986	1,957,342	4,777	2,680,397
2012	168	1,000	217,221	1,116,464	4,220	2,713,820
2013	149	768	128,232	962,471	3,894	2,730,672
2014	160	1,066	158,510	1,098,473	5,128	3,118,476
2015	162	1,014	110,105	1,005,591	5,047	2,939,911
Average	163	1,057	162,811	1,228,068	4,613	2,836,655

Source: SEFSC Coastal Fisheries Logbook (May 2017).

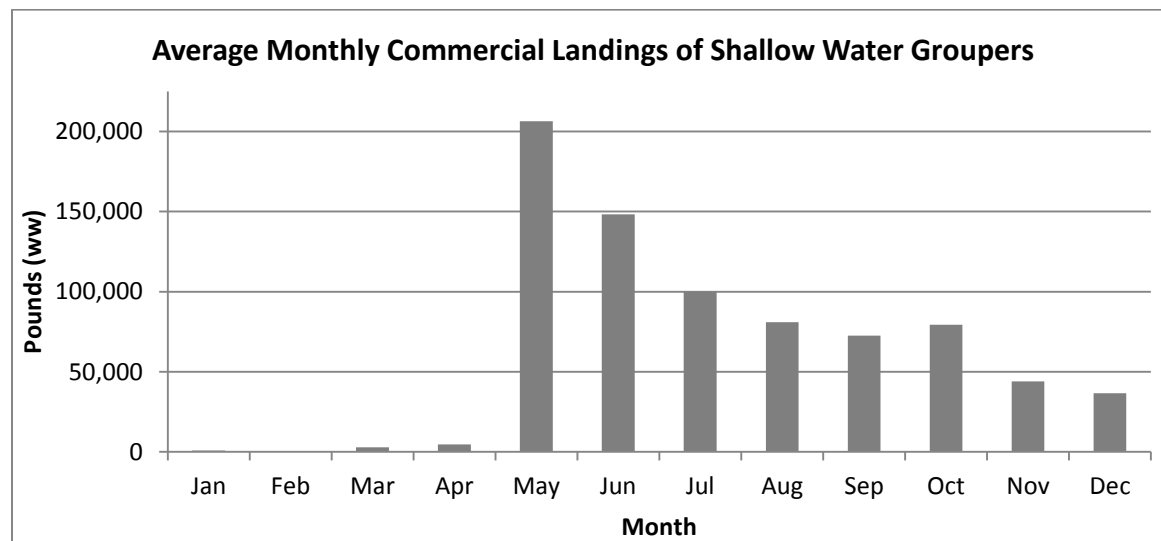
**Table 3.3.1.17.** Number of vessels and dockside revenues by year for vessels that landed almaco jack from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught almaco jacks	Dockside revenue from almaco jacks	Dockside revenue from 'other species' jointly caught with almaco jacks	Dockside revenue from 'other species' caught on SATL trips without almaco jacks	Total dockside revenue	Average total dockside revenue per vessel
2011	178	\$215,864	\$5,763,809	\$6,450,735	\$12,430,408	\$69,834
2012	168	\$216,867	\$3,303,246	\$7,838,745	\$11,358,858	\$67,612
2013	149	\$139,661	\$3,012,767	\$8,517,190	\$11,669,618	\$78,320
2014	160	\$185,723	\$3,569,910	\$9,384,088	\$13,139,721	\$82,123
2015	162	\$121,732	\$3,352,785	\$8,467,228	\$11,941,745	\$73,714
Average	163	\$175,969	\$3,800,503	\$8,131,597	\$12,108,070	\$74,321

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Shallow-water Groupers (Gag Grouper, Black Grouper, Scamp, Red Grouper, Yellowfin Grouper, Yellowmouth Grouper, Red Hind, Rock Hind, Graysby, Coney)

The shallow-water groupers (gag grouper, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, coney) fall within the sea basses and groupers (Serranidae) group of the snapper grouper fishery that includes 10 other species. Average monthly commercial landings of shallow-water groupers from 2011-2015 are displayed in **Figure 3.3.1.29**. The landings tend to be the highest in the in May and June, coinciding with the end of the spawning season closure that is in place annually from January through April.

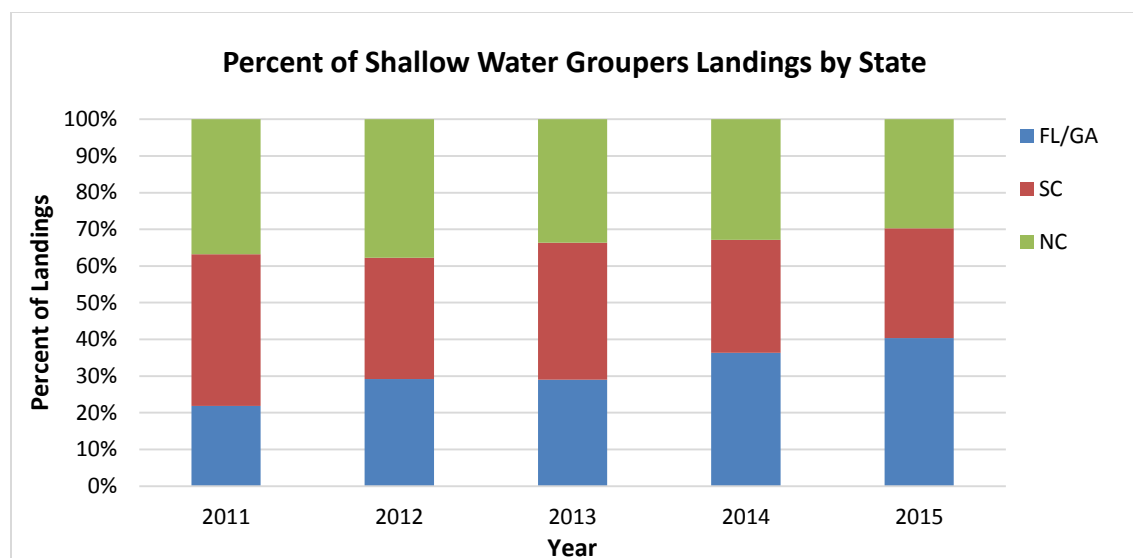


**Figure 3.3.1.29.** Average monthly commercial landings (lbs ww) of the shallow-water groupers harvested from the South Atlantic, 2011-2015.

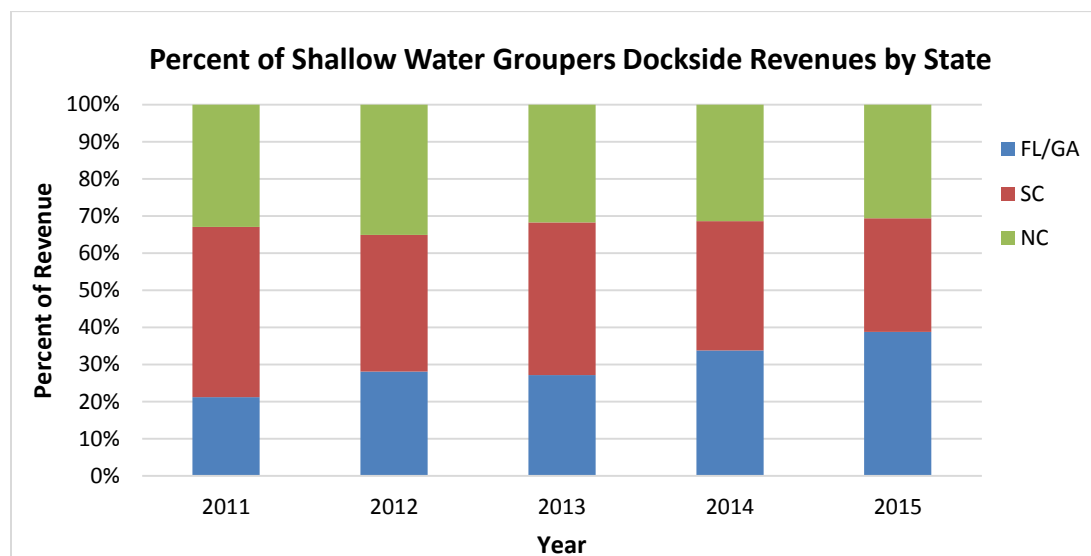
Source: NMFS Commercial ALS Dataset.



Among the South Atlantic states, landings of shallow-water groupers both in weight (**Figure 3.3.1.30**) and dockside revenue (**Figure 3.3.1.31**) changed over the five-year timeframe. In 2011, the majority of landings occurred in South Carolina, with Georgia/Florida having the lowest share of the landings. By 2015, those roles had reversed.



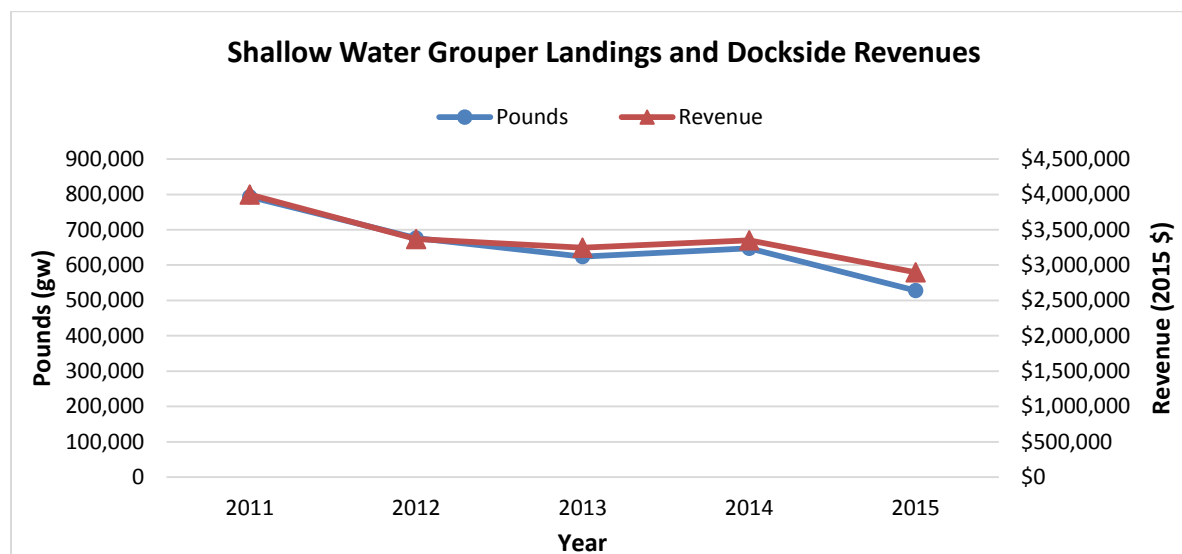
**Figure 3.3.1.30.** Percent of shallow-water groupers landings (lbs gw) by state, 2011–2015. Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.31.** Percent of dockside revenues from shallow-water groupers by state, 2011–2015. Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of shallow-water groupers in the South Atlantic ranged from approximately 793,000 lbs gw to 528,000 lbs gw and averaged 653,923 lbs gw from 2011 through 2015 (**Figure 3.3.1.32**, **Table 3.3.1.18**). Dockside revenues from those landings ranged from about \$2,890,000 to \$3,999,000 and averaged \$3,372,422 (2015 dollars) (**Figure 3.3.1.32**, **Table 3.3.1.19**). The average dockside price during those five years was \$5.16 per lb gw (2015 dollars) and an annual average of 366 vessels took 3,179 commercial trips landing shallow-water

groupers. Average annual dockside revenue from landings of shallow-water groupers represented approximately 44% of total dockside revenue from trips that landed shallow-water groupers from 2011 through 2015.



**Figure 3.3.1.32.** Annual commercial landings of shallow-water groupers by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.18** Number of vessels, number of trips, and landings by year for vessels that landed shallow-water groupers from the South Atlantic, 2011-2015.

Year	Number of vessels that caught shallow-water groupers	Number of trips that caught shallow-water groupers	Shallow-water groupers landings (lbs ww)	Other species' landings jointly caught with shallow-water groupers (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without shallow-water groupers (lbs ww)
2011	385	3,353	792,864	1,900,805	7,898	3,711,636
2012	365	2,913	676,523	1,523,609	7,872	3,969,060
2013	371	3,117	624,280	1,672,650	7,199	3,705,660
2014	364	3,461	647,667	1,588,582	9,092	4,224,923
2015	346	3,049	528,279	1,465,363	8,100	4,042,056
Average	366	3,179	653,923	1,630,202	8,032	3,930,667

Source: SEFSC Coastal Fisheries Logbook (May 2017).

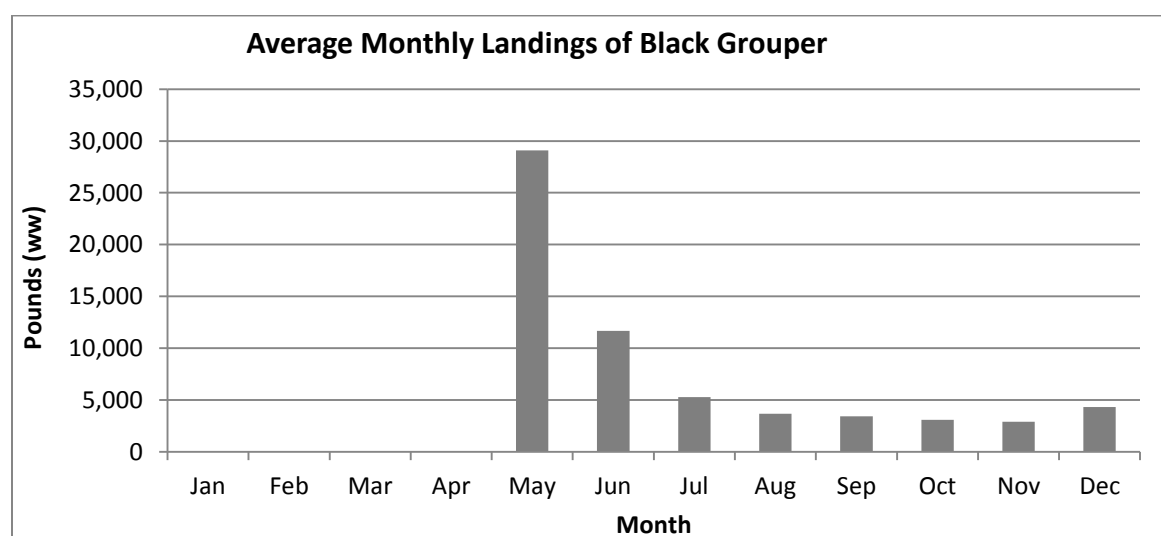
**Table 3.3.1.19.** Number of vessels and gross dockside revenues by year for vessels that landed shallow-water groupers from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught shallow-water groupers	Dockside revenue from shallow-water groupers	Dockside revenue from 'other species' jointly caught with shallow-water groupers	Dockside revenue from 'other species' caught on SATL trips without shallow-water groupers	Total dockside revenue	Average total dockside revenue per vessel
2011	385	\$3,998,488	\$4,487,751	\$8,400,680	\$16,886,919	\$43,862
2012	365	\$3,369,113	\$3,905,544	\$9,892,489	\$17,167,146	\$47,033
2013	371	\$3,246,082	\$4,579,255	\$10,173,785	\$17,999,122	\$48,515
2014	364	\$3,348,601	\$4,360,900	\$12,120,622	\$19,830,123	\$54,478
2015	346	\$2,899,824	\$4,034,598	\$10,756,396	\$17,690,818	\$51,130
Average	366	\$3,372,422	\$4,273,610	\$10,268,794	\$17,914,826	\$49,004

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Black Grouper

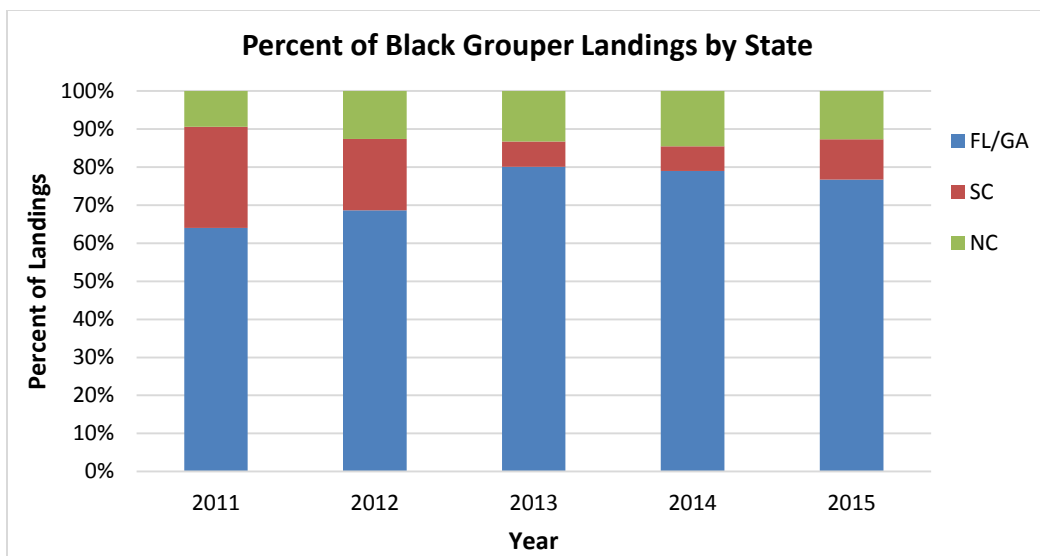
Average monthly commercial landings of black grouper from 2011-2015 are displayed in **Figure 3.3.1.33**. The landings tend to be the highest in the in May, coinciding with the end of the spawning season closure that is in place annually from January through April.



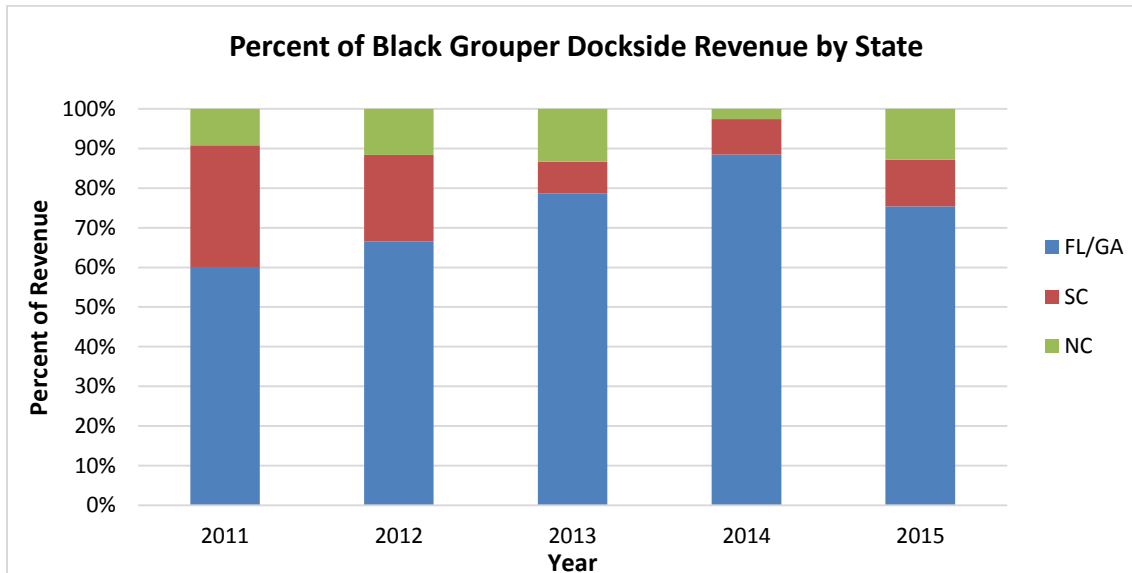
**Figure 3.3.1.33.** Average monthly commercial landings (lbs ww) of black grouper harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, Florida/Georgia accounted for the vast majority of black grouper landings both in weight (**Figure 3.3.1.34**) and dockside revenue (**Figure 3.3.1.35**).

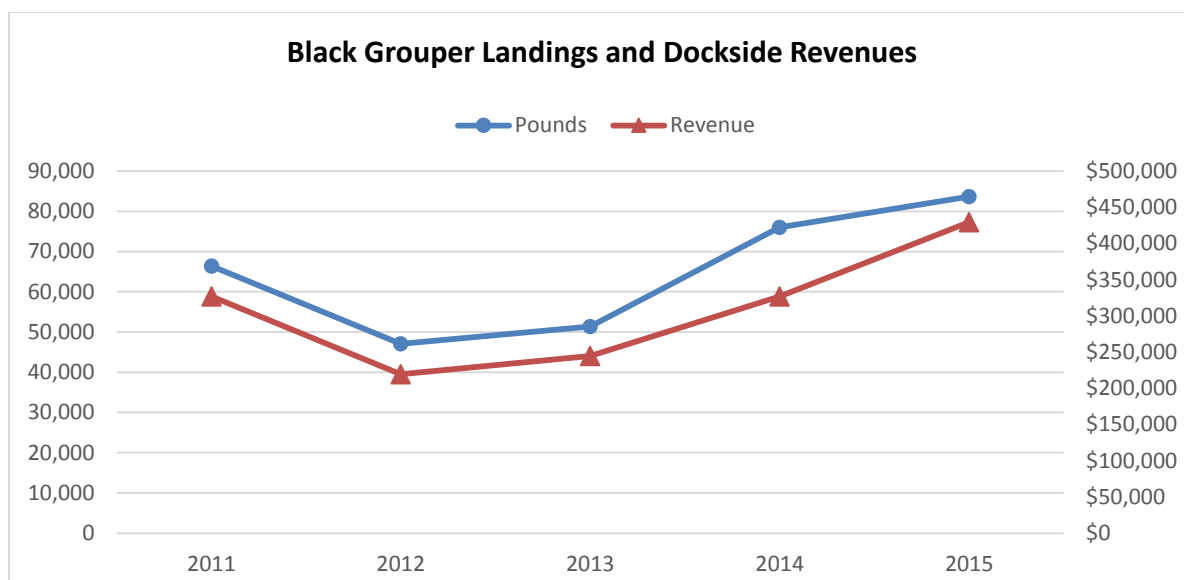


**Figure 3.3.1.34.** Percent of black grouper landings (lbs gw) by state, 2011-2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.35.** Percent of dockside revenues from black grouper by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of black grouper in the South Atlantic ranged from approximately 51,000 lbs gw to 76,000 lbs gw and averaged 64,908 lbs gw from 2011 through 2015 (**Figure 3.3.1.36, Table 3.3.1.20**). Dockside revenues from those landings ranged from about \$220,000 to \$430,000 and averaged \$309,418 (2015 dollars) (**Figure 3.3.1.36, Table 3.3.1.21**). The average dockside price during those five years was \$4.77 per lb gw (2015 dollars) and an annual average of 185 vessels took 826 commercial trips landing black grouper. Average annual dockside revenue from landings of black grouper represented approximately 20% of total dockside revenue from trips that landed black grouper from 2011 through 2015.



**Figure 3.3.1.36.** Annual commercial landings of black grouper by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.20** Number of vessels, number of trips, and landings by year for vessels that landed black grouper from the South Atlantic, 2011-2015.

Year	Number of vessels that caught black grouper	Number of trips that caught black grouper	Black grouper landings (lbs ww)	Other species' landings jointly caught with black grouper (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without black grouper (lbs ww)
2011	202	773	66,405	495,943	6,325	3,326,383
2012	175	633	47,089	344,453	5,523	2,909,712
2013	188	752	51,378	359,955	5,592	2,809,445
2014	183	958	76,019	345,795	6,729	2,809,580
2015	179	1,012	83,648	423,883	5,804	2,592,146
Average	185	826	64,908	394,006	5,995	2,889,453

Source: SEFSC Coastal Fisheries Logbook (May 2017).

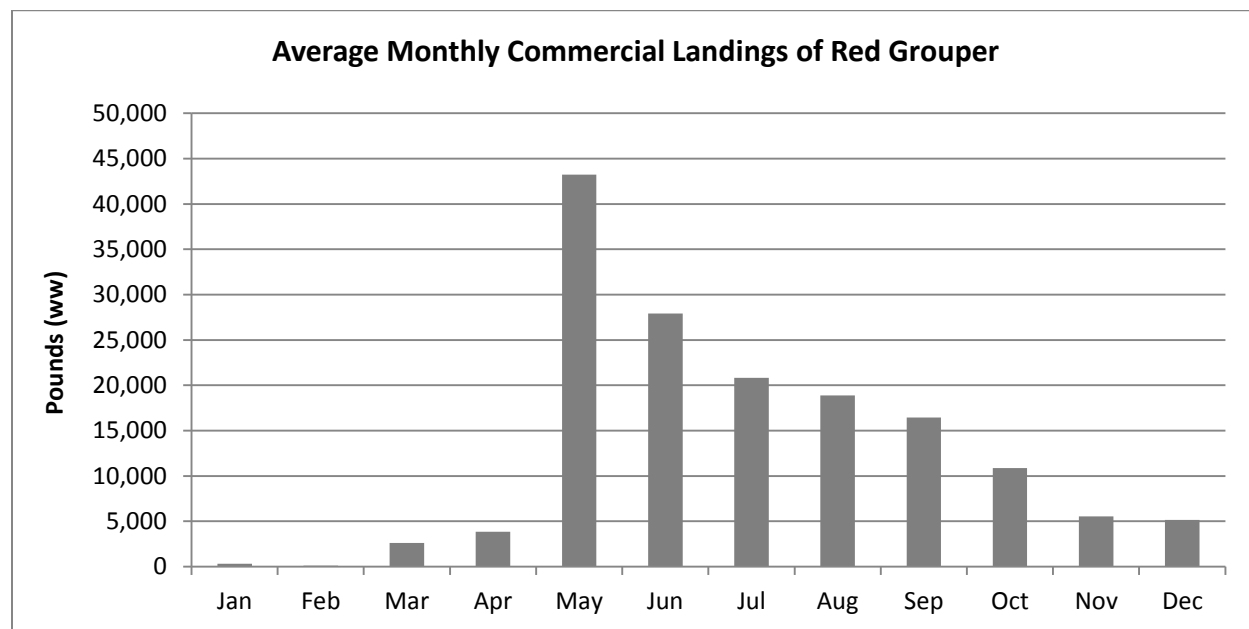
**Table 3.3.21.** Number of vessels and dockside revenues by year for vessels that landed black grouper from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught black grouper	Dockside revenue from black grouper	Dockside revenue from 'other species' jointly caught with black grouper	Dockside revenue from 'other species' caught on SATL trips without black grouper	Total dockside revenue	Average total dockside revenue per vessel
2011	202	\$326,857	\$1,516,168	\$8,628,905	\$10,471,930	\$51,841
2012	175	\$219,647	\$1,069,553	\$8,212,695	\$9,501,895	\$54,297
2013	188	\$244,447	\$1,162,423	\$8,452,260	\$9,859,130	\$52,442
2014	183	\$326,619	\$1,182,257	\$9,151,964	\$10,660,840	\$58,256
2015	179	\$429,520	\$1,346,956	\$8,117,479	\$9,893,955	\$55,273
Average	185	\$309,418	\$1,255,471	\$8,512,661	\$10,077,550	\$54,422

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Red Grouper

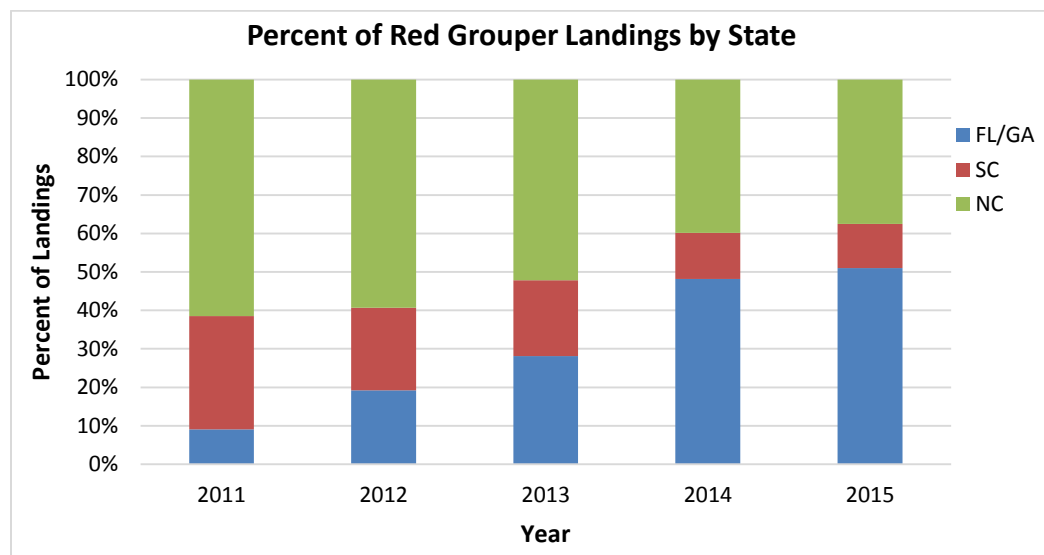
Average monthly commercial landings of red grouper from 2011-2015 are displayed in **Figure 3.3.1.37**. The landings tend to be the highest in the in May, coinciding with the end of the spawning season closure that is in place annually from January through April.



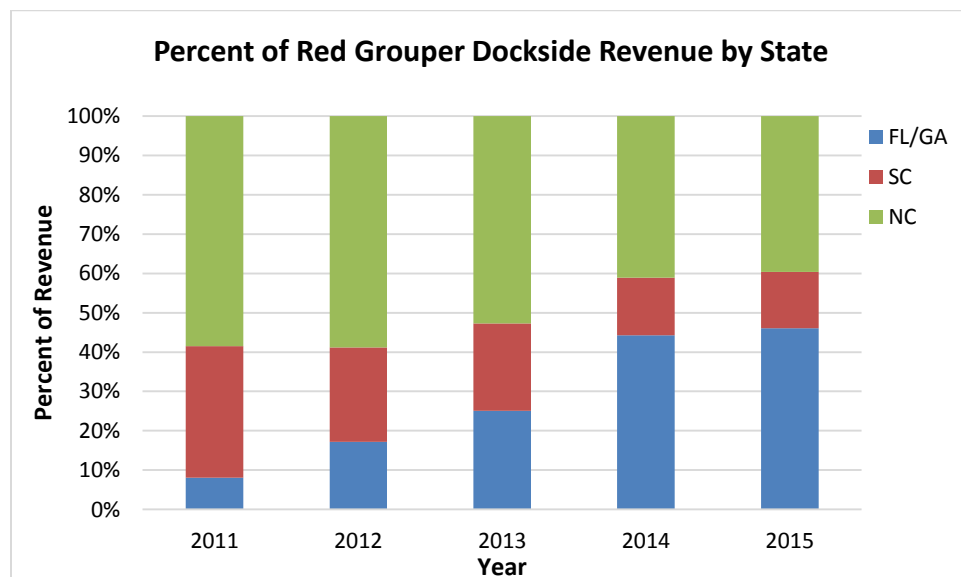
**Figure 3.3.1.37.** Average monthly commercial landings (lbs ww) of red grouper harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, North Carolina accounted for the majority of red grouper landings both in weight (**Figure 3.3.1.38**) and dockside revenue (**Figure 3.3.1.39**) at the beginning of the time series. Towards the end of the time series, landings of red grouper in North Carolina noticeably decreased, leading to Florida/Georgia accounting for a much larger portion of red grouper landings.



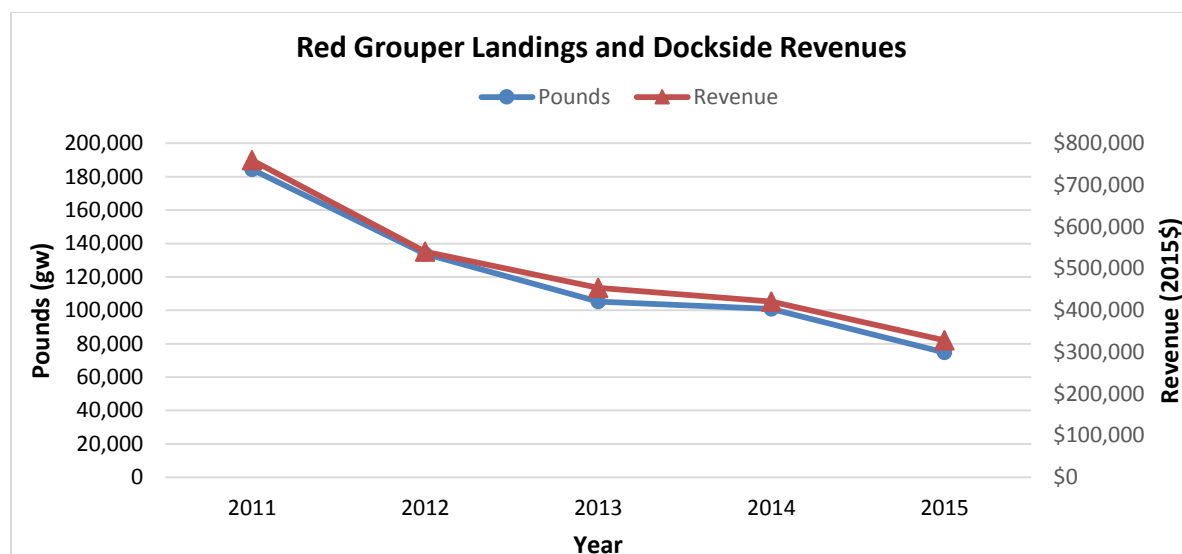
**Figure 3.3.1.38.** Percent of red grouper landings (lbs gw) by state, 2011-2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.39.** Percent of dockside revenues from red grouper by state, 2011-2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of red grouper in the South Atlantic ranged from approximately 75,000 lbs (gw) to 184,000 lbs (gw) and averaged 119,783 lbs gw from 2011 through 2015 (**Figure 3.3.1.40, Table 3.3.1.22**). Dockside revenues from those landings ranged from about \$328,000 to \$760,000 and averaged \$500,668 (2015 dollars) (**Figure 3.3.1.40, Table 3.3.1.23**).

The average dockside price during those five years was \$4.18 per lb gw (2015 dollars) and an annual average of 254 vessels took 1,220 commercial trips landing red grouper. Average annual dockside revenue from landings of red grouper represented approximately 13% of total dockside revenue on trips that landed red grouper from 2011 through 2015.



**Figure 3.3.1.40.** Annual commercial landings of red grouper by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.22.** Number of vessels, number of trips, and landings by year for vessels that landed red grouper from the South Atlantic, 2011-2015.

Year	Number of vessels that caught red grouper	Number of trips that caught red grouper	Red grouper landings (lbs ww)	Other species' landings jointly caught with red grouper (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without red grouper (lbs ww)
2011	278	1,565	184,396	1,426,312	6,538	3,450,158
2012	263	1,261	133,715	1,045,765	6,742	3,733,099
2013	253	1,143	105,195	905,574	5,916	3,499,671
2014	249	1,197	100,891	816,756	7,308	3,781,224
2015	225	936	74,717	658,457	6,565	3,596,615
Average	254	1,220	119,783	970,573	6,614	3,612,153

Source: SEFSC Coastal Fisheries Logbook (May 2017).



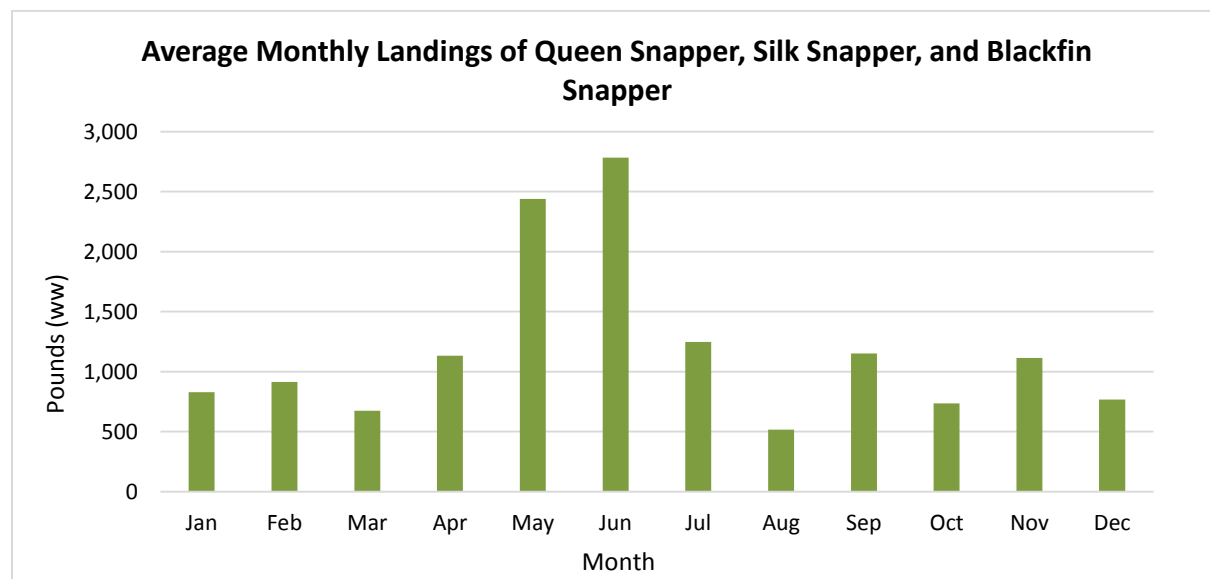
**Table 3.3.1.23.** Number of vessels and dockside revenues by year for vessels that landed red grouper from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught red grouper	Dockside revenue from red grouper	Dockside revenue from 'other species' jointly caught with red grouper	Dockside revenue from 'other species' caught on SATL trips without red grouper	Total dockside revenue	Average total dockside revenue per vessel
2011	278	\$759,918	\$4,373,600	\$8,922,511	\$14,056,029	\$50,561
2012	263	\$540,789	\$3,396,210	\$10,256,374	\$14,193,373	\$53,967
2013	253	\$453,710	\$3,014,676	\$10,590,709	\$14,059,095	\$55,570
2014	249	\$420,594	\$2,843,032	\$12,057,005	\$15,320,631	\$61,529
2015	225	\$328,328	\$2,379,634	\$10,990,829	\$13,698,791	\$60,884
Average	254	\$500,668	\$3,201,430	\$10,563,486	\$14,265,584	\$56,502

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Queen Snapper, Silk Snapper, and Blackfin Snapper

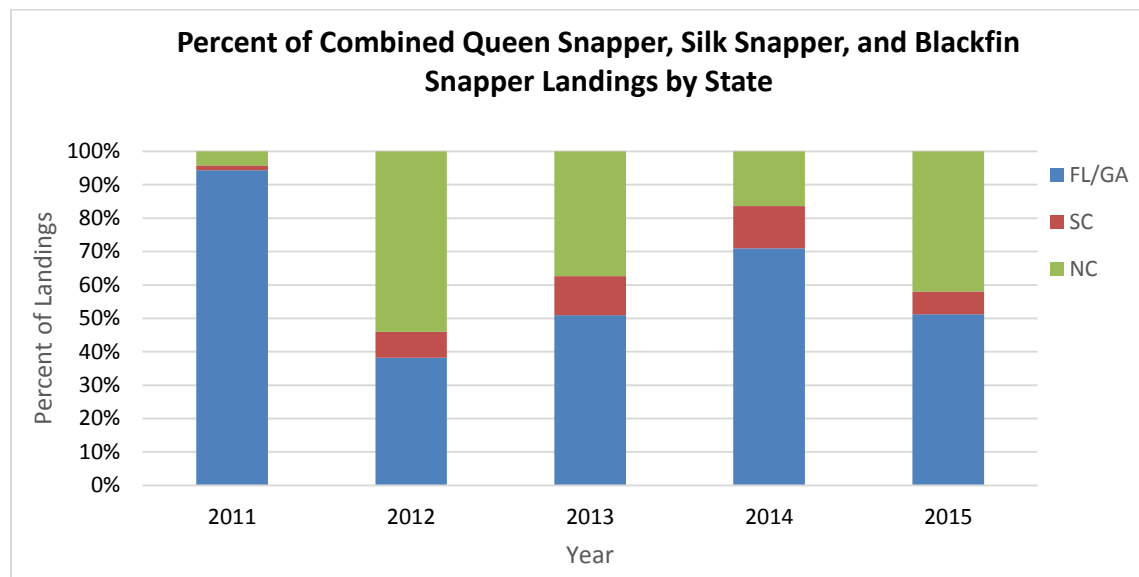
Queen snapper, silk snapper, and blackfin snapper fall within the Snappers (Lutjanidae) group of the snapper grouper fishery that includes 11 other species. Average monthly commercial landings of queen snapper, silk snapper, and blackfin snapper from 2011-2015 are displayed in **Figure 3.3.1.41**. The landings tend to be the highest in the in May and June, but occur throughout the year.



**Figure 3.3.1.41.** Average monthly commercial landings (lbs ww) of queen snapper, silk snapper, and blackfin snapper harvested from the South Atlantic, 2011-2015.

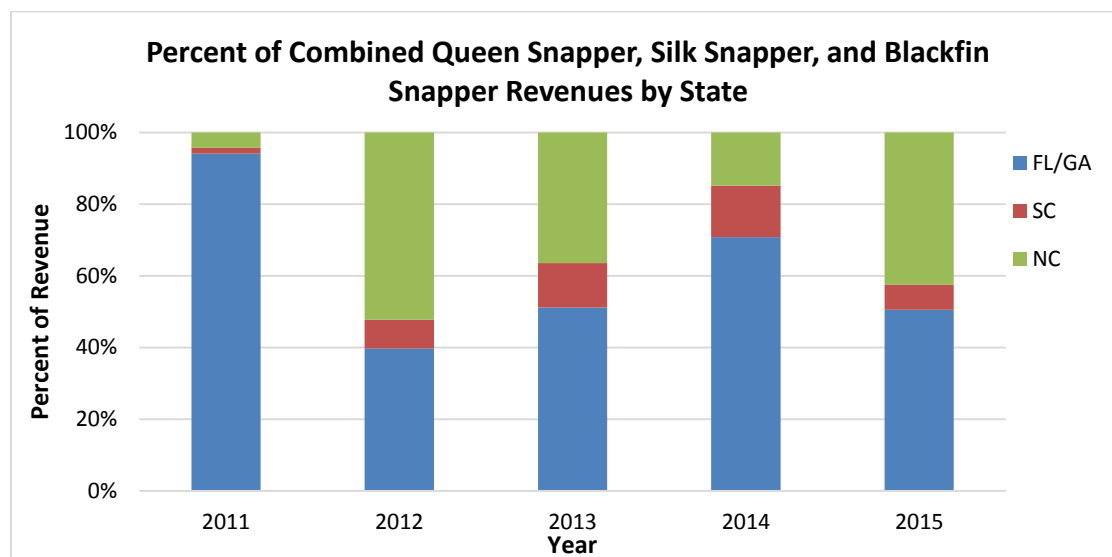
Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, landings of queen snapper, silk snapper, and blackfin snapper both in weight (**Figure 3.3.1.42**) and dockside revenue (**Figure 3.3.1.43**) varied greatly over the five-year timeframe examined. In 2011, the majority of landings occurred in Florida/Georgia, with North Carolina and South Carolina having a fairly small share of the landings. In the other years examined, the Carolinas played a much larger role in the commercial landings.



**Figure 3.3.1.42.** Percent of combined queen snapper, silk snapper, and blackfin snapper landings (lbs gw) by state, 2011-2015.

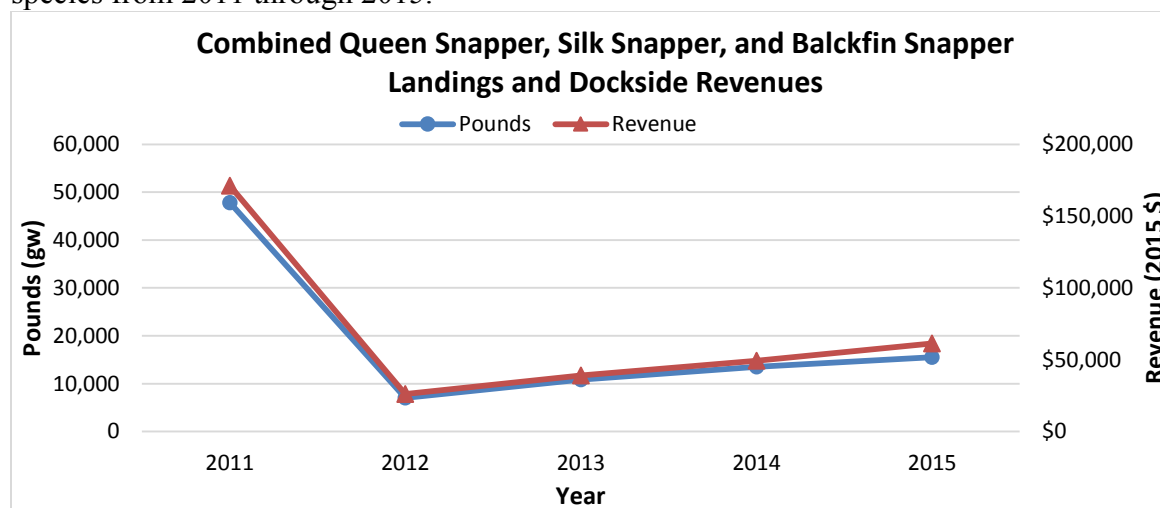
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.43.** Percent of dockside revenues from combined queen snapper, silk snapper, and blackfin snapper landings by state, 2011–2015.

Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of queen snapper, silk snapper, and blackfin snapper in the South Atlantic ranged from approximately 48,000 lbs (gw) to 7,000 lbs (gw) and averaged 18,942 lbs gw from 2011 through 2015 (**Figure 3.3.1.44**, **Table 3.3.1.24**). Dockside revenues from those landings ranged from about \$26,000 to \$171,000 and averaged \$69,408 (2015 dollars) (**Figure 3.3.1.44**, **Table 3.3.1.25**). The average dockside price during those five years was \$3.66 per lb gw (2015 dollars) and an annual average of 366 vessels took 3,179 commercial trips landing queen snapper, silk snapper, and blackfin snapper. Average annual dockside revenue from landings of queen snapper, silk snapper, and blackfin snapper represented approximately 9% of total dockside revenue from trips that landed one or more of these snapper species from 2011 through 2015.



**Figure 3.3.1.44.** Annual commercial landings of queen snapper, silk snapper, and blackfin snapper by weight (lbs gw) and dockside revenue (2015 \$).  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.24.** Number of vessels, number of trips, and landings by year for vessels that landed queen snapper, silk snapper, and blackfin snapper from the South Atlantic, 2011-2015.

Year	Number of vessels that caught queen snapper, silk snapper, and blackfin snapper	Number of trips that caught queen snapper, silk snapper, and blackfin snapper	Queen snapper, silk snapper, and blackfin snapper landings (lbs ww)	Other species' landings jointly caught with queen snapper, silk snapper, and blackfin snapper (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without queen snapper, silk snapper, and blackfin snapper (lbs ww)
2011	87	166	47,838	206,437	2,474	2,443,087
2012	93	224	7,024	265,159	2,448	2,109,752
2013	81	231	10,813	275,657	2,028	1,790,122
2014	88	192	13,528	236,187	2,745	2,217,686
2015	105	316	15,509	305,469	3,226	2,446,981
Average	91	226	18,942	257,782	2,584	2,201,526

Source: SEFSC Coastal Fisheries Logbook (May 2017).

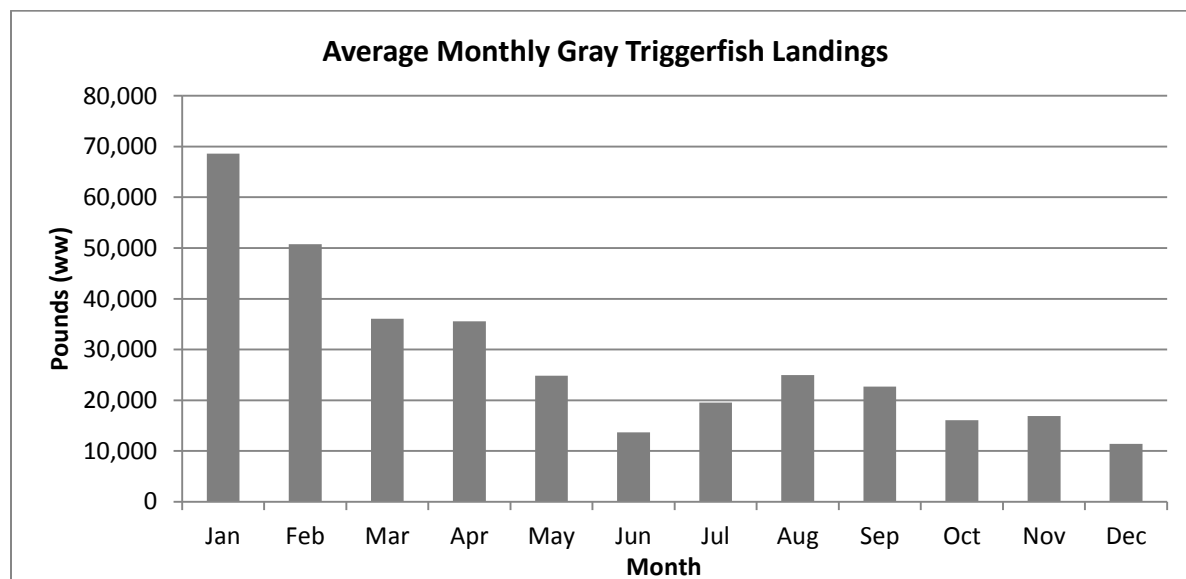
**Table 3.3.1.25.** Number of vessels and gross dockside revenues by year for vessels that landed queen snapper, silk snapper, and blackfin snapper from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught queen snapper, silk snapper, and blackfin snapper	Dockside revenue from queen snapper, silk snapper, and blackfin snapper	Dockside revenue from 'other species' jointly caught with queen snapper, silk snapper, and blackfin snapper	Dockside revenue from 'other species' caught on SATL trips without queen snapper, silk snapper, and blackfin snapper	Total dockside revenue	Average total dockside revenue per vessel
2011	87	\$171,158	\$547,106	\$6,067,941	\$6,786,206	\$78,002
2012	93	\$26,176	\$762,588	\$6,548,914	\$7,337,679	\$78,900
2013	81	\$39,125	\$823,814	\$6,190,689	\$7,053,627	\$87,082
2014	88	\$49,232	\$708,226	\$7,800,782	\$8,558,240	\$97,253
2015	105	\$61,347	\$1,014,691	\$6,622,098	\$7,698,136	\$73,316
Average	91	\$69,408	\$771,285	\$6,646,085	\$7,486,778	\$82,910

Source: SEFSC Coastal Fisheries Logbook (May 2017).

### Gray Triggerfish

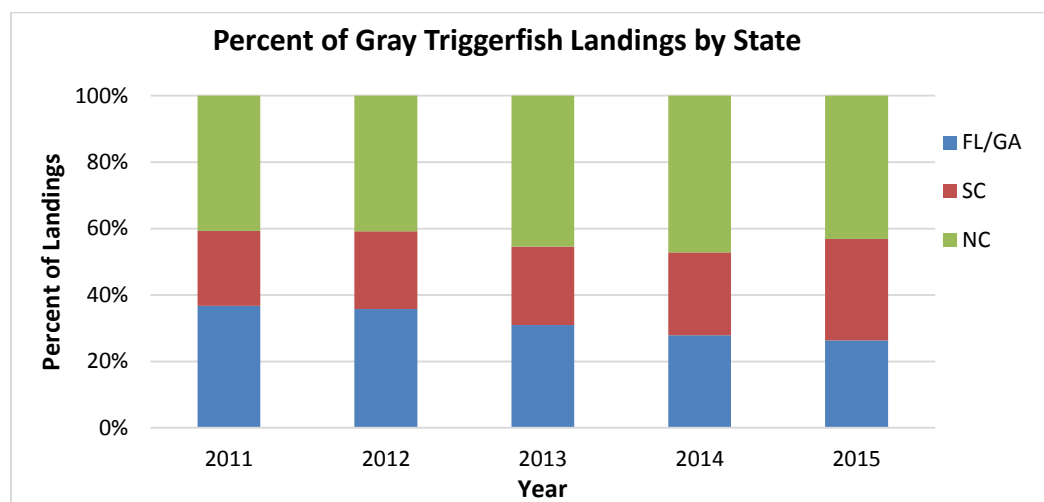
Gray triggerfish is within the triggerfishes group (Balistidae) of the snapper grouper fishery that includes 1 other species. Average monthly commercial landings of gray triggerfish from 2011-2015 are displayed in **Figure 3.3.1.45**. The landings tend to be the highest in the winter and spring months.



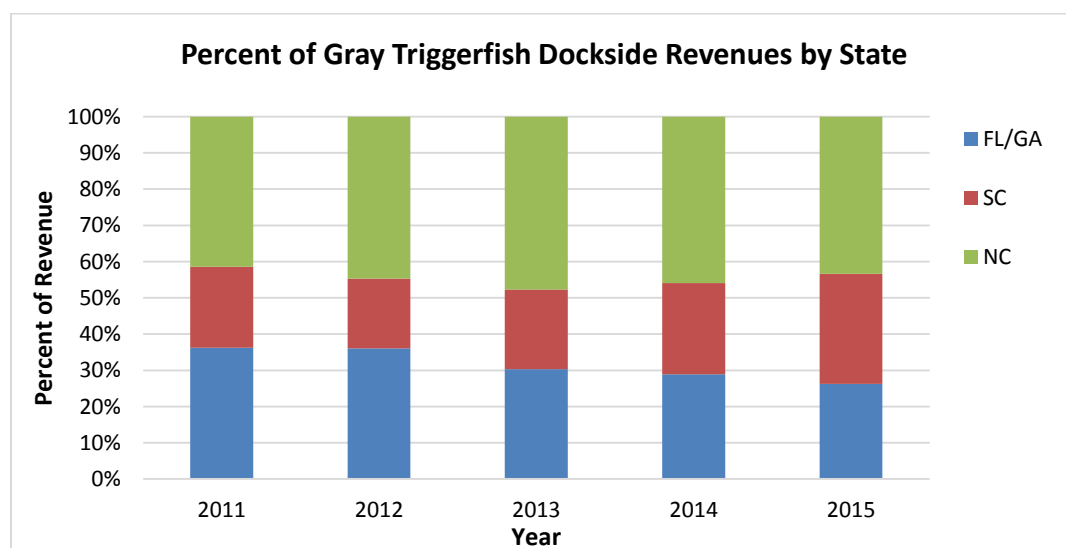
**Figure 3.3.1.45.** Average monthly commercial landings (lbs ww) of gray triggerfish harvested from the South Atlantic, 2011-2015.

Source: NMFS Commercial ALS Dataset.

Among the South Atlantic states, North Carolina accounted for the most gray triggerfish landings both in weight (**Figure 3.3.1.46**) and dockside revenue (**Figure 3.3.1.47**) in most years.

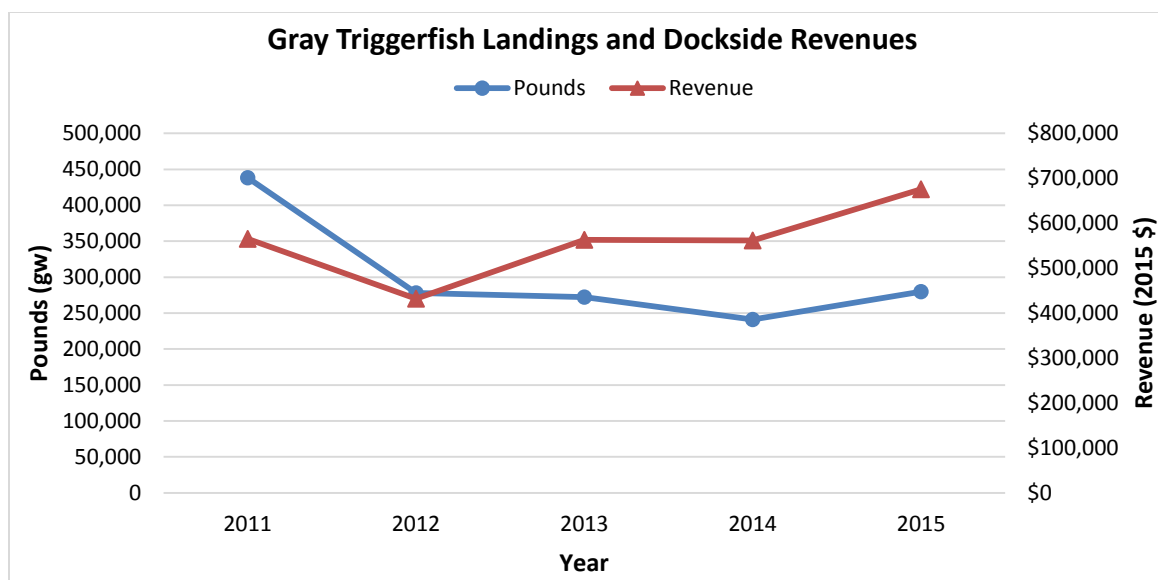


**Figure 3.3.1.46.** Percent of gray triggerfish landings (lbs gw) by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).



**Figure 3.3.1.47.** Percent of gray triggerfish dockside revenues by state, 2011–2015.  
Source: SEFSC Coastal Fisheries Logbook (May 2017).

Annual commercial landings of gray triggerfish in the South Atlantic ranged from approximately 241,000 lbs gw to 438,000 lbs gw and averaged 301,925 lbs gw from 2011 through 2015 (**Figure 3.3.1.48**, **Table 3.3.1.26**). Dockside revenues from those landings ranged from about \$432,000 to \$676,000 and averaged \$559,638 (2015 dollars) (**Figure 3.3.1.48**, **Table 3.3.1.27**). The average dockside price during those five years was \$1.85 per lb gw (2015 dollars) and an annual average of 223 vessels took 1,477 commercial trips landing gray triggerfish. Average annual dockside revenue from gray triggerfish landings represented approximately 13% of total dockside revenue from trips that landed gray triggerfish from 2011 through 2015.



**Figure 3.3.1.48.** Annual commercial landings of gray triggerfish by weight (lbs gw) and dockside revenue (2015 \$).

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.26** Number of vessels, number of trips, and landings by year for vessels that landed gray triggerfish from the South Atlantic, 2011-2015.

Year	Number of vessels that caught gray triggerfish	Number of trips that caught gray triggerfish	Gray triggerfish landings (lbs ww)	Other species' landings jointly caught with gray triggerfish (lbs ww)	Number of SATL trips that only caught other species	Other species' landings on SATL trips without gray triggerfish (lbs ww)
2011	261	2,089	438,323	2,105,110	5,654	3,020,467
2012	245	1,742	277,843	1,623,279	6,298	3,315,056
2013	205	1,153	272,329	1,048,904	5,074	2,929,980
2014	197	979	241,185	732,971	6,335	3,611,562
2015	209	1,424	279,946	1,172,815	4,506	2,235,285
Average	223	1,477	301,925	1,336,616	5,573	3,022,470

Source: SEFSC Coastal Fisheries Logbook (May 2017).

**Table 3.3.1.27.** Number of vessels and gross ex-vessel revenues by year for vessels that landed gray triggerfish from the South Atlantic, 2011-2015 (2015 dollars).

Year	Number of vessels that caught gray triggerfish	Dockside revenue from gray triggerfish	Dockside revenue from 'other species' jointly caught with gray triggerfish	Dockside revenue from 'other species' caught on SATL trips without gray triggerfish	Total dockside revenue	Average total dockside revenue per vessel
2011	261	\$565,293	\$6,591,936	\$525,807	\$7,683,036	\$29,437
2012	245	\$432,329	\$5,043,086	\$635,746	\$6,111,160	\$24,944
2013	205	\$563,354	\$3,360,887	\$1,301,748	\$5,225,989	\$25,493
2014	197	\$561,347	\$2,433,032	\$2,403,220	\$5,397,599	\$27,399
2015	209	\$675,869	\$3,691,134	\$1,006,851	\$5,373,854	\$25,712
Average	223	\$559,638	\$4,224,015	\$1,174,674	\$5,958,328	\$26,597

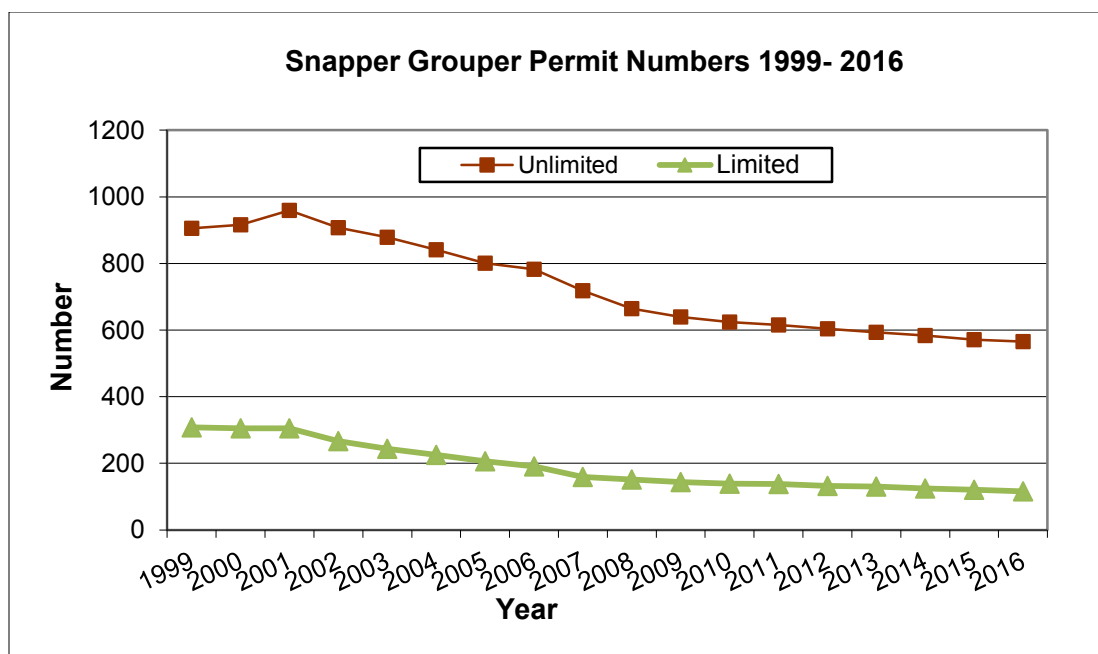
Source: SEFSC Coastal Fisheries Logbook (May 2017).

### **Sources Cited:**

NMFS (National Marine Fisheries Service). 2017. Fisheries Economics of the United States, 2015. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-170, 245p.

## **3.4 Social Environment**

Since 2001, South Atlantic Snapper Grouper Unlimited Permits and Snapper Grouper 225-pound Trip Limit Permits have shown a downward trend (**Figure 3.4.1**) as would be expected with a limited entry program in place since 1998 and a “2 for 1” requirement for new permits. That trend will likely continue as long as the criteria are a continued part of management for the snapper grouper commercial fishery. The decline in the number of permits has slowed in recent years but continues to trend lower with the number of unlimited permits in 2013 going from 593 to 565 in 2016 and limited permits dropping from 130 in 2013 to 116 in 2016.

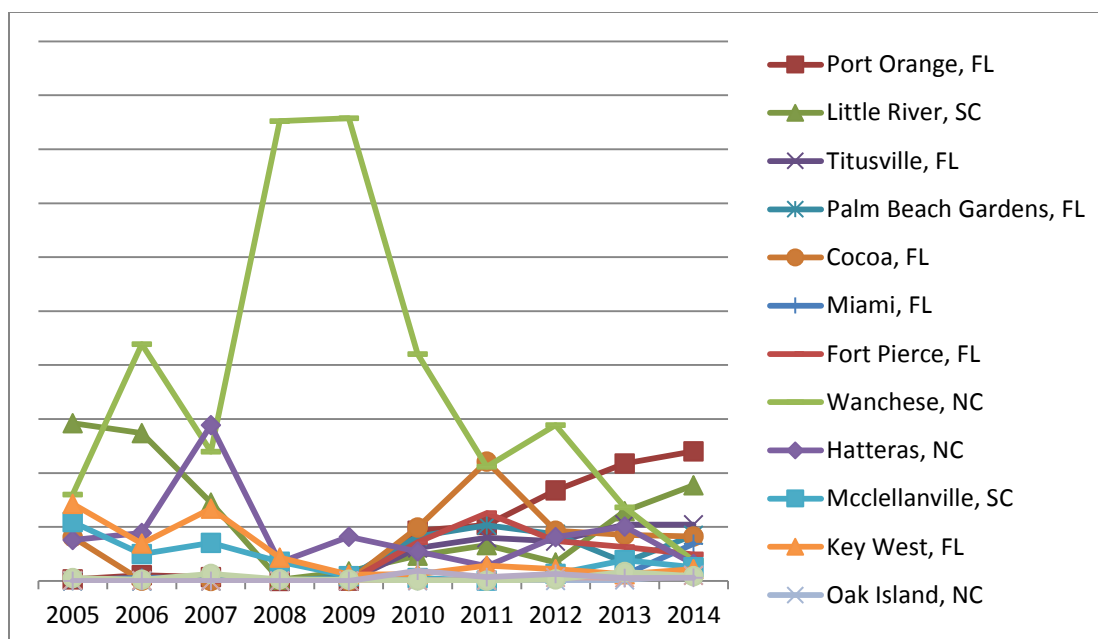


**Figure 3.4.1.** Snapper grouper Unlimited and 225-pound trip limit permits 1999-2016. Source: NMFS SERO Permits (2017).

A regional quotient (RQ) measure was used to identify commercial fishing involvement at the community level by species or species group. The RQ measures the relative importance of a given species or species group across all communities in the region and represents the proportional distribution of commercial landings. This proportional measure does not provide the actual number of pounds or the value of the catch; data that might be confidential at the community level. The RQ is calculated by dividing the total pounds (or value) of a species landed in a given community, by the total pounds (or value) for that species for all communities in the region. The measure is a way to quantify the importance of a particular species or species group to communities around the South Atlantic and suggest where impacts from management actions are more likely to be experienced. The time series for the describing the RQ was from 2005 to 2014. The data used for the RQ measure were assembled from the accumulated landings system (ALS), which includes commercial landings of all species from both state and federal waters and is based on dealers' reports. These data were converted to provide landings by (dealer's) address.

The communities that are most highly involved in the blueline tilefish fishery are listed in **Figure 3.4.2**. For most communities, involvement in the blueline tilefish fishery has remained fairly stable over time. Yet, some communities, like Wanchese, NC has seen some rather significant swings in participation over time with a spike in landings in 2008 and 2009 and a steep decline since. Little River, SC was the top community in 2005 and saw a decline in landings in 2008 and 2009, but most recently has seen a rise in RQ and is second to Port Orange Florida, which has seen a steady rise in its RQ since 2009.

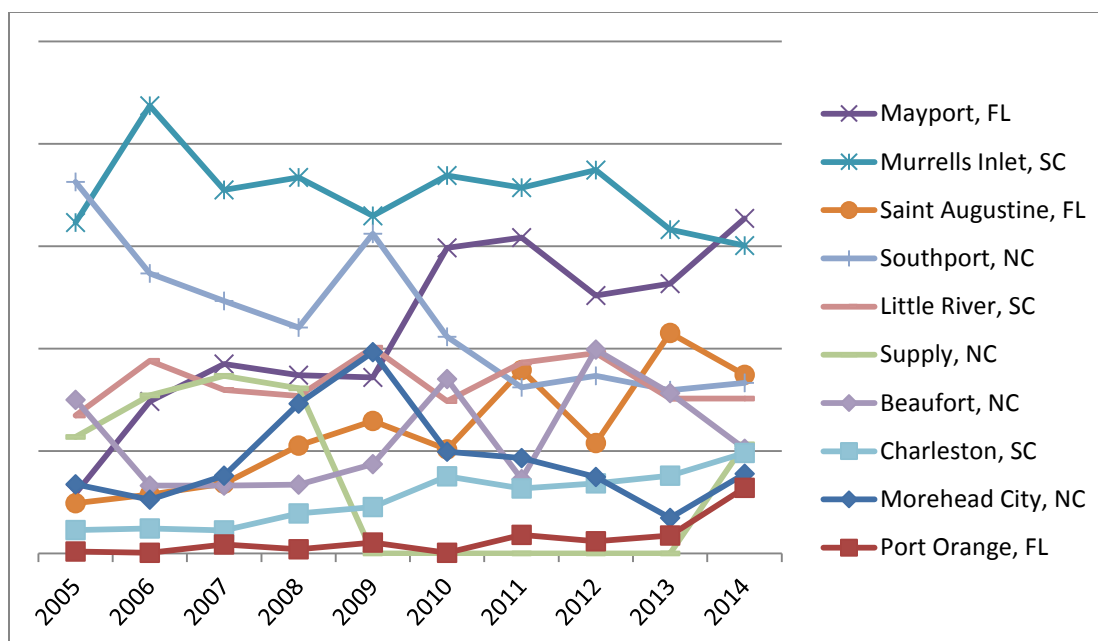




**Figure.3.4.2.** Blueline Tilefish community RQ for pounds from 2005 to 2014 ranked initially by 2014 top ten.

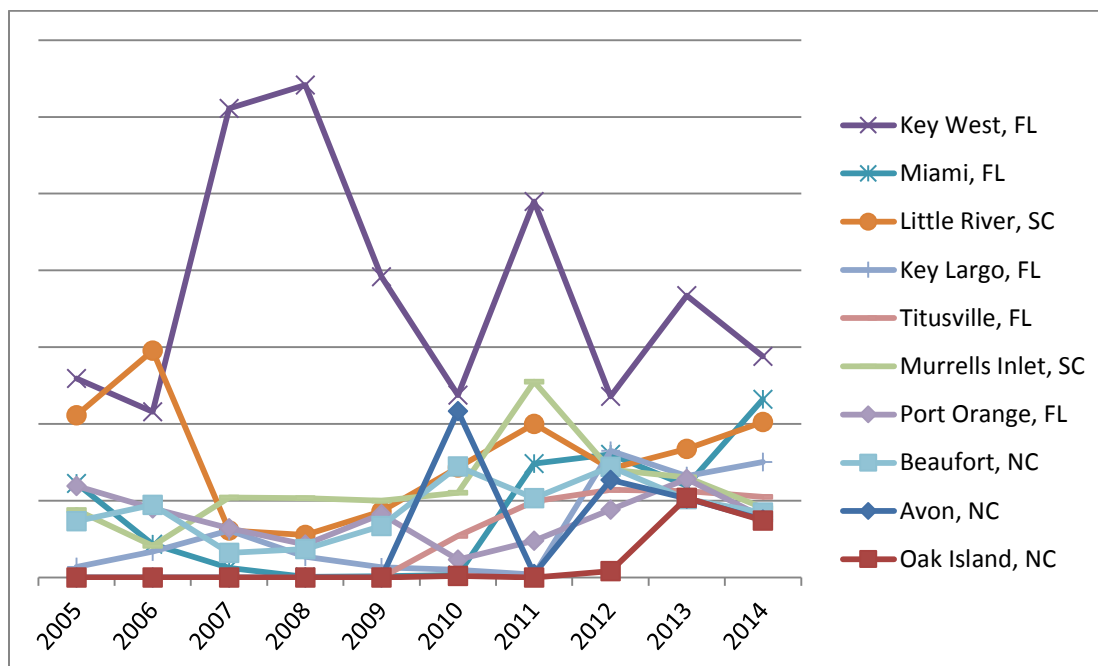
Source: NMFS SERO ALS Database (with dealer address) (2017).

The top communities currently involved in the harvest of red porgy are depicted in **Figure 3.4.3**. The red porgy fishery does not exhibit swings in RQ as great as those in blueline tilefish, but there are some communities with substantial increases and decreases over time. The community of Mayport has seen a rather steady increase in its landings of red porgy since 2005 and is now ranked ahead of Murrell's Inlet, SC which had held to the top spot for most of the timeframe. The community of Southport, NC once was the top community in red porgy landings but has seen a steady decline and now ranks just below St. Augustine, FL. Supply, NC saw a significant drop in 2009 from which it has only recently recovered and is now even with Beaufort, NC and Charleston, SC.



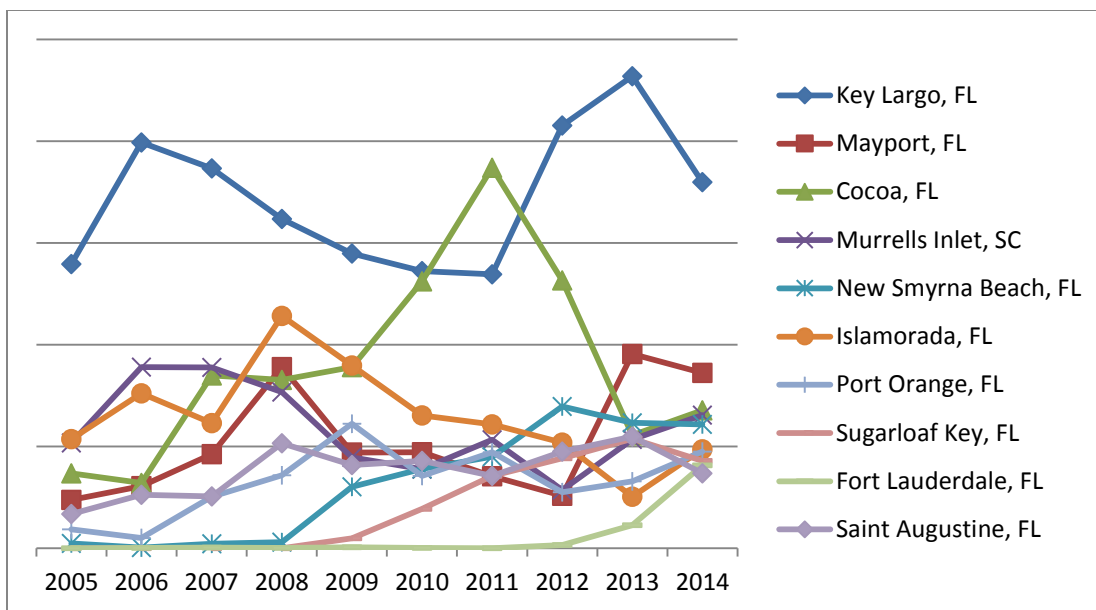
**Figure 3.4.3.** Red pogy community RQ for pounds from 2005 to 2014 ranked initially by 2014 top ten. Source: NMFS SERO ALS Database (with dealer address) (2017).

The communities involved in harvesting snow grouper (**Figure 3.4.4**) demonstrate some large fluctuations in RQ similar to those seen in blueline tilefish. The community of Key West, FL has remained the top community, but has seen dramatic increases and declines in RQ over time. Little River, SC has also seen substantial changes over time, but not of the same magnitude as Key West. Many communities have seen a recent increase in their landings since 2012.



**Figure 3.4.4.** Snowy grouper community RQ for pounds from 2005 to 2014 ranked initially by 2014 top ten.  
Source: NMFS SERO ALS Database (with dealer address) (2017).

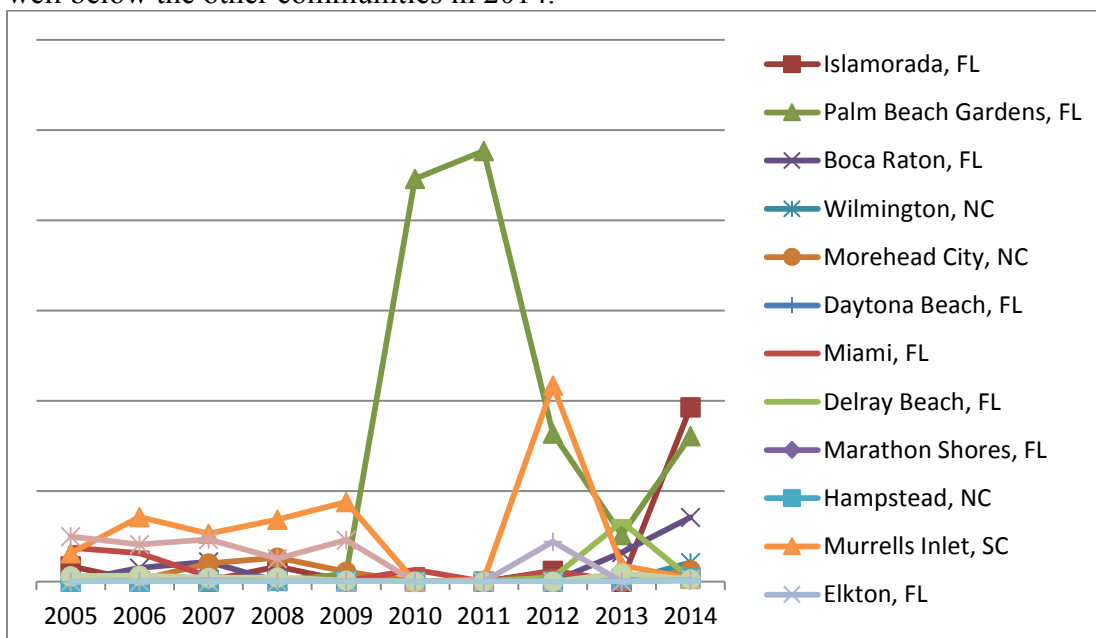
Communities harvesting greater amberjack seem to also demonstrate large fluctuations over time in their harvesting of that species (**Figure 3.4.5**). The community of Key West, FL is the top community in 2014 and was in 2005, but was surpassed by Cocoa, FL in 2011, but has since seen a big increase in RQ since then. Cocoa, FL, on the other hand, has seen a significant drop in its RQ since then but still ranks third in RQ in 2014. Mayport, FL was once ranked fifth in terms of its RQ for greater amberjack and is ranked second in 2014. The community of Islamorada, FL was third in 2005 and has since dropped to sixth in terms of its RQ for greater amberjack.



**Figure.3.4.5.** Greater amberjack community RQ for pounds from 2005 to 2014 ranked initially by 2014 top ten.

Source: NMFS SERO ALS Database (with dealer address) (2017).

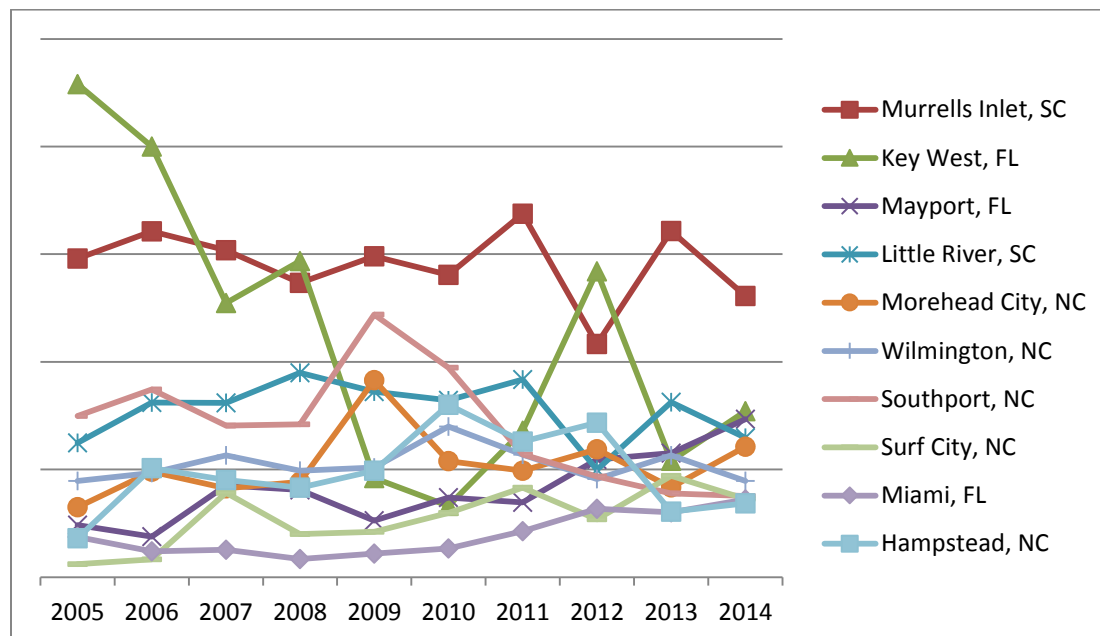
The harvest of other jack species in **Figure 3.4.6** shows a rather stable trend for community RQ in the early years, but after 2009 there seems to be large fluctuations for some communities. The community of Palm Beach shows a significant increase in its pounds RQ for other jacks in 2010 and just as significant decline afterward with a mild recovery to rank just below Islamorada, FL in 2014. Murrells Inlet, SC saw a sharp increase in 2012 but has since dropped well below the other communities in 2014.



**Figure.3.4.6.** Other jack community RQ for pounds from 2005 to 2014 ranked initially by 2014 top ten.

Source: NMFS SERO ALS Database (with dealer address) (2017).

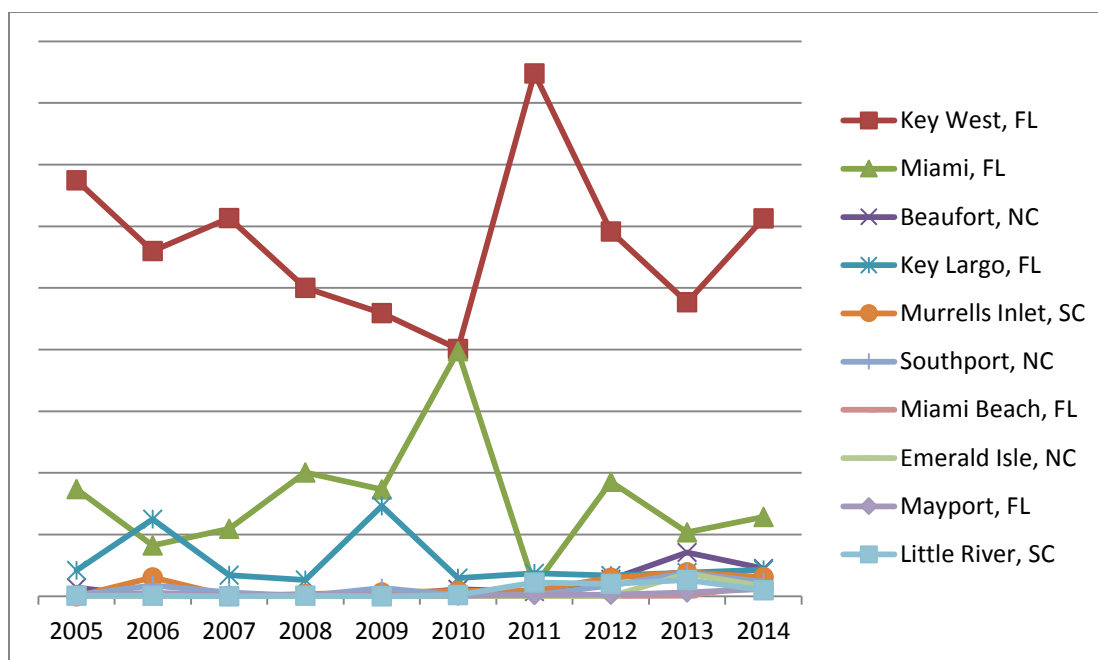
While most communities have demonstrated a fairly stable trend in their RQ for shallow water groupers in **Figure 3.4.7**, Key West, FL has seen a rather steady decline in its landings of those species. Murrells Inlet, SC has remained at the top with some slight fluctuations over time, yet Key West is ranked second but much farther behind Murrells Inlet. Mayport, FL has experienced a stable rise in its RQ for shallow water groupers rising from near the bottom in 2005 to third in 2014.



**Figure.3.4.7.** Shallow water groupers community RQ for pounds from 2005 to 2014 ranked initially by 2014 top ten.

Source: NMFS SERO ALS Database (with dealer address) (2017).

The community of Key West, FL has remained the top community in terms of harvest for the selected deep water species (queen snapper, silk snapper, and blackfin snapper) in **Figure 3.4.8**. Over time, there have been rather steady declines and sharp increases however. Miami, FL did see a spike in its RQ for the selected deep water species in 2010, but has since dropped in its ranking, although still second, well below Key West. The other communities involved have rather stable involvement, but well below the top community of Key West.



**Figure.3.4.8.** Selected deep water species community RQ for pounds from 2005 to 2014 ranked initially by 2014 top ten.  
Source: NMFS SERO ALS Database (with dealer address) (2017).

## **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 ASMFC 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. Establish a commercial split season for blueline tilefish

### 4.1.1 Biological Effects

**Action 1** would divide the commercial fishing season for blueline tilefish into two time periods. The purpose of **Action 1** would be to provide opportunities to fish for blueline tilefish throughout the South Atlantic and throughout the calendar year.

**Alternative 1 (No Action)** would maintain the current commercial fishing year from January 1 through December 31, or when the commercial ACL is met or projected to be met. In-season closures of commercial harvest have taken place when the commercial ACLs have been exceeded since 2012, with 2013 as an exception (**Table 4.1.1.1**).

**Alternatives 2 and 3** would allocate the commercial blueline tilefish ACL into seasonal quotas. By dividing the commercial ACL into two six-month fishing quotas, fishermen would be given the opportunity to fish for blueline tilefish throughout the fishing year. The divided commercial quota would provide fishermen in the northern and southern areas of the South Atlantic a chance to fish for blueline tilefish when weather conditions are favorable in their respective areas.

It is difficult to evaluate the alternatives given the unspecified percentages for dividing the commercial ACL into seasonal quotas. Further, due to recent quota closures (**Table 4.1.1.1**), data were not available from recent years to inform Season 2 landings. Blueline tilefish management has been very dynamic over the past few years, with many regulatory changes including a prohibition of harvest beyond 240 fathoms in 2011 (Amendment 17B, SAFMC 2010b). The input data available for forecasting future landings have consequently been

#### *Alternatives\**

1. No Action. The commercial fishing year for blueline tilefish in the South Atlantic EEZ is from January 1 to December 31.

2. Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

3. Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

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

affected, which has implications for the reliability of analyses. In general, the most recent year is probably the best available predictor of future trends.

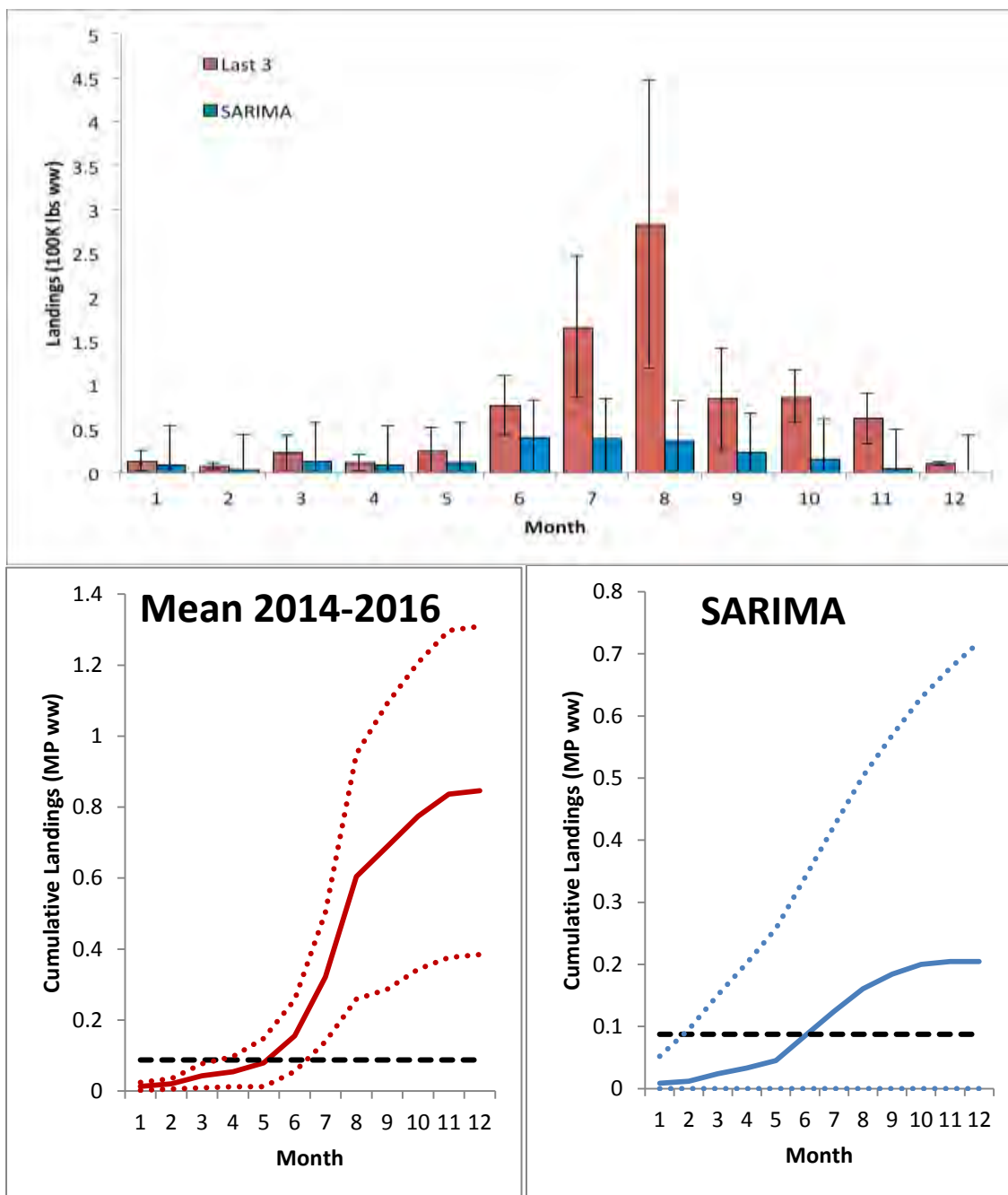
**Table 4.1.1.1.** Blueline tilefish recent landings (lbs ww) and quota closures. 2017

Fishing Year	Current Landings	ACL	%ACL	Closure Date
2017*	35,464	87,521	40.52	
2016*	101,043	87,521	115.45	6/1/16; reopened 7/13/16, closed 8/30/16
2015	78,802	17,841	441.69	4/7/2015
2014	143,942	112,207	128.28	6/23/2014
2013	309,411	376,469	82.19	
2012	378,667	343,869	110.12	9/8/2012

Source: SERO ACL Monitoring Webpage. \*Data are preliminary

Two projection models were developed: (1) based on the last three years of data (2014-2016; “Last 3”), and (2) a seasonal auto-regressive integrated moving average (SARIMA) model fit to landings data from 1997-2016. Projected mean and 95% confidence intervals for daily catch rates were expanded into estimates of monthly landings by multiplying by the number of days in each month. Commercial discards were estimated by month using the SEFSC Commercial Logbook and Supplemental Discard Logbook (accessed May 2017) to develop a discard rate in numbers of fish per unit effort, by species, gear, and region, and expand that rate to the total effort in the fishery by gear and region. For a more detailed explanation of these methods, please refer to **Appendix J**.

Peak blueline tilefish landings were projected for August, followed by July (**Figure 4.1.1.1**). Projections using the Last 3 model anticipated 50% of the ACL would be reached in April (95% CI: Mar-July). SARIMA projections estimated 50% of the ACL would be reached in May (95% CI: Jan-Dec). Due to recent dynamic changes in the fishery and challenges accounting for the imposition of a 300-lb trip limit in July 2016, there is substantial uncertainty in these projections.



**Figure 4.1.1.1.** Blueline tilefish projected commercial landings (MP: million pounds, whole weight) under Alternative 1 (No Action) by month (top) and mean (solid line) and 95% confidence limits (dotted lines) estimates for cumulative landings relative to ACL (bottom, dashed line) for two projection models: Mean of last 3 years (2014-2016) and SARIMA.

Spawning seasons and months of peak spawning activity for select snapper grouper species in the South Atlantic are presented in **Table 4.1.1.2**.

**Table 4.1.1.2.** Timing of spawning (gray shading) and peak spawning (black shading) for exploited Atlantic Ocean reef fish stocks off the southeastern United States.

Months in bold denote core SERFS core fishery-independent sampling months.

Stock	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Citation
Gray triggerfish													[19]
Greater amberjack													[7]
White grunt													[14, 17]
Cubera Snapper													WDH, pers. comm.
Red snapper													[17, 19]
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)													[6, 17]
Snowy grouper													[16, 19]
Speckled hind													[20]
Warsaw Grouper													[11, 17]
Red porgy													[3, 17]

doi:10.1371/journal.pone.0172968.t006

Source: Farmer et al. 2017 and references therein.

Mean monthly estimates of commercial discards for the affected species in this amendment, including blueline tilefish, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. From 2014-through 2016, discards of blueline tilefish peaked in April followed by August and September, the latter due to early closure of commercial harvest during those years.

The biological impacts of a split season for blueline tilefish under **Alternative 2** or **Alternative 3** are likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas, and accountability measures would be triggered if the ACL or quotas were exceeded. Dividing the ACL into two time periods could result in blueline tilefish being open for a short period of time, and might encourage derby conditions relative to **Alternative 1 (No Action)**. Discards of blueline tilefish and co-occurring species, such as snowy grouper, might be expected after quotas are met under **Alternatives 2** and **3**. An increase in bycatch of both blueline tilefish and snowy grouper could be reduced if commercial split seasons coincide (snowy grouper commercial split season is considered under **Action 3**).

**Table 4.1.1.3.** Mean monthly estimates of discards (numbers of fish) from all South Atlantic commercial trips (2014-2016) based on self-reported discard rates (SEFSC Supplemental Discard Logbook, accessed May 2017) expanded to overall South Atlantic commercial fishing effort (SEFSC Commercial Logbook, accessed May 2017), aggregated across all gears.

Note that SEDAR has found this approach consistently underestimates discarded fish relative to observer data in the Gulf of Mexico.

Month	Blueline Tilefish	Red Porgy	Snowy Grouper	Greater Amberjack	Vermilion Snapper	Jacks	SWG	DWS	Gray Triggerfish
1	0.00	2,784.62	21.79	126.52	112.93	14.60	361.09	0.00	5.33
2	2.38	2,950.04	9.69	100.28	10.54	9.20	404.17	0.00	97.35
3	2.04	2,732.02	31.40	105.94	68.95	4.93	557.48	0.61	6.12
4	1,558.58	1,405.03	17.00	31.43	67.77	0.54	368.23	0.00	87.54
5	456.90	599.67	61.73	467.96	581.99	32.44	1,335.87	0.00	301.74
6	276.24	287.47	87.23	521.50	325.87	99.53	579.78	0.00	119.99
7	11.35	364.42	50.90	258.53	643.80	254.69	971.22	0.00	492.58
8	805.09	636.27	19.76	233.53	176.77	582.11	901.70	0.00	722.74
9	1,146.26	202.66	13.41	168.20	229.39	439.25	1,088.71	0.00	526.26
10	0.00	43.29	1.70	223.60	617.30	587.64	1,224.53	0.00	49.79
11	0.00	14.12	22.80	24.84	1,356.20	65.21	1,360.18	0.00	141.87
12	0.00	39.50	1.57	31.26	904.97	152.30	615.67	0.00	106.90

SWG: Shallow-water grouper (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney),  
DWS: Deep-water snapper (blackfin, queen, silk snapper).

#### **4.1.2 Economic Effects**

#### **4.1.3 Social Effects**

A description of the communities that would most likely be affected by changes in commercial management of blueline tilefish is included in **Section 3.4**. Blueline tilefish is under restrictive catch limits, and a split season under **Alternatives 2 and 3** may help to extend commercial harvest longer than under **Alternative 1 (No Action)**. In general, a split season (**Alternatives 2 and 3**) would be most beneficial for fishermen targeting other species in the beginning of the year, because it would ensure that a portion of the commercial ACL would be available later in the year. Establishing a split season under **Alternatives 2 and 3** could result in fishermen shifting effort to or from a certain species (including targets on multi-species trips) based on economic, regulatory, biological, or environmental changes in the fishery resulting from changes in access to the blueline tilefish resource.

Because the ACL for blueline tilefish is already low, split seasons could generate (or perpetuate) derby conditions. In addition to concerns about safety at sea that arise from the race to fish, a derby could result in a large amount of blueline tilefish on the market in a very short period of time. This may cause reduced market value and lower product quality, and the bust-and-boom nature of the commercial blueline tilefish sector may hinder business stability and steady job opportunities for captain and crew. Overall, the positive and negative effects on commercial fishermen of establishing a split season under **Alternatives 2 and 3** will depend on the proportion of the ACL for each season, the length of each season, and the likelihood of commercial harvest being open during times of the year when it is profitable to target blueline tilefish.

#### **4.1.4 Administrative Effects**

**Alternative 1 (No Action)** would not change the administrative environment from its current state. Currently, there is a commercial quota monitoring system in place for blueline tilefish that is utilized to monitor landings against the commercial quota. Since 2012, with 2013 as an exception, commercial harvest has closed early due to landings reaching the ACL prior to the end of the fishing year. If total effort in the fishery remains consistent, it is likely the fishery would reach the ACL prior to the end of the fishing year. Therefore, fishery managers will have to continue to prepare and issue fishery closure notices. Additionally, enforcement personnel would have to monitor the closures. With an in-season closure, there is potential that the landings do not reach 100% of the ACL. In that circumstance, guidance from the South Atlantic Council to NMFS recommended that the fishery should reopen if landings are less than 95% of the ACL and the projected number of days that the fishery can reopen to meet the ACL is two or more days. Therefore, NMFS would have to monitor the landings and prepare a reopen notice.

**Alternatives 2 and 3**, would divide the commercial ACL into quotas over two commercial fishing seasons. Of the three alternatives considered for management of blueline tilefish, **Alternatives 2 and 3** would impose the most significant, direct administrative burden. Ongoing

monitoring of the new annual commercial quota would be required. If the quota for each season is close to being met or exceeded, NMFS would have to prepare and issue fishery closure notices twice as often as they would be required under **Alternative 1 (No Action)**. Additionally, enforcement personnel would be burdened with an increase in potential fishery closures, which they would have to monitor. Outreach materials would take the form of fishery bulletins and possible updates to NOAA Fisheries Service Southeast Region's web site to modify the fishing year start date. As with **Alternative 1 (No Action)**, there is twice the potential under **Alternatives 2 and 3** that the fishery would need to be reopened so that landings could reach the ACL.



## 4.2 Action 2. Establish a commercial split season for red porgy

### 4.2.1 Biological Effects

**Action 2** would divide the commercial fishing season for red porgy into two time periods to provide opportunities to fish for red porgy throughout the South Atlantic and throughout the calendar year (if the spawning season closure were to be removed).

**Alternative 1 (No Action)** would maintain the current commercial fishing year from January 1 through December 31, or when the commercial annual catch limit (ACL) is met or projected to be met, with a seasonal harvest restriction from January through April.

**Alternative 2** would maintain the seasonal harvest restriction, and the sub-alternatives would allocate the commercial red porgy ACL into seasonal quotas.

**Alternative 3** would remove the seasonal harvest restriction, and the sub-alternatives would allocate the commercial red porgy ACL into seasonal quotas.

It is difficult to evaluate the alternatives given the unspecified percentages for dividing the commercial ACL into seasonal quotas. Similar to blueline tilefish (Action 1), commercial landings data were converted to daily catch rates within months for 1997-2016. There has been only one recent

### *Alternatives\**

1 (No Action). The commercial fishing year for red porgy in the South Atlantic federal waters is from January 1 to December 31. During January, February, March, and April, the seasonal harvest limit of red porgy in or from South Atlantic federal waters is three per person per day or three per person per trip, whichever is more restrictive. From May 1 through December 31, the trip limit is 120 fish.

2. Maintain the annual January 1 to April 30 seasonal harvest limit for red porgy.

Sub-Alternative 2a. Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

Sub-alternative 2b. Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

3. Remove the annual January 1 to April 30 seasonal harvest limit for red porgy.

Sub-Alternative 3a. Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

Sub-Alternative 3b. Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

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

quota closure for red porgy (**Table 4.2.1.1**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model fit to landings data 1997-2016. For the Last 3 model, landings in the event of a January-April opening of the fishery were extrapolated from mean 2014-2016 May landings using the mean ratio of May landings to Jan-Apr landings 1986-1999 (the final year the fishery was open January-April). In the SARIMA model, January-April catch rates were left blank from 2000-present, allowing the model to freely estimate these parameters from the input time series. For a more detailed explanation of the methods, please refer to **Appendix J**.

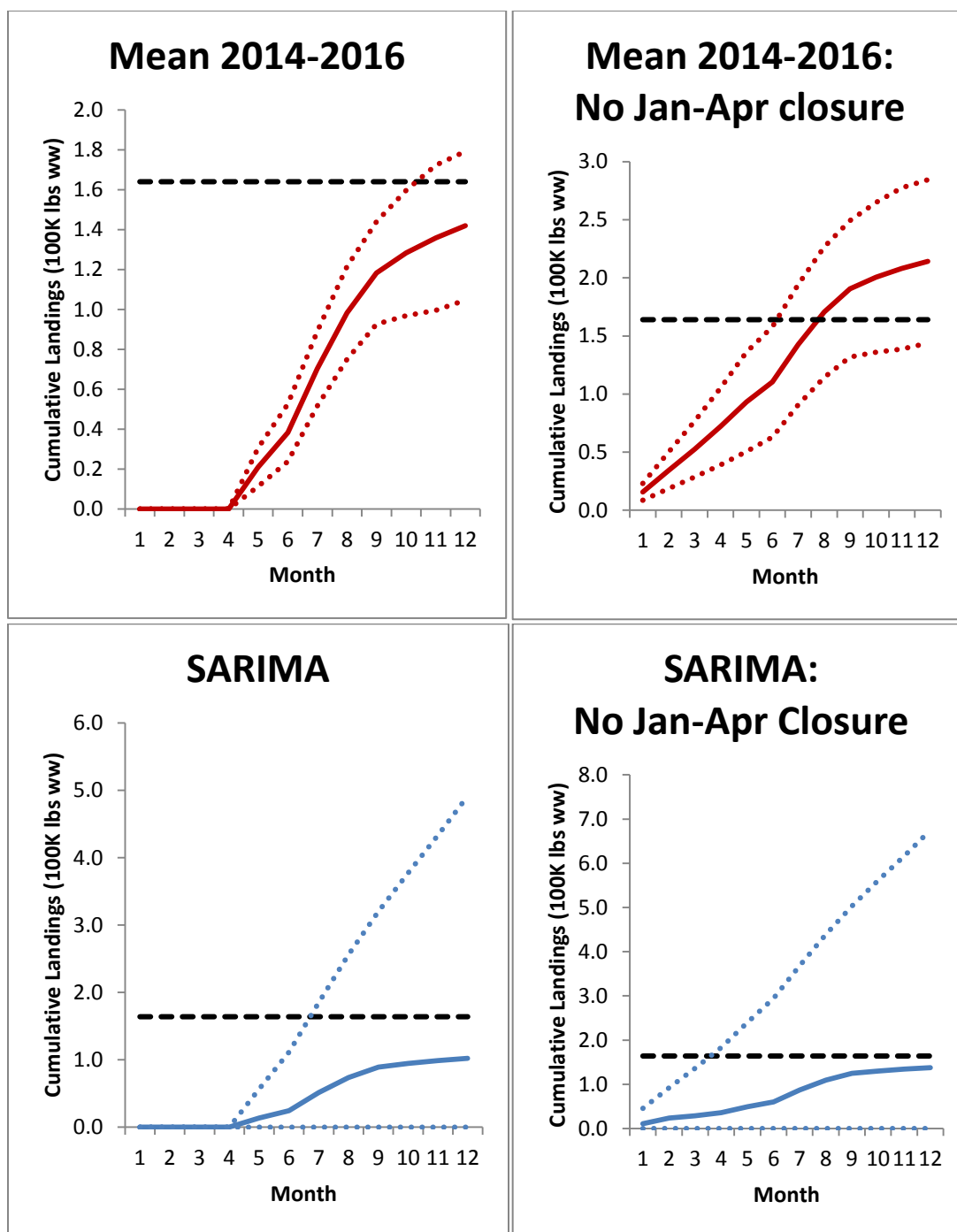
**Table 4.2.1.1.** Red porgy recent landings (lbs) and quota closures.

Year	Landings	ACL	Units	%ACL	Closure
2016	115,235	164,000	ww	70.27	
2015	134,185	164,000	ww	81.82	
2014	142,406	154,500	ww	92.17	
2013	155,967	153,000	gw	101.94	12/02/13
2012	155,346	190,050	gw	81.74	
2011	195,049	190,050	gw	102.63	
2010	152,743	190,050	gw	80.37	
2009	158,221	190,050	gw	83.25	
2008	165,461	127,000	gw	130.28	
2007	136,382	127,000	gw	107.39	
2006	80,293	127,000	gw	63.22	
2005	46,844	None	gw		
2004	47,848	None	gw		

Source: SERO ACL Monitoring Webpage.

Under **Alternative 1 (No Action)**, with a January-April closure, 50% of the commercial ACL (164,000 lbs ww) is projected to be caught by August (95% CI: July-Dec) or Sept (95% CI: June-No closure) by the Last 3 and SARIMA models, respectively (**Figure 4.2.1.1: left**). From January through June, 38,247 lbs ww (95% CI: 23,862-52,632 lbs ww) to 24,646 lbs ww (95% CI: 0-111,485 lbs ww) is projected to be caught by the Last 3 and SARIMA models, respectively.

Without a January-April closure, 50% of the ACL is projected to be caught by May (95% CI: Apr-July) or July (95% CI: Feb-Dec 31) by the Last 3 and SARIMA models, respectively (**Figure 4.2.1.2: right**). From January through June, 110,456 lbs (95% CI: 63,041-157,871 lbs ww) to 60,393 lbs ww (95% CI: 0-294,705 lbs ww) is projected to be caught by the Last 3 and SARIMA models, respectively. The wide confidence intervals for these projections indicate the substantial uncertainty in the predictions, especially for the impacts of removing the January-April closure, which has been in place since 2000 (Amendment 9; SAFMC 1998).



**Figure 4.2.1.1.** Mean (solid line) and 95% confidence limits (dotted lines) for red porgy projected cumulative landings relative to ACL (dashed line), with and without Jan-Apr closure, for two projection models: Mean of last 3 years (2014-2016) and SARIMA.

Mean monthly estimates of commercial discards for the affected species in this amendment, including red porgy, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. Red porgy discards from 2014 through 2016 were high during the spawning season closure (January through April) with a peak in February.

Eighty-two percent of annual red porgy discards were during January-April. High discards were also observed in August, possibly tied to harvest of vermilion and gray triggerfish.

In the South Atlantic, red porgy spawn from January through May and spawning activity peaks from January through March (**Table 4.1.1.2**); hence, the current January-April prohibition on commercial harvest captures the majority of the spawning season for this species. However, during this time, harvest for other two co-occurring species, vermilion snapper and gray triggerfish, is open. Consequently, fishermen report high numbers of red porgy discards during this time period, as evidenced in **Table 4.1.1.2**. The discard mortality rate applied to the commercial fleet in the latest update assessment (SEDAR 1 2012 Update) was 35%. Thus it appears that the current spawning season closure may not be effectively protecting spawning fish due to concurrent harvest of co-occurring species. As mentioned above, however, there is considerable uncertainty in predicting the effects of removing the closure on the level of commercial catch. Based on the current analysis, the commercial ACL might be reached near the beginning of Season 2 (**Figure 4.2.1.2**). Under that scenario, discards of red porgy could continue after the fishery closes if harvests of vermilion snapper and gray triggerfish are ongoing. Unless a commercial split season were to significantly reduce the level of red porgy discards, the biological impacts of a split season for red porgy are likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas, and AMs would be triggered if the ACL or quotas were exceeded.

## 4.2.2 Economic Effects

### 4.2.3 Social Effects

A description of the communities that would most likely be affected by changes in commercial management of red porgy is included in **Section 3.4**. Red porgy is under restrictive catch limits, and a split season under **Alternatives 2 and 3** may help to extend commercial harvest longer than under **Alternative 1 (No Action)**. The benefits of the split season would depend on the ACL and the rate of harvest, along with the harvest limit for January 1- April 30.

Overall, the positive and negative effects on commercial fishermen of establishing a split season under **Alternatives 2 and 3** will depend on the proportion of the ACL for each season, the length of each season, and the likelihood of commercial harvest being open during times of the year when it is profitable to target red porgy. Maintaining the current restricted harvest limit for January 1- April 30 under **Alternative 2** may reduce some of the benefits to the commercial fleet, but will also slow the rate of harvest for season 1 more so that the harvest limit under **Alternative 3**.

### 4.2.4 Administrative Effects

**Alternative 1 (No Action)** would not change the administrative environment from its current state. Currently, there is a commercial quota monitoring system in place for red porgy that is utilized to monitor landings against the commercial quota. Since 2007, landings have reached at least 70% of the ACL, and closed in 2013 prior to the end of the fishing year when the ACL was met. If total effort in the fishery remains consistent, it is possible the fishery could reach the ACL prior to the end of the fishing year. Therefore, NMFS would need to prepare and issue fishery closure notices. Additionally, enforcement personnel would have to monitor the closures. With an in-season closure, there is potential that the landings do not reach 100% of the ACL. In that circumstance, guidance from the South Atlantic Council to NMFS recommended that the fishery should reopen if landings are less than 95% of the ACL, and the projected number of days that the fishery can reopen to meet the ACL is two or more days. Therefore, NMFS would have to monitor the landings and prepare a reopen notice.

**Alternative 2** would maintain the seasonal harvest restriction, and **Alternative 3** would remove the restriction. The sub-alternatives for **Alternatives 2 and 3** would divide the commercial ACL into quotas over two commercial fishing seasons. Of the three alternatives considered for management of red porgy, **Alternatives 2 and 3** would impose the most significant, direct administrative burden. Ongoing monitoring of the new annual commercial quota would be required. However, if the quota for each season is close to being met or exceeded twice each year, fishery managers will have to prepare and issue fishery closure notices twice as often as they would be required to do under **Alternative 1 (No Action)**. Additionally, enforcement personnel would be burdened with an increase in potential fishery closures, which they would have to monitor. Outreach materials would take the form of fishery bulletins and possible updates to NOAA Fisheries Service Southeast Region's web site to modify the fishing

year start date. As with **Alternative 1 (No Action)**, there is twice the potential under **Alternatives 2 and 3** that the fishery would need to be reopened so that landings could reach the ACL.

## 4.3 Action 3. Establish a commercial split season for snowy grouper

### 4.3.1 Biological Effects

**Action 3** would divide the commercial fishing season for snowy grouper into two time periods to provide opportunities to fish for snowy grouper throughout the South Atlantic and throughout the calendar year.

**Alternative 1 (No Action)** would maintain the current commercial fishing year from January 1 through December 31, or when the commercial ACL is met or projected to be met. In-season closures of commercial harvest have taken place when the ACLs have been exceeded since 2012 (**Table 4.3.1.1**).

**Alternatives 2 and 3** would allocate the commercial snowy grouper ACL into seasonal quotas. By dividing the commercial ACL into two quotas, fishermen would be given the opportunity to fish for snowy grouper throughout the fishing year. The divided commercial quota would provide fishermen in the northern and southern areas of the South Atlantic a chance to fish for snowy grouper when weather conditions are favorable in their respective areas.

It is difficult to evaluate the alternatives given the unspecified percentages for dividing the commercial ACL into seasonal quotas. Similar to blueline tilefish (Action 1), commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for snowy grouper (**Table 4.3.1.1**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model. In the Last 3 model, the ratio of September to October-December landings 2010-2012 was used to generate extrapolated catch estimates for October-December due to quota closures in the 2014-2016 period. No data adjustments were made for the change in trip limit from 100 lbs to 200 lbs in August 2015. For the SARIMA model, a covariate was introduced for the trip limits of 2,500 lbs (1994-Sept 2006), 275 lbs (Oct 2006-Dec 2006), 175 lbs (2007), 100 lbs (2008-July 2015), and 200 lbs (Aug 2015-on). Based on commercial logbook self-reported catch records, some trips with harvest above the status quo trip limit were identified in each year 2010-2015. For a more detailed explanation of the methods, please refer to **Appendix J**.

#### *Alternatives\**

1 No Action. The commercial fishing year for snowy grouper in the South Atlantic federal waters is from January 1 to December 31.

2. Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

3. Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

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

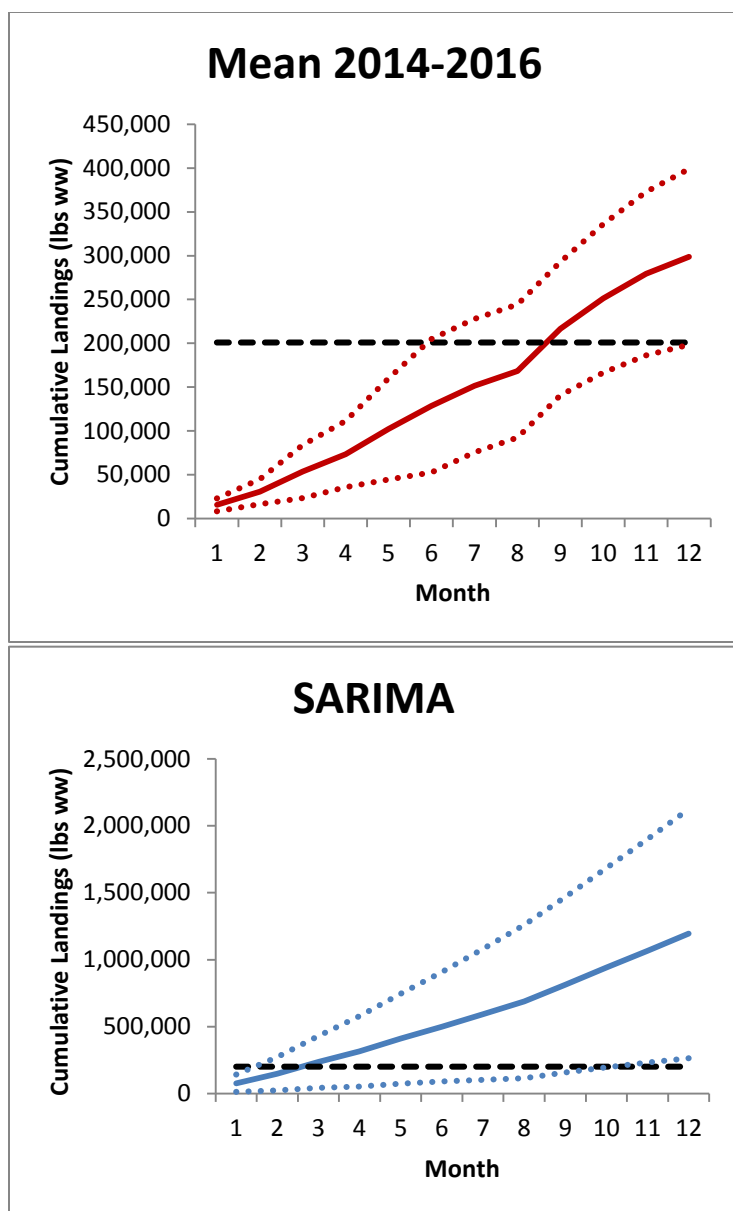
**Table 4.3.1.1.** Snowy grouper recent landings (lbs) and quota closures.

Year	Landings	ACL	Units	%ACL	Closure
2017	70,394	135,380	gw	24.34	
2016	46,615	125,760	gw	116.58	6/14/2016
2015	125,777	115,451	gw	108.94	9/22/2015
2014	92,101	82,900	gw	111.1	7/25/2014
2013	79,479	82,900	gw	95.87	8/10/2013
2012	89,048	82,900	gw	107.42	12/19/2012
2011	37,338	82,900	gw	45.04	
2010	86,693	82,900	gw	104.58	
2009	75,614	82,900	gw	91.21	
2008	72,774	84,000	gw	86.64	
2007	111,994	118,000	gw	94.91	
2006	213,813	151,000	gw	141.6	10/23/2006
2005	206,638	344,508	gw	59.98	
2004	220,958	344,508	gw	64.14	

Source: SERO ACL Monitoring Webpage.

The numerous recent changes in trip limits and other regulations for snowy grouper likely make past data a poor predictor of future trends. Under **Alternative 1 (No Action)**, the ACL is anticipated to be met by September (95% CI: June-No Closure) or March (95% CI: Feb-Nov) by the Last 3 and SARIMA models, respectively (**Figure 4.3.1.1**). The Last 3 model predicts 50% of the ACL will be achieved by May (95% CI: Apr-Sept); the SARIMA model predicts 50% of the ACL will be met by Feb (95% CI: Jan-July). The broad confidence intervals for these predictions and the recent changes in the trip limit indicate high uncertainty in these predictions and they should be interpreted with caution.





**Figure 4.3.1.1.** Mean (solid line) and 95% confidence limits (dotted lines) for snowy grouper projected cumulative landings under Alternative 1 (No Action) relative to ACL (dashed line) under two projection models: Mean of last 3 years (2014-2016) and SARIMA.

A commercial split season for snowy grouper was considered in Regulatory Amendment 20 (SAFMC 2014). It was thought that by dividing the commercial ACL into two quotas fishermen in the northern and southern areas of the South Atlantic would have a chance to fish for snowy grouper when weather conditions were favorable in their respective areas. The snowy grouper ACL was also increased through the same amendment, and analyses indicated that a commercial harvest closure during Season 1 was not likely. Without an in-season closure during Season 1 for most of the scenarios examined, the South Atlantic Council reasoned that a split season would have little to no effect on extending the fishing season and opted to take no action at that time. In addition, the South Atlantic Council opted to retain the commercial fishing year as the calendar year because snowy grouper are an important species in the early part of the year, when

shallow-water groupers are closed to commercial harvest. The South Atlantic Council acknowledged that fishermen in North Carolina have historically had limited access to snowy grouper at the beginning of the fishing year due to weather conditions. However, recent years have brought milder winters and fishermen have benefitted from having access to snowy grouper. South Atlantic Council members also mentioned that snowy grouper commands a higher price on the market during the early months of the year and cited that as another reason to retain the calendar year for the commercial sector.

Mean monthly estimates of commercial discards for the affected species in this amendment, including snowy grouper, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. Discarding in the commercial harvest of snowy grouper in 2014 through 2016 appears to have been comparatively low to other species in the snapper grouper complex with a peak in May-June. In general, the biological impacts of a split season for snowy grouper are likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas, AMs would be triggered if the ACL or quotas were exceeded, and the level of discards would likely not be affected.

**Table 4.1.1.2** indicates spawning activity for snowy grouper peaks during summer months (May-August). In recent years, early quota closures have reduced fishing pressure on snowy grouper during peak spawning months resulting in positive biological effects.

Discards of snowy grouper and co-occurring species, such as blueline tilefish, might be expected after quotas are met under **Alternative 2** and **Alternative 3**. However, an increase in bycatch of both blueline tilefish and snowy grouper could be reduced if commercial split seasons coincide (blueline tilefish commercial split season is considered under **Action 1**).

#### **4.3.2 Economic Effects**

#### **4.3.3 Social Effects**

A description of the communities that would most likely be affected by changes in commercial management of snowy grouper is included in **Section 3.4**. A split season under **Alternatives 2** and **3** may help to extend commercial harvest longer than under **Alternative 1 (No Action)**. In general, a split season (**Alternatives 2** and **3**) would be most beneficial for fishermen targeting other species in the beginning of the year, because it would ensure that a portion of the commercial ACL would be available later in the year. Establishing a split season under **Alternatives 2** and **3** could result in fishermen shifting effort to or from a certain species (including targets on multi-species trips) based on economic, regulatory, biological, or environmental changes in the fishery resulting from changes in access to snowy grouper

Overall, the positive and negative effects on commercial fishermen of establishing a split season under **Alternatives 2** and **3** will depend on the proportion of the ACL for each season, the length of each season, and the likelihood of commercial harvest being open during times of the year when it is profitable to target snowy grouper.

#### 4.3.4 Administrative Effects

**Alternative 1 (No Action)** would not change the administrative environment from its current state. Currently, there is a commercial quota monitoring system in place for snowy grouper that is utilized to monitor landings against the commercial quota. Since 2012, commercial harvest has closed early due to landings reaching the ACL prior to the end of the fishing year. If total effort in the fishery remains consistent, it is likely the fishery would remain open for a short period of time, and reach the ACL prior to the end of the fishing year. Therefore, NMFS would have to continue to prepare and issue fishery closure notices. Additionally, enforcement personnel would have to continue to monitor the closures. With any closure, there is potential that the landings do not reach 100% of the ACL. In that circumstance, guidance from the South Atlantic Council to NMFS recommended that the fishery should reopen if landings are less than 95% of the ACL, and the projected number of days that the fishery can reopen to meet the ACL is two or more days. Therefore, the fishery managers would have to monitor the landings and prepare a reopen notice.

**Alternatives 2 and 3**, would divide the commercial ACL into quotas over two commercial fishing seasons. Of the three alternatives considered for management of snowy grouper, **Alternatives 2 and 3** would impose the most significant, direct administrative burden. Ongoing monitoring of the new annual commercial quota would be required. If the quota for each season is close to being met or exceeded twice each year, fishery managers will have to prepare and issue fishery closure notices twice as often as they would be required to do under **Alternative 1 (No Action)**. Additionally, enforcement personnel would be burdened with an increase in potential fishery closures, which they would have to monitor. Outreach materials would take the form of fishery bulletins and possible updates to NOAA Fisheries Service Southeast Region's web site to modify the fishing year start date. As with **Alternative 1 (No Action)**, there is twice the potential under **Alternatives 2 and 3** that the fishery would need to be reopened so that landings could reach the ACL.

## 4.4 Action 4. Establish a commercial split season for greater amberjack

### 4.4.1 Biological Effects

**Action 4** would divide the commercial fishing season for greater amberjack into two time periods to provide opportunities to fish for greater amberjack throughout the South Atlantic and throughout the calendar year.

**Alternative 1 (No Action)** would maintain the current commercial fishing year from March 1 through the end of February, or when the commercial ACL is met or projected to be met. There is a seasonal harvest restriction during the month of April. In-season closures of commercial harvest have taken place when the ACLs have been exceeded since the 2015-2016 fishing year (**Table 4.4.1.1**).

**Alternatives 2 and 3** would allocate the commercial greater amberjack ACL into seasonal quotas. By dividing the commercial ACL into two quotas, fishermen would be given the opportunity to fish for greater amberjack throughout the fishing year. The divided commercial quota would provide fishermen in the northern and southern areas of the South Atlantic a chance to fish for greater amberjack when weather conditions are favorable in their respective areas.

It is difficult to evaluate the alternatives given the unspecified percentages for dividing the commercial ACL into seasonal quotas. Similar to blueline tilefish (Action 1) commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for greater amberjack (**Table 4.4.1.1**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model fit to data from 1997-2016. For a more detailed explanation of the methods, please refer to **Appendix J**.

Under **Alternative 1 (No Action)**, the ACL is anticipated to be met by Nov (95% CI: Sept-No Closure) or July (95% CI: Feb-No Closure) by the Last 3 and SARIMA models, respectively (**Figure 4.4.1.1**). The Last 3 model predicts 50% of the ACL will be achieved by June (95% CI:

#### *Alternatives\**

1 No Action. The commercial fishing year for greater amberjack in the South Atlantic federal waters is from March 1 to the end of February. During April, commercial harvest is limited to one per person per day or one per person per trip, whichever is more restrictive.

2. Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through August 31 and XX% to the period September 1 through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. Commercial harvest would still be prohibited annually in April.

3. Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. Commercial harvest would still be prohibited annually in April.

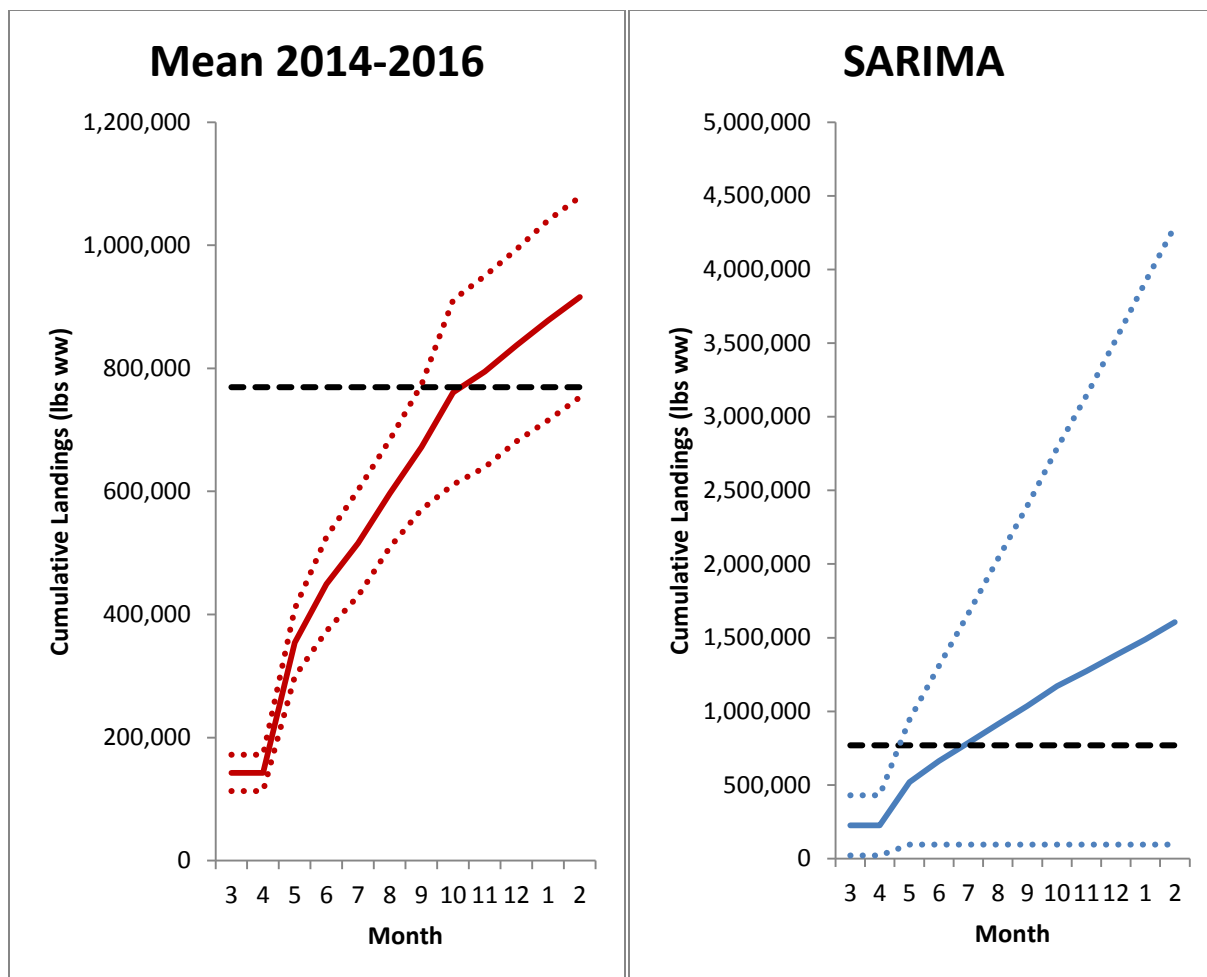
\* Preferred indicated in bold. Refer to Chapter 2 for detailed language of alternatives.

May-July); the SARIMA model predicts 50% of the ACL will be met by May (95% CI: Mar-Not Met). The broad confidence intervals indicate high uncertainty and these predictions should be interpreted with caution.

**Table 4.4.1.1.** Greater amberjack recent landings (lbs) and quota closures.

<b>Fishing Year</b>	<b>Total Landings</b>	<b>ACL</b>	<b>Units</b>	<b>ACL</b>	<b>Closure Date</b>
March 1, 2017 – February 28, 2018	187,007	769,388	gw	24.31	April 1-30 Seasonal
March 1, 2016 – February 28, 2017	748,950	769,388	gw	97.34	April 1-30 Seasonal In-season 10/4/2016
March 1, 2015 - Feb 28, 2016	757,881	769,388	gw	98.5	April 1-30 Seasonal In-season 1/21/2016
May 1, 2014 - Feb 28, 2015	594,624	769,388	gw	77.29	April 1-30 Seasonal
May 1, 2013 - April 30, 2014	842,234	800,163	ww	105.26	April 1-30 Seasonal
May 1, 2012 - April 30, 2013	826,018	800,163	ww	103.23	April 1-30 Seasonal
May 1, 2011 - April 30, 2012	1,032,080	1,169,931	gw	88.22	April 1-30 Seasonal
May 1, 2010 - April 30, 2011	857,839	1,169,931	gw	73.32	April 1-30 Seasonal
May 1, 2009 - April 30, 2010	837,077	1,169,931	gw	71.55	April 1-30 Seasonal
May 1, 2008 - April 30, 2009	648,247	1,169,931	gw	55.41	April 1-30 Seasonal
May 1, 2007 - April 30, 2008	542,438	1,169,931	gw	46.36	April 1-30 Seasonal

Source: SERO ACL Monitoring Webpage.



**Figure 4.4.1.1.** Mean (solid line) and 95% confidence limits (dotted lines) for greater amberjack projected cumulative landings relative to ACL under two projection models: Mean of last 3 years (2014-2016) and SARIMA.

Mean monthly estimates of commercial discards for the affected species in this amendment, including greater amberjack, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. From 2014 through 2016 discards of greater amberjack have been highest from May through August peaking in June. It is unclear whether the level of discards would be affected if a split season were to be imposed. In general, the biological impacts of a split season for greater amberjack are likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas and AMs would be triggered if the ACL or quotas were exceeded.

#### 4.4.2 Economic Effects

#### 4.4.3 Social Effects

A description of the communities that would most likely be affected by changes in commercial management of greater amberjack is included in **Section 3.4**. A split season under **Alternatives 2** and **3** may help to extend commercial harvest longer than under **Alternative 1 (No Action)**. In general, a split season (**Alternatives 2** and **3**) would be most beneficial for

fishermen targeting other species in the beginning of the year, because it would ensure that a portion of the commercial ACL would be available later in the year. Establishing a split season under **Alternatives 2 and 3** could result in fishermen shifting effort to or from a certain species (including targets on multi-species trips) based on economic, regulatory, biological, or environmental changes in the fishery resulting from changes in access to greater amberjack.

Overall, the positive and negative effects on commercial fishermen of establishing a split season under **Alternatives 2 and 3** will depend on the proportion of the ACL for each season, the length of each season, and the likelihood of commercial harvest being open during times of the year when it is profitable to target greater amberjack.

#### **4.4.4 Administrative Effects**

**Alternative 1 (No Action)** would not change the administrative environment from its current state. Currently, there is a commercial quota monitoring system in place for greater amberjack that is utilized to monitor landings against the commercial quota. Since the 2015-2016 fishing year, commercial harvest has closed early due to landings reaching the ACL prior to the end of the fishing year. If total effort in the fishery remains consistent, it is possible the fishery would reach the ACL prior to the end of the fishing year. Therefore, NMFS would have to continue to prepare and issue fishery closure notices. Additionally, enforcement personnel would have to monitor the closures. With any closure, there is potential that the landings do not reach 100% of the ACL. In that circumstance, guidance from the South Atlantic Council to NMFS recommended that the fishery should reopen if landings are less than 95% of the ACL, and the projected number of days that the fishery can reopen to meet the ACL is two or more days. Therefore, NMFS would have to monitor the landings and prepare a reopen notice.

**Alternatives 2 and 3**, would divide the commercial ACL into quotas over two commercial fishing seasons. Of the three alternatives considered for management of greater amberjack, **Alternatives 2 and 3** would impose the most significant, direct administrative burden. Ongoing monitoring of the new annual commercial quota would be required. If the quota for each season is close to being met or exceeded twice each year, fishery managers will have to prepare and issue fishery closure notices twice as often as they would be required to do under **Alternative 1 (No Action)**. Additionally, enforcement personnel would be burdened with an increase in potential fishery closures, which they would have to monitor. Outreach materials would take the form of fishery bulletins and possible updates to NOAA Fisheries Service Southeast Region's web site to modify the fishing year start date. As with **Alternative 1 (No Action)**, there is twice the potential under **Alternatives 2 and 3** that the fishery would need to be reopened so that landings could reach the ACL.

## 4.5 Action 5. Modify the commercial trip limit for vermillion snapper in the second season

### 4.5.1 Biological Effects

**Alternative 1 (No Action)** would maintain the commercial trip limit for vermillion snapper at 1,000 pounds gutted weight (lbs gw) until 75% of the seasonal quota is met, whereupon the trip limit is reduced to 500 lbs gw. **Alternatives 2 and 3** would set the commercial trip limit for the second (July-December) fishing season at 750 lbs gw and maintain the step-down whereas **Alternative 3** would lower the second season trip limit to 500 lbs gw and remove the step-down.

To project baseline landings in 2018, commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for vermillion snapper (**Table 4.5.1.1**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model fit to data from 1997-2016. For a more detailed explanation of the methods, please refer to **Appendix J**.

Trip limit impacts were simulated by modifying and re-summarizing landings from commercial logbook trip records (SEFSC commercial logbook data, accessed April 2017). Total monthly landings 2006-2016 were compared between modified (750 and 500 lbs gw trip limit) and unmodified trip records. Monthly scalars were applied to projected landings data for the alternatives listed above. Monthly trip limit scalars on projected catches were determined using the last three fully open years (**Table 4.5.1.2**).

Daily catches were projected for Season 1 and Season 2 using projected monthly catch rates. Cumulative landings were tracked and trip limits were applied to scale monthly catch rates when 75% of the ACL was met. For Season 1, the ACL is anticipated to be met by March (95% CI: Mar-Apr) or April (95% CI: Feb-June) by the Last 3 and SARIMA models, respectively. Projected trip limit reduction dates and closure dates for Season 2 are provided in **Table 4.5.1.3**. Last 3 and SARIMA model projections were relatively consistent, indicating fairly high confidence in projected closure dates (**Figure 4.5.1.1**).

#### *Alternatives\**

1 No Action. The commercial trip limit for vermillion snapper in the South Atlantic federal waters is 1,000 pounds gutted weight (lbs gw) and the commercial ACL is split equally between two 6-month seasons. When 75% of the vermillion snapper seasonal quota is met or is projected to be met, the trip limit is reduced to 500 lbs gw. Any remaining quota from Season 1 transfers to Season 2. Any remaining quota from Season 2 is not carried forward.

2. Implement a 750 lbs gw vermillion snapper commercial trip limit for the second season (July 1 through December 31). The commercial trip limit is reduced to 500 lbs gw when 75% of the second season quota is met or is projected to be met.

3. Remove the step-down to 500 lbs gw when 75% of the seasonal quota is met or projected to be met, and implement a 500 lbs gw vermillion snapper commercial trip limit for the second season (July 1 through December 31).

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



**Table 4.5.1.1.** Vermilion snapper recent landings (lbs) and quota closures.

Source: SERO ACL Monitoring Webpage.

Fishing Year	Landings	ACL	Units	ACL	Trip Limit	Closure
January 1 -June 30, 2017	350,609	431,460	ww	81.26	3/22/2017	
July 1 - Dec 31, 2017	0	431,460		0		
January 1 - June 30, 2016	429,774	431,460	ww	99.61	3/2/2016	3/29/2016
July 1 - Dec 31, 2016	425,014	432,305		98.31	8/28/2016	10/11/16; reopened 12/14- 12/15/16
Jan 1 - June 30, 2015	435,435	438,260		99.69	3/2/2015	4/15/2015
July 1 - Dec 31, 2015	457,259	438,260		104.3	9/10/2015	9/22/2015
Jan 1 - June 30, 2014	454,084	446,080		101.8	3/11/2014	4/19/2014
July 1 - Dec 31, 2014	437,523	446,080		98.08	8/23/2014	9/12/2014
Jan 1 - June 30, 2013	304,432	466,480		65.26		2/13/2013
July 1 - Dec 31, 2013	623,347	613,278		101.6		12/2/2013
Jan 1 - June 30, 2012	400,787	315,523	gw	127		2/29/2012
July 1 - Dec 31, 2012	504,525	302,523		166.8		9/28/2012
Jan 1 - June 30, 2011	333,001	315,523		105.5		3/10/11; Re-opened 5/1/11- 5/8/11
July 1 - Dec 31, 2011	591,067	302,523		195.4		9/30/2011
Jan 1 - June 30, 2010	360,065	315,523		114.1		3/19/2010
July 1 - Dec 31, 2010	524,797	302,523		173.5		10/6/2010
Jan 1 - June 30, 2009	425,665	315,523		134.9		
July 1 - Dec 31, 2009	409,858	302,523		135.5		9/18/2009
Jan 1 - Dec 31, 2008	1,112,224	1,100,000		101.1		
	981,369	1,100,000		89.22		
	772,496	1,100,000		70.23		
	1,029,081	None				
	1,017,889	None				

**Table 4.5.1.2.** Projected vermilion snapper commercial trip limit scalars, by month, based on most recent three years without a quota closure.

Limit	Month	Scalar	Based on:
750	1	85%	2014-2016
750	2	86%	2014-2016
750	3	89%	2007-2009
750	4	89%	2007-2009
750	5	91%	2007-2009
750	6	92%	2007-2009
750	7	88%	2014-2016
750	8	85%	2012-2013, 2015
750	9	87%	2008, 2010, 2013
750	10	88%	2006-2008
750	11	89%	2006-2008
750	12	90%	2006-2008
500	1	62%	2014-2016
500	2	65%	2014-2016
500	3	73%	2007-2009
500	4	72%	2007-2009
500	5	76%	2007-2009
500	6	78%	2007-2009
500	7	68%	2014-2016
500	8	64%	2012-2013, 2015
500	9	66%	2008, 2010, 2013
500	10	71%	2006-2008
500	11	70%	2006-2008
500	12	73%	2006-2008

**Table 4.5.1.3.** Projected mean and 95% lower and upper (L95, U95) confidence limits trip limit reduction and quota closure dates for vermilion snapper under different alternatives proposed for Action 5.

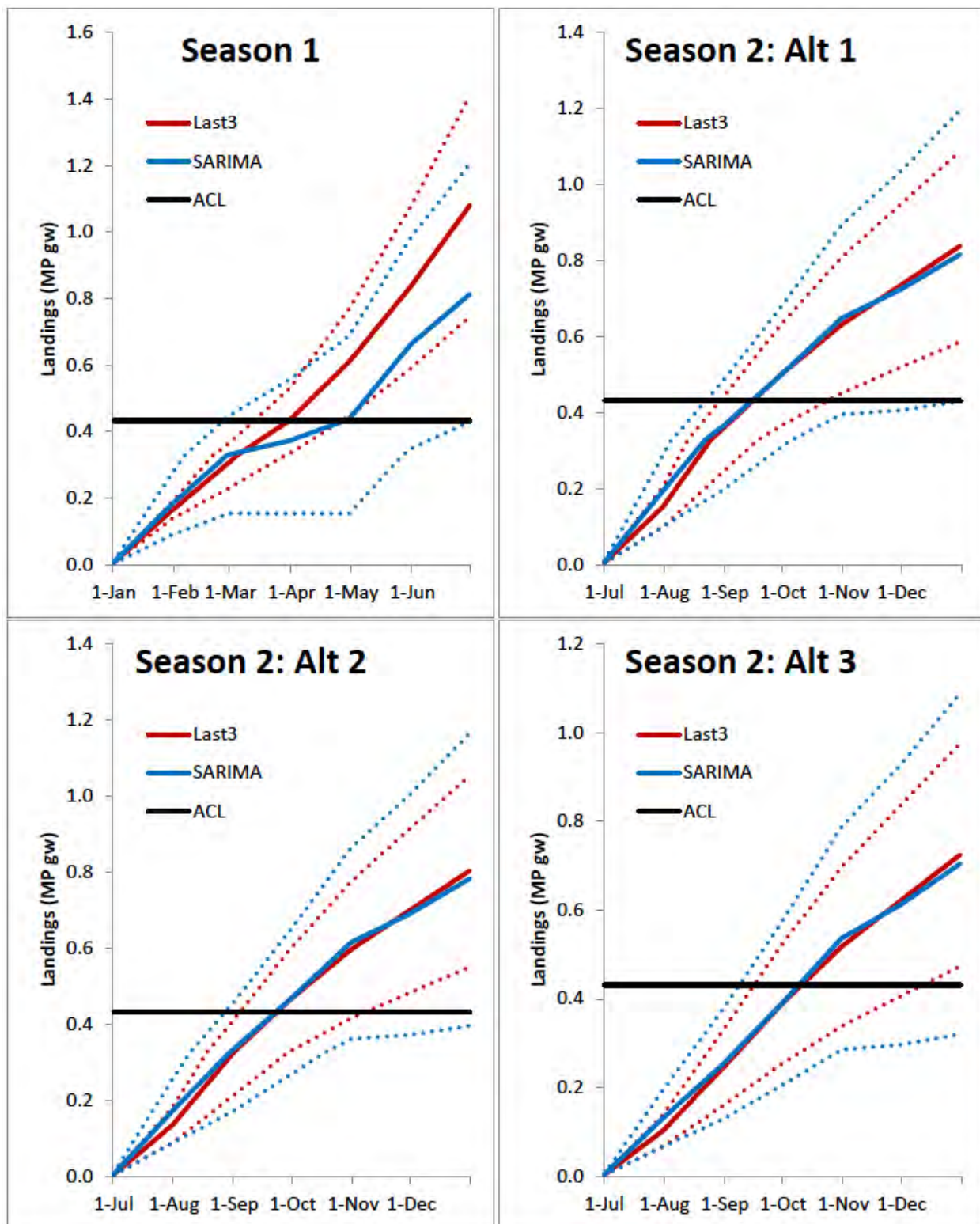
TRIP LIMIT REDUCED						
	Last 3 Years			SARIMA		
Alternative	L95_Last3	Last3	U95_Last3	L95_SARIMA	SARIMA	U95_SARIMA
1	18-Sep	<b>25-Aug</b>	13-Aug	4-Oct	<b>22-Aug</b>	4-Aug
2	28-Sep	<b>1-Sep</b>	18-Aug	18-Oct	<b>30-Aug</b>	9-Aug
3	NA	<b>NA</b>	NA	NA	<b>NA</b>	NA
FISHERY CLOSED						
	Last 3 Years			SARIMA		
Alternative	L95_Last3	Last3	U95_Last3	L95_SARIMA	SARIMA	U95_SARIMA
1	25-Oct	<b>16-Sep</b>	30-Aug	NA	<b>15-Sep</b>	23-Aug
2	8-Nov	<b>23-Sep</b>	4-Sep	NA	<b>23-Sep</b>	28-Aug
3	12-Dec	<b>11-Oct</b>	17-Sep	NA	<b>10-Oct</b>	9-Sep

Under **Alternative 1 (No Action)**, both models predict that 75% of the Season 2 quota would be met towards the end of August triggering a trip limit step down to 500 lbs gw. At that level of harvest, both models predict the Season 2 quota would be reached by mid-September. Under **Alternative 2**, a 750 lbs gw trip limit would trigger a step-down at the end of August or beginning of September. The Season 2 quota would be harvested by September 23, according to both models. These predictions are similar to what has been observed in recent years: in 2014 and 2016, the trip-limit step-down was triggered at the end of August whereas in 2015 it occurred on September 10 (**Table 4.5.1.1**).

**Alternative 3** would remove the step-down and implement a 500-pound trip limit in Season 2. This alternative is predicted to allow commercial harvest to continue until early October. Hence, the trip limit proposed under **Alternative 3** would allow commercial harvest to continue over the longest period of time than under the current trip limit or that proposed under **Alternative 2**.

Mean monthly estimates of commercial discards for the affected species in this amendment, including vermilion snapper, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. During 2014 through 2016 vermilion snapper discards peaked in November and December, when commercial harvest for the species had closed due to reaching the ACL. High discard numbers were also observed in May.

In general trip limits do not result in biological effects, positive or negative, since overall harvest is limited by the ACL and AMs are in place to correct for overages. Peak spawning activity for vermilion snapper is from June through August (**Table 4.1.1.2**). The second commercial season beginning in the June-August period increases effort during the period of peak spawning, which could negatively impact stock sustainability. A trip limit reduction in the second season, as proposed under **Alternatives 2 and 3**, could benefit the spawning stock by reducing landings on trips fishing on a spawning group.



**Figure 4.5.1.1.** Mean (solid line) and 95% confidence limits (dotted lines) for vermilion snapper projected cumulative landings relative to ACL (black line) under two projection models: Mean of last 3 years (2014-2016) and SARIMA.

## 4.5.2 Economic Effects

## 4.5.3 Social Effects

A description of the communities that would most likely be affected by changes in commercial management of vermilion snapper is included in **Section 3.4**. In general, a commercial trip limit may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded, but trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away. A longer open season could be beneficial to the commercial fleet and to end users of vermilion snapper (restaurant owners, fish houses, and consumers) by improving consistency of availability. However, **Table 4.5.1.3** suggests that there would likely be little difference between expected closures dates under **Alternative 1 (No Action)**, **Alternative 2** or **Alternative 3**. Under current fishery conditions, it is likely that the current and proposed trip limits for season 2 will still result in a closure in late September or early October. Therefore, it is likely that the most benefits to the commercial fleet would be to keep the highest trip limit under **Alternative 1 (No Action)**.

## 4.5.4 Administrative Effects

**Alternative 1 (No Action)** would not change the administrative environment from its current state. Currently, there is a commercial quota monitoring system in place for vermilion snapper that is utilized to monitor landings against the commercial quota. Since 2014, there has been a commercial harvest trip limit reduction for each six-month fishing season. Additionally, since the 2009 July through December fishing season, commercial harvest has closed early due to landings reaching the ACL prior to the end of the fishing year. If total effort in the fishery remains consistent, it is likely the fishery would require trip limit reductions during each fishing season, and also need to be closed early due to reaching the ACL prior to the end of the fishing year. Therefore, fishery managers will have to continue to prepare and issue fishery trip limit reduction and closure notices for each six-month season. Additionally, enforcement personnel would have to monitor the closures. With any closure, there is potential that the landings do not reach 100% of the ACL. In that circumstance, guidance from the SAFMC to NMFS recommended that the fishery should reopen if landings are less than 95% of the ACL, and the projected number of days that the fishery can reopen to meet the ACL is two or more days. Therefore, the fishery managers would have to monitor the landings and prepare a reopen notice.

**Alternatives 2 and 3** would modify the commercial trip limit for the second (July-December) fishing season. **Alternative 2** would lower the second season trip limit to 500 lbs, which may slow the rate of harvest and lengthen the season, which could potentially reduce the need for fishery managers to prepare a trip limit reduction notice and/or a closure notice. **Alternative 3** would lower the second season trip limit even further than **Alternative 1 (No Action)** and **Alternative 2**, and remove the trip limit reduction requirement in the second season.

Of the three alternatives considered for management of vermilion snapper, **Alternatives 1 (No Action)** would impose the most significant, direct administrative burden. Ongoing monitoring of the commercial quota over two seasons would be required. Over the course of a given fishing year, and a split season ACL, there is potential under **Alternative 1 (No Action)**, for a total of six in-season notices (i.e., trip limit reduction notice, closure notice, and reopening

notice for two seasons) that would need to be prepared by fishery managers. If the quota for each season is close to being met or exceeded twice each year, fishery managers will have to prepare and issue fishery closure notices potentially more often as they would be required to do under **Alternative 2** and **3**. Additionally, enforcement personnel would be burdened with more frequent potential fishery closures, which they would have to monitor. Outreach materials would take the form of fishery bulletins and possible updates to NOAA Fisheries Service Southeast Region's web site to modify the fishing year start date. Alternative 1 (**No Action**) and **Alternative 2** would have higher potential than **Alternatives 3** that the fishery would need to be reopened if landings had not reached 100% of the ACL.

## 4.6 Action 6. Implement a commercial trip limit for the Other Jacks Complex

### 4.6.1 Biological Effects

The ‘Other Jacks Complex’ includes almaco jack, lesser amberjack, and banded rudderfish. Species groupings, or complexes, for species managed under the Snapper Grouper FMP were created with implementation of the Comprehensive ACL Amendment (SAFMC 2011). In that amendment the South Atlantic Council adopted the approach to “help prevent overfishing of species in stock complexes while mitigating variability in landings data by combining species into a single, complex-level ACL.” The approach streamlined and simplified ACL management, and provided an incentive to move stocks up the ABC control rule tiers by promoting individual ACLs for species with completed assessments. The adopted approach also promoted attaining optimum yield (OY) for assessed stocks while providing a mechanism to prevent overfishing of the unassessed stocks, which are potentially less productive and/or more vulnerable.

#### *Alternatives\**

1 No Action. There is no commercial trip limit for the Other Jacks Complex (lesser amberjack, almaco jack, and banded rudderfish).

2. Establish a commercial trip limit for the Other Jacks Complex.

Sub-alternative 2a. 500 pounds whole weight (lbs ww)

Sub-alternative 2b. 400 lbs ww

Sub-alternative 2c. 300 lbs ww

3. Establish a commercial trip limit for almaco jack.

Sub-alternative 3a. 500 lbs ww

Sub-alternative 3b. 400 lbs ww

Sub-alternative 3c. 300 lbs ww

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

**Appendix O** of the Comprehensive ACL Amendment (SAFC 2011) contains the detailed methodology for the existing species groupings. The discussion pertaining to jacks, cites issues with misidentification potentially leading to “issues computing single species’ ACLs unless the rate of misidentification is quantifiable or has been (and remains) constant through time. The use of a ‘Jacks’ complex would mitigate issues with species identification by regulating misidentified species together. These findings are reasonably consistent with Shertzer and Williams (2008); using hierarchical cluster analysis, they identified a complex including banded rudderfish and almaco jack in the headboat sector, and greater amberjack and almaco jack in the commercial sector.”

Furthermore, almaco jack was identified as the most vulnerable species in the Jacks Complex in analyses that supported the implementations of the various species complexes in the Comprehensive ACL amendment (SAFMC 2011); “Vulnerabilities were expressed as ‘Overall Risk Scores’ from the MRAG Americas Productivity Susceptibility Analyses (PSA) for the SAFMC Snapper Grouper FMU (MRAG Americas 2009a, b). The PSA approach is based on the assumption that the overall risk of overfishing for a stock depends on: (1) the productivity of the unit, which will determine the rate at which the unit can sustain fishing pressure or recover from depletion or other impacts due to the fishery; and (2) the susceptibility of the unit to fishing

activities. The PSA analysis essentially measures the relative risk or the vulnerability of the resource to the potential for fishery impacts (MRAG Americas 2009a,b).”

To project baseline landings in 2018, commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for the Other Jacks Complex (**Table 4.6.1.1**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model fit to landings from 1997-2016. For the Last 3 model, projected catch rates for September-December were based on the mean ratio of August to September-December landings from the last three completely open fishing years during those months (2009-2011) applied to mean August 2014-2016 catch rates. For a more detailed explanation of the methods, please refer to **Appendix J**.

Projections were developed for the Other Jacks Complex, with **Alternative 3** almaco jack landings partitioned using the mean monthly ratio of almaco jack to Other Jacks Complex landings from the most recent three fishing years (**Figure 4.6.1.1**).

**Table 4.6.1.1.** Other Jacks Complex recent landings (lbs) and quota closures.

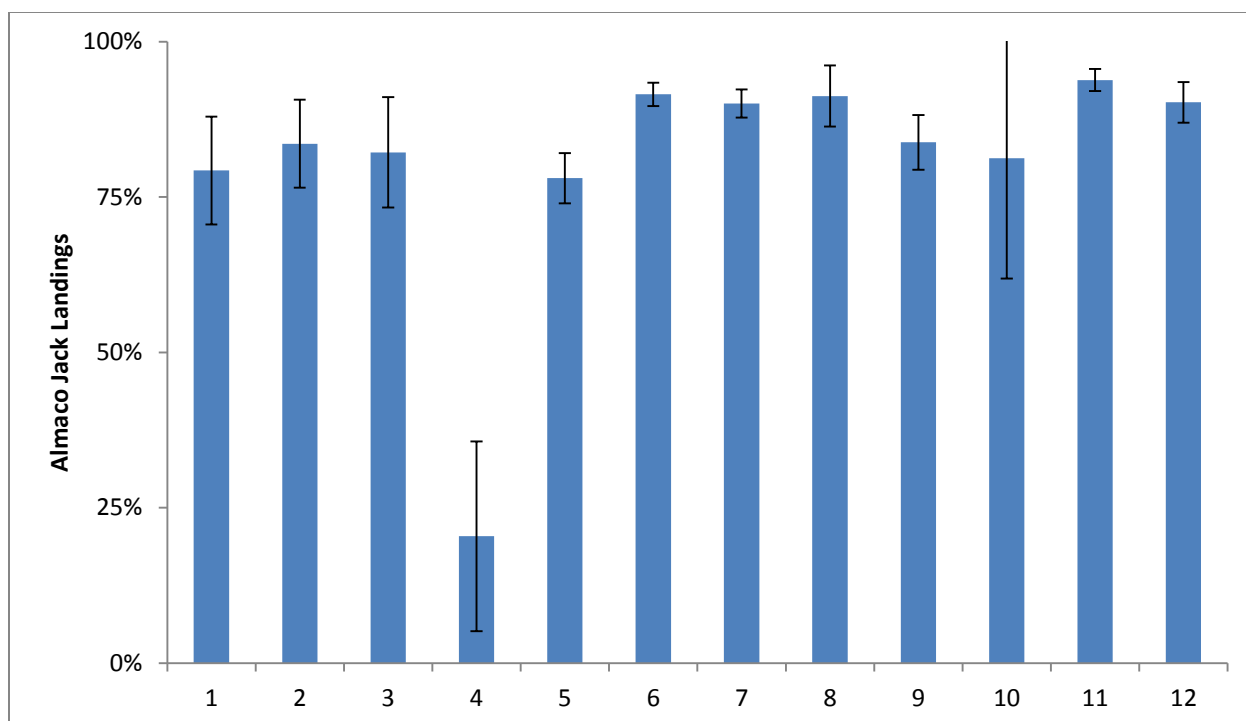
Fishing Year	Current Landings	ACL	Units	ACL	Closure Date
2017	78,956	189,422	ww	41.68	
2016	206,726	189,422	ww	109.14	8/9/2016
2015	235,969	189,422	ww	124.57	6/23/2015
2014	212,474	189,422	ww	112.17	7/15/2014
2013	201,398	189,422	ww	106.32	6/18/2013
2012	333,561	193,999	ww	171.94	7/2/2012

Source: SERO ACL Monitoring Webpage.

Trip limit impacts were simulated by modifying and re-summarizing landings from commercial logbook trip records (SEFSC commercial logbook data, accessed April 2017). Total monthly landings 2006-2016 were compared between modified (500, 400, and 300 lb gw trip limit) and unmodified trip records. Monthly scalars were applied to projected landings data for the alternatives listed above. Monthly trip limit scalars on projected catches were determined using the last three fully open years (**Table 4.6.1.2**). Daily catches were estimated using projected monthly catch rates. Cumulative landings were tracked under different trip limit alternatives. To predict closure dates for **Alternative 3** and its sub-alternatives, the trip limit reduction was applied to the almaco jack portion of the Other Jacks Complex landings, but closure dates were estimated based on the combined landings for the Complex relative to the Complex ACL.

Under **Alternative 1 (No Action)**, the ACL is anticipated to be met by July (95% CI: June-Dec) or June (95% CI: Apr-No Closure) by the Last 3 and SARIMA models, respectively (**Figure 4.6.1.2**). **Table 4.6.1.3** provides the projected mean and 95% confidence limits for quota closure dates under the various Action 6 alternatives. Although the predictions from the Last 3 model and SARIMA model are similar, the broad confidence intervals for these predictions suggest some uncertainty in these predictions and they should be interpreted with caution.



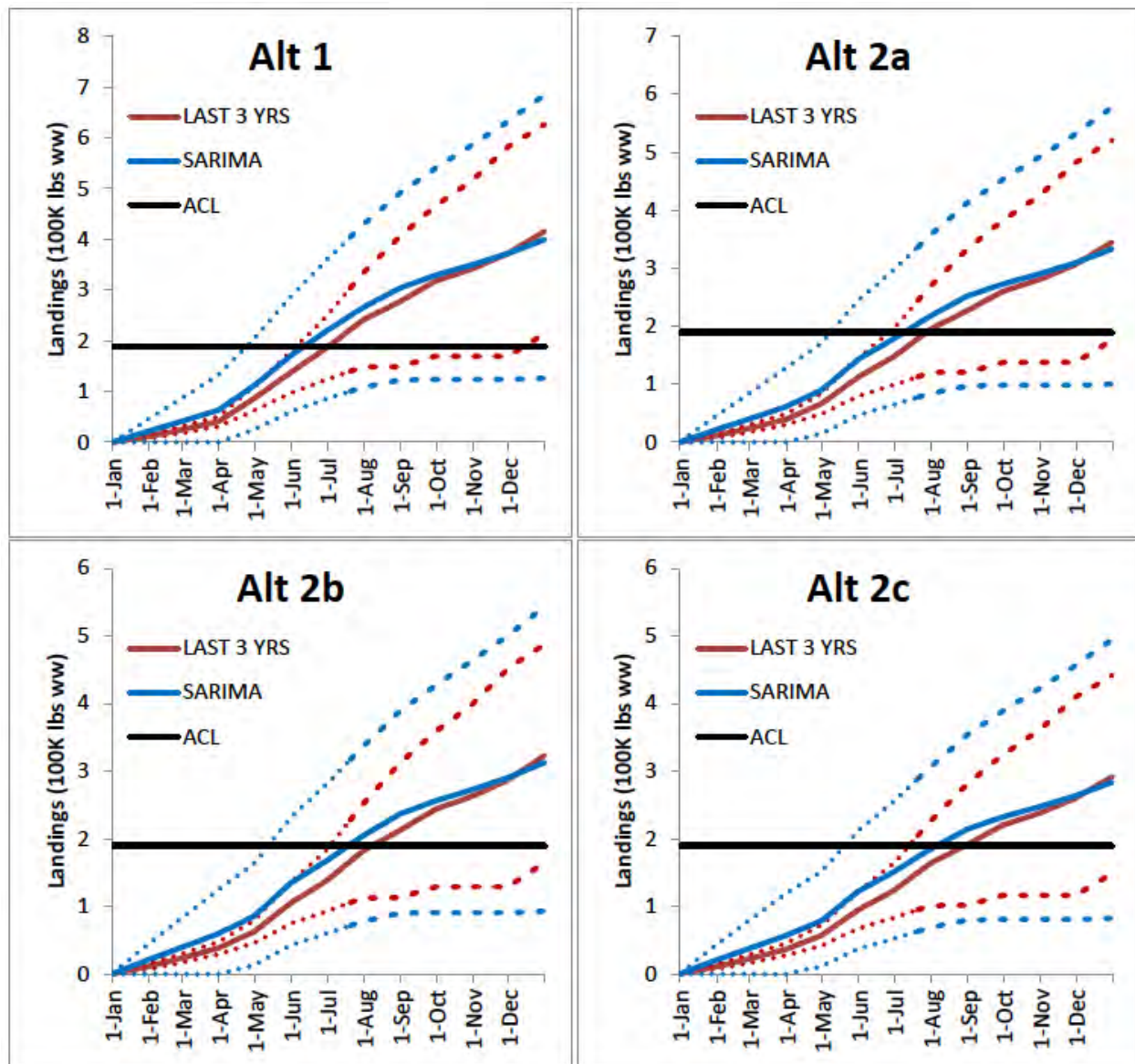


**Figure 4.6.1.1.** Monthly ratio of almaco jack to Other Jacks Complex commercial landings from the most recent three completely open fishing years. Error bars denote standard deviation.

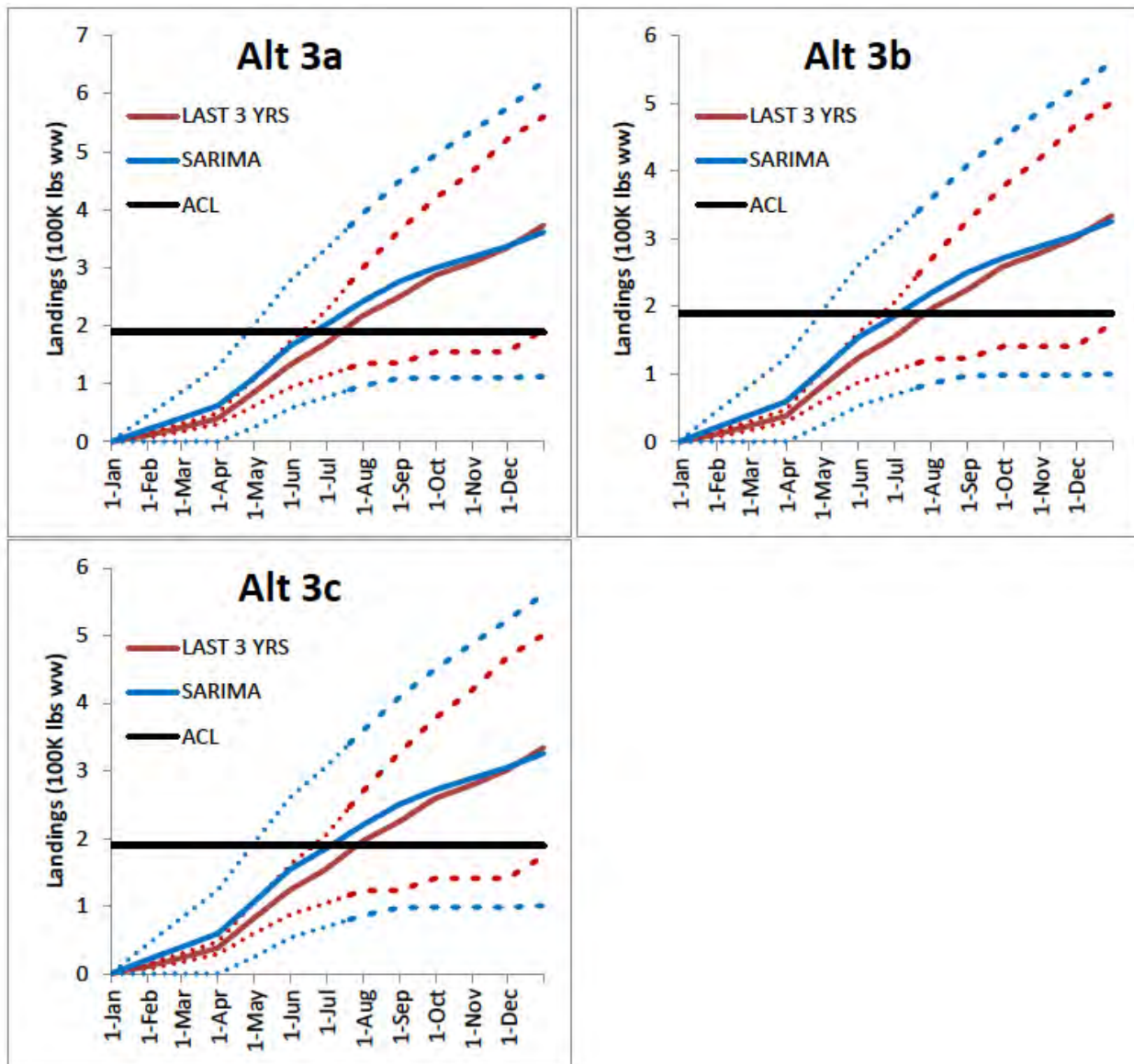
**Table 4.6.1.2.** Projected Jacks complex and almaco jack commercial trip limit scalars, by month, based on most recent three years without a quota closure.

Trip Limit	Month	Jacks	Almaco	Years
500	1	99%	99%	2014-2016
500	2	96%	97%	2014-2016
500	3	95%	96%	2014-2016
500	4	60%	90%	2014-2016
500	5	89%	93%	2014-2016
500	6	73%	73%	2012, 2014, 2016
500	7	85%	85%	2010, 2011, 2016
500	8	89%	89%	2009, 2010, 2011
500	9	81%	90%	2009, 2010, 2011
500	10	85%	88%	2009, 2010, 2011
500	11	85%	85%	2009, 2010, 2011
500	12	88%	88%	2009, 2010, 2011
400	1	98%	97%	2014-2016
400	2	93%	95%	2014-2016
400	3	91%	93%	2014-2016
400	4	54%	85%	2014-2016
400	5	83%	87%	2014-2016
400	6	68%	68%	2012, 2014, 2016
400	7	80%	80%	2010, 2011, 2016

400	8	84%	85%	2009, 2010, 2011
400	9	77%	87%	2009, 2010, 2011
400	10	80%	83%	2009, 2010, 2011
400	11	80%	80%	2009, 2010, 2011
400	12	82%	82%	2009, 2010, 2011
300	1	94%	95%	2014-2016
300	2	89%	91%	2014-2016
300	3	86%	89%	2014-2016
300	4	46%	79%	2014-2016
300	5	73%	78%	2014-2016
300	6	59%	60%	2012, 2014, 2016
300	7	73%	72%	2010, 2011, 2016
300	8	77%	78%	2009, 2010, 2011
300	9	71%	82%	2009, 2010, 2011
300	10	73%	78%	2009, 2010, 2011
300	11	73%	73%	2009, 2010, 2011
300	12	73%	74%	2009, 2010, 2011



**Figure 4.6.1.2.** Mean (solid line) and 95% confidence limits (dotted lines) for Other Jacks Complex projected cumulative landings relative to ACL (black line) under two projection models: Mean of last 3 years (2014-2016) and SARIMA.



**Figure 4.6.1.2 (cont'd).** Mean (solid line) and 95% confidence limits (dotted lines) for Other Jacks Complex projected cumulative landings relative to ACL (black line) under two projection models: Mean of last 3 years (2014-2016) and SARIMA.

**Table 4.6.1.3.** Projected mean and 95% lower and upper (L95, U95) confidence limits for quota closure dates for Jacks complex under different alternatives proposed for Action 6.

	Last 3 Years			SARIMA		
Alt	L95	Mean	U95	L95	Mean	U95
1	14-Dec	3-Jul	5-Jun		12-Jun	24-Apr
2a		28-Jul	26-Jun		9-Jul	8-May
2b		8-Aug	3-Jul		19-Jul	12-May
2c		29-Aug	13-Jul		5-Aug	20-May
3a	28-Dec	14-Jul	11-Jun		21-Jun	26-Apr
3b		27-Jul	20-Jun		5-Jul	29-Apr
3c		27-Jul	20-Jun		5-Jul	29-Apr

From 2014 through 2016, the ACL for the Other Jacks Complex has been met from late June to early August (**Table 4.6.1.1**). Under the no trip limit scenario (**Alternative 1 (No Action)**), the Last 3 model predicts the commercial ACL would be met in early July, whereas the SARIMA model predicts a closure in mid-June. **Alternative 2** and its sub-alternatives propose trip limits for the Other Jacks Complex. Under a 500 pound trip limit (**Sub-alternative 2a**) a closure would be expected to occur from early to late July according to the SARIMA and Last 3 models, respectively. These projected closure dates are within the range of observed fishery closures in 2014-2016, hence a 500-pound trip limit would not be expected to result in appreciable lengthening of the season. A trip limit of 400 pounds (**Sub-alternative 2b**) would be expected to extend commercial harvest of species in the Other Jacks Complex through about mid-July (SARIMA model) or early August (Last 3 model). Similar to **Sub-alternative 2a**, **Sub-alternative 2b** would not be expected to lengthen the season to any degree above the status quo. The proposed 300-pound trip limit under **Sub-alternative 2c** is predicted to extend commercial fishing to early August under the SARIMA model or late August under the Last 3 model. Even though the expected closure date of August 29 would extend fishing for about three weeks beyond status quo, the upper 95% confidence interval is July 13. Hence, **Sub-alternative 2c** may not result in significant lengthening of the fishing season for the Other Jacks Complex. Biological effects from any of the **Alternative 2** sub-alternatives relative to **Alternative 1 (No Action)** are expected to be neutral since overall harvest is limited by the ACL and AMs are in place to correct for overages.

**Alternative 3** and its sub-alternatives propose trip limits for almaco jack only. The species constitutes the majority (~70% +/- 6% annual 2014-2016) of the catch for the Other Jacks Complex (**Figure 4.6.1.1**). Given this, it is expected that predicted closure dates under trip limit alternatives for the Other Jack Complex (**Sub-alternatives 2a-2c**) and those for almaco jack (**Sub-alternatives 3a-3c**) would be similar. Indeed, the difference in predicted closure dates under **Sub-alternatives 2a** and **3a** is 14-18 days, 12-14 days for **Sub-alternatives 2b** and **3b**, and 31-33 days for **Sub-alternatives 3b** and **3c**. Similar to **Alternative 2** and its sub-alternatives, **Alternative 3** and its sub-alternatives are expected to have neutral biological effects relative to **Alternative 1 (No Action)** since overall harvest is limited by the ACL and AMs are in place to correct for overages.

It is unclear why landings of almaco jack in April are low compared to other months (**Figure 4.6.1.2**). As noted above, the Other Jacks Complex was created due to suspected issues with

species identification and because there are not enough data to conduct stock assessment of the component species to manage each one under its own ACL. Greater amberjack is an assessed species and is consequently managed under its own ACL. Commercial harvest of greater amberjack is limited during the month of April as this is when spawning activity for this species is at its peak (**Table 4.1.1.2**). It may be that low commercial landings of almaco jack during the month of April are related to the spawning season harvest limits for greater amberjack.

Mean monthly estimates of commercial discards for the affected species in this amendment, including those in the Other Jacks Complex, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. During 2014 through 2016, discard of species in the Other Jacks Complex (almaco jack, banded rudderfish, and lesser amberjack) were highest from August through October.

## **4.6.2 Economic Effects**

### **4.6.3 Social Effects**

A description of the communities that would most likely be affected by changes in commercial management of the jacks complex is included in **Section 3.4**. In general, a commercial trip limit may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded, but trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away. A longer open season could be beneficial to the commercial fleet and to end users of jacks (restaurant owners, fish houses, and consumers) by improving consistency of availability. However, **Table 4.6.1.3** suggests that there would likely be little difference between expected closures dates under **Alternative 1 (No Action)**, **Alternative 2** or **Alternative 3**. Under current fishery conditions, it is likely that the current and proposed trip limits will still result in a closure in mid-summer. Therefore, it is likely that the most benefits to the commercial fleet would be to not set a trip limit under **Alternative 1 (No Action)**.

### **4.6.4 Administrative Effects**

**Alternative 1 (No Action)** would not change the administrative environment from its current state. Currently, there is a commercial quota monitoring system in place for the Other Jacks Complex that is utilized to monitor landings against the commercial quota. From 2014 through 2016, the ACL for the Other Jacks Complex has been met from late June to early August (**Table 4.6.1.1**), which is prior to the end of the fishing year. If total effort in the fishery remains consistent, it is likely the fishery would require closures early due to reaching the ACL prior to the end of the fishing year. Therefore, fishery managers will have to continue to prepare and issue fishery closure notices. Additionally, enforcement personnel would have to monitor the closures. With any closure, there is potential that the landings do not reach 100% of the ACL. In that circumstance, guidance from the SAFMC to NMFS recommended that the fishery should reopen if landings are less than 95% of the ACL, and the projected number of days that the fishery can reopen to meet the ACL is two or more days. Therefore, the fishery managers would have to monitor the landings and prepare a reopen notice.

**Alternatives 2 and 3** would modify the commercial trip limit for species in the Other Jacks Complex. The sub-alternatives for **Alternative 2** would implement a trip limit for the complex to 500, 400 and 300 pounds, which may slow the rate that landings would reach the ACL, and delay or potentially end the need for fishery managers to prepare a closure notice. The sub-alternatives for **Alternative 3** would implement a trip limit for almaco jack of 500, 400 and 300 pounds. This may slow the rate of landings even further and lengthen the season, which could potentially reduce the need for an in-season closure, than **Alternative 1 (No Action)** and **Alternative 2**.

Of the three alternatives considered for management of the Other Jacks Complex, **Alternatives 1 (No Action)** would impose the most significant, direct administrative burden. Ongoing monitoring of the commercial quota would be required. Over the course of a given fishing year, there is potential under **Alternative 1 (No Action)**, for a total of two in-season notices (i.e., closure notice, and reopening notice for two seasons) that would need to be prepared by fishery managers. If the quota for each season is close to being met or exceeded twice each year, fishery managers will have to prepare and issue fishery closure notices potentially more often as they would be required to do under **Alternative 2 and 3**. Additionally, enforcement personnel would be burdened with more frequent potential fishery closures, which they would have to monitor. Outreach materials would take the form of fishery bulletins and possible updates to NOAA Fisheries Service Southeast Region's web site to modify the fishing year start date. **Alternative 1 (No Action)** and **Alternative 2** would have higher potential than **Alternatives 3** that the fishery would need to be reopened if landings had not reached 100% of the ACL.



## 4.7 Action 7. Modify the seasonal prohibition on commercial harvest and possession of shallow-water groupers

### 4.7.1 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 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).

**Alternative 2** was difficult to evaluate as the months were not specified. Also of note is that the most recent black grouper stock assessment data workshop noted issues with species identification between gag and black grouper off South Florida. This could have implications for analyses. All landings are assumed to be correctly identified to species in these analyses. It is very challenging to make meaningful predictions of the amount of harvest that will be realized with the removal/modification of the shallow-water grouper closure due to the duration it has been in place. Confidentiality concerns prohibit the disclosure of a time series of landings for the various species considered in the action. Mean 2014-2016 monthly landings of shallow-water grouper species are provided in **Figure 4.7.1.1**. This analysis required backfilling landings for the seasonal closures. Commercial harvest of gag, black

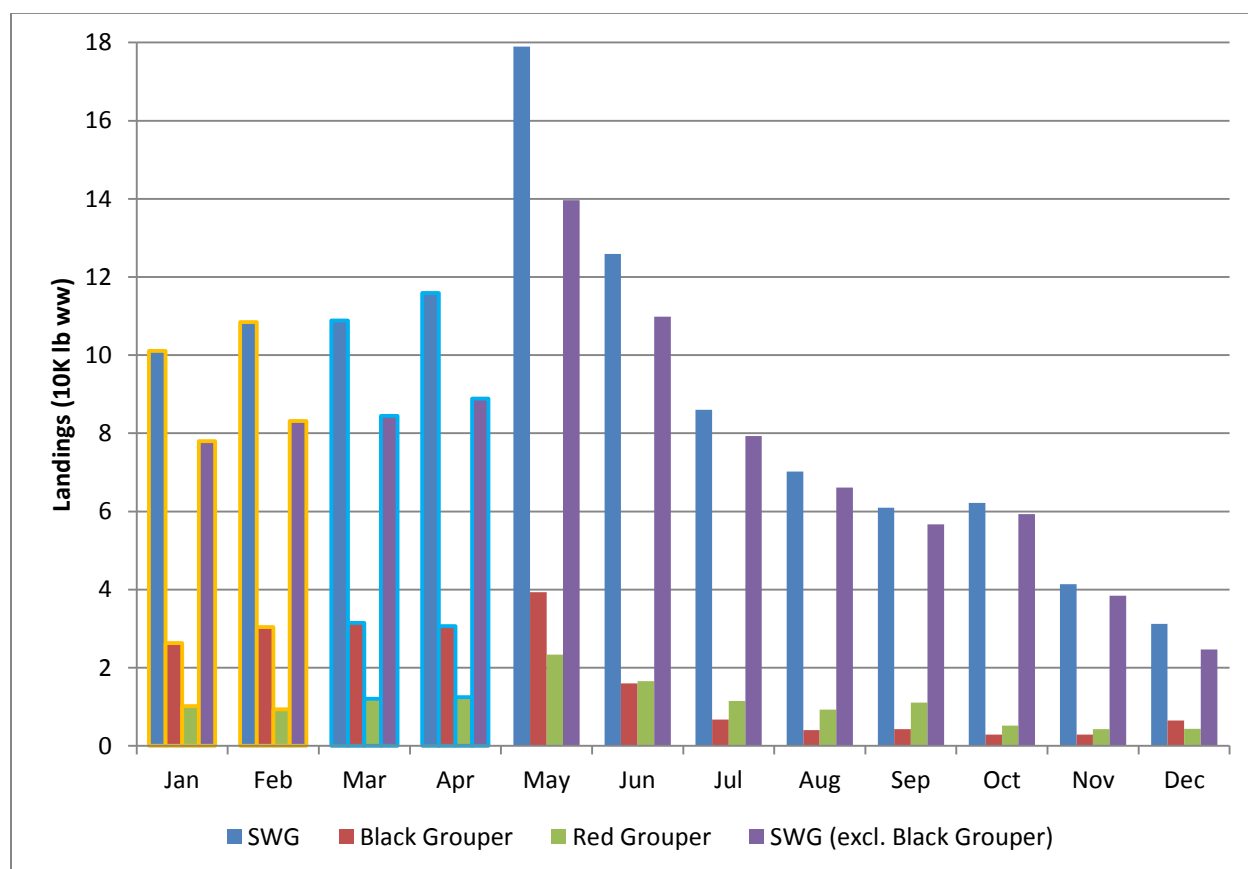
#### *Alternatives\**

1. No Action. Commercial 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 federal waters from January 1 through April 30.
2. Prohibit commercial 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 commercial 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 commercial harvest and possession of black grouper in federal waters off (specify area based on Alternative 2 above)
  - 4a. January – March (3 months)
  - 4b. January
  - 4c. February
  - 4d. March
5. Prohibit commercial harvest and possession of red grouper in federal waters off (specify area based on Alternative 2 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



grouper and red porgy was closed each year during March and April with implementation of Amendment 9 (SAFMC 1998) in 1999. The months of January through April were closed to commercial harvest of all shallow-water grouper with implementation of Amendment 16 (SAFMC 2009a) in mid-2009. Estimates of landings that would be realized during openings in the January-April time period are based on the mean ratios from the last three completely open fishing years for those months. For January-February, the mean ratio of January-February to May 2007-2009 landings was applied. For March-April, the mean ratio of March-April to May 1996-1998 landings was applied. Landings in the January-April period are projected to be relatively high (between 40-80% of May landings); however, this analytical approach does not account for the potential redistribution of peak effort to May following the implementation of the March-April closure in 1999, nor does it account for potential declines in catch rates in the May-December period if the fishery opened earlier in the calendar year. Thus, it is likely the projected landings presented in **Figure 4.7.1.1** are an upper bound for what might be caught if the closure months were modified.



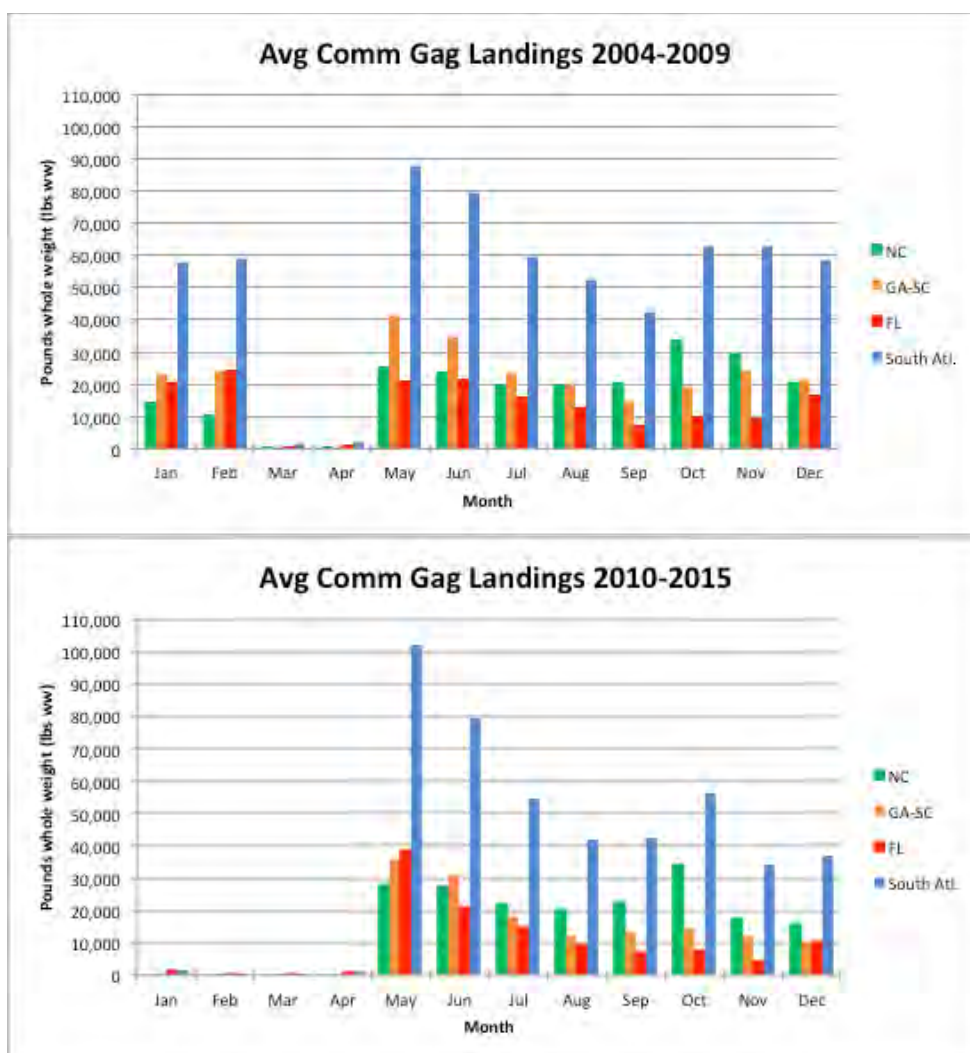
**Figure 4.7.1.1.** Mean 2014-2016 (no outline) and projected (outlines) monthly commercial landings for shallow-water grouper (SWG: gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney), black grouper, red grouper, and SWG excluding black grouper. Orange outlines denote expansions using mean ratio of Jan-Feb to May 2007-2009 landings; blue outlines denote expansions using mean ratio of Mar-Apr to May 1996-1998 landings.

Mean monthly estimates of commercial discards for the affected species in this amendment, including shallow-water groupers, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. From 2014 through 2016, discards of

shallow-water grouper species were relatively low with no discernible peaks throughout the year. Small peaks in discards are present in May, at the very beginning of the commercial fishing year for this group of species, and November.

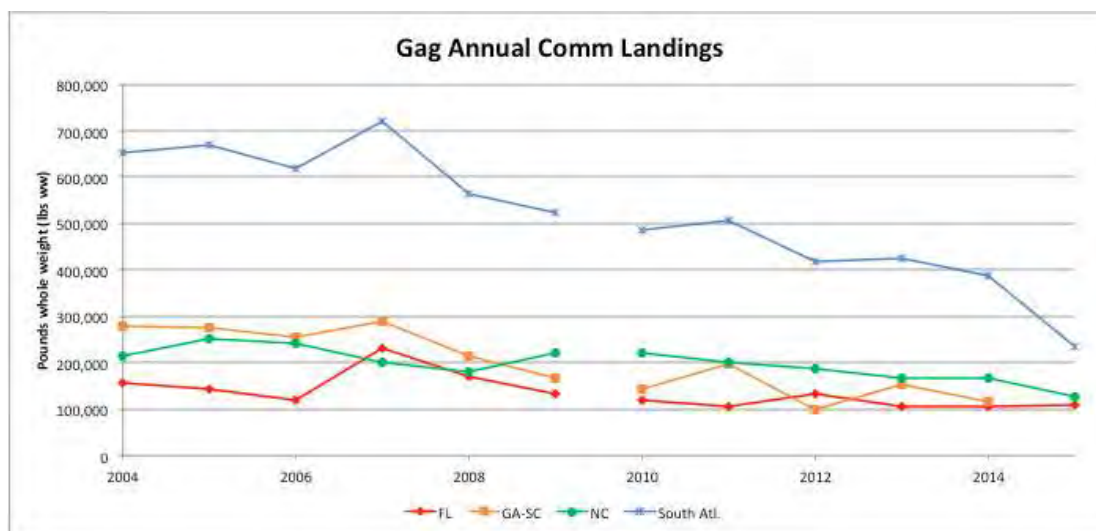
The following series of figures pertain to individual shallow-water grouper species. Average monthly and annual commercial landings are shown by state (data for Georgia and South Carolina were aggregated to maintain confidentiality).

Average commercial landings (pounds whole weight; lbs ww) of **gag** are shown in **Figure 4.7.1.2** by month and state for pre-closure (2004-2009) and post-closure (2010-2015) years. For easier comparison, the range of landings (y-axis) was kept the same for both figures (Source: SAFMC based on SAFE data from SEFSC). Note that an annual prohibition on commercial sale and purchase was put in place during March and April for gag (also black grouper and red porgy) through implementation of Amendment 9 in 1999 (SAFMC 1998).



**Figure 4.7.1.2.** Average monthly commercial 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

Annual commercial landings (lbs ww) of **gag** from 2014 through 2015 are shown in **Figure 4.7.1.3**.



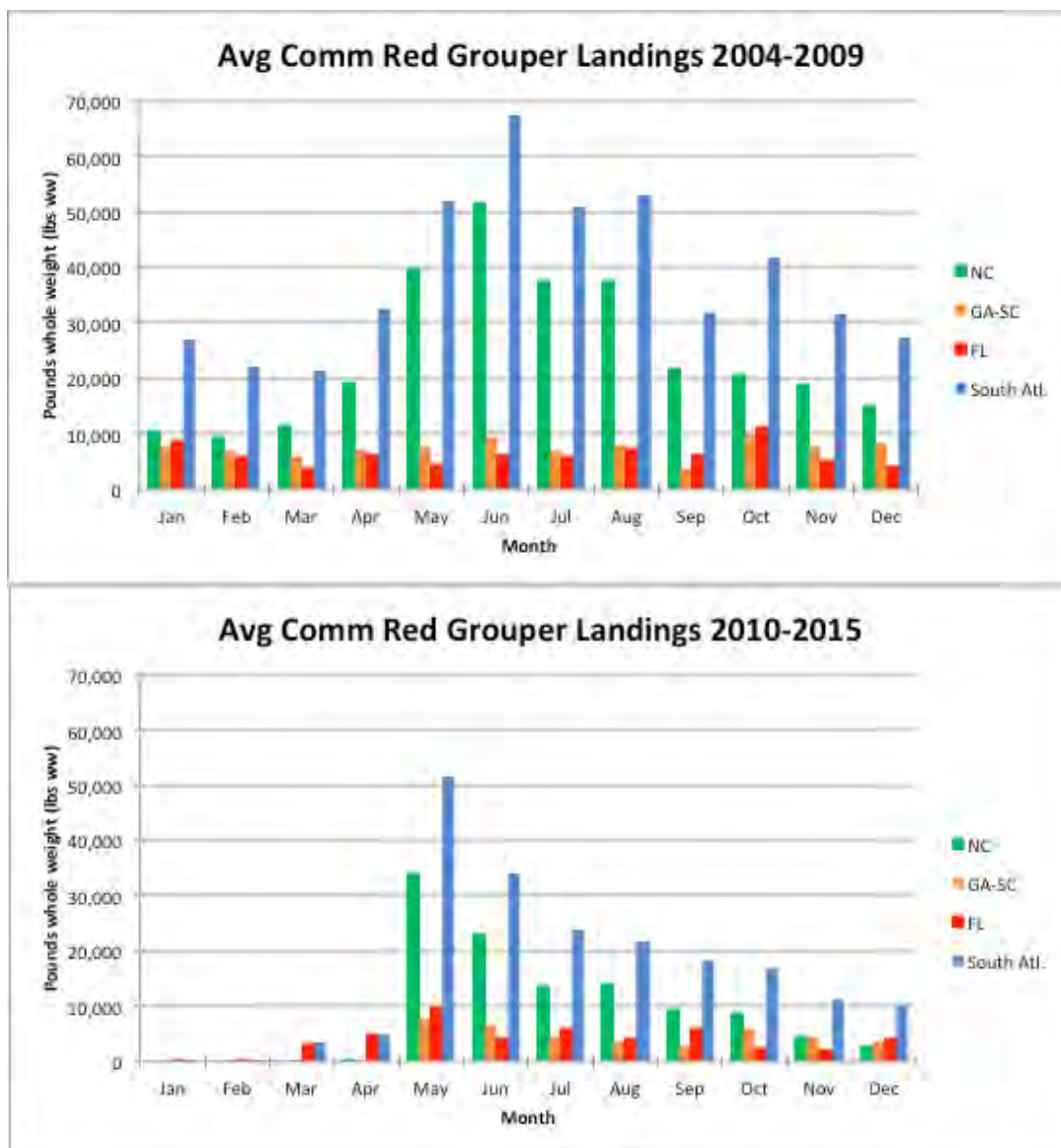
**Figure 4.7.1.3.** Annual commercial landings of **gag** from 2004 through 2015 by state. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series.  
Source: SAFMC

Commercial landings of gag in the South Atlantic during 2004-2009 peaked in May, decreased throughout summer months, and increased slightly during the fall (**Figure 4.7.1.2**). Low landings in March and April reflect the prohibition on sale and purchase (along with black grouper and red porgy) during those months implemented in 1999 through Amendment 9 (SAFMC 1998). A similar trend in overall landings is evident for years after the closure on all shallow-water groupers was implemented in 2009. Average commercial landings of gag for the South Atlantic in the month of May increased slightly from 2009 to 2010 (**Figure 4.7.1.2**).

The distribution of commercial harvest by state is similar in years before and after implementation of the January-April seasonal closure. Landings from South Carolina south are higher in spring months whereas a fall harvest is evident off North Carolina (**Figure 4.7.1.2**).

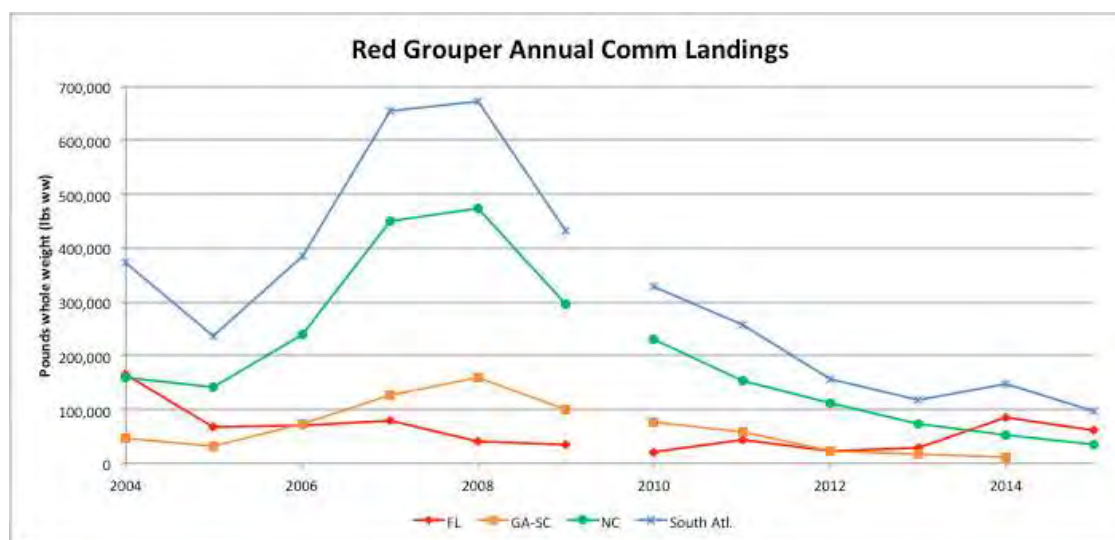
In the South Atlantic, gag spawn from January through June with a peak in February and April (**Table 4.1.12**). Hence, it is expected that **Alternative 1 (No Action)** would have beneficial biological effects on the species as it encompasses the period of peak spawning activity. More information on 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.

Average commercial landings (pounds whole weight; lbs ww) of **red grouper** are shown in **Figure 4.7.1.4** by month and state for pre-closure (2004-2009) and post-closure (2010-2015) years. For easier comparison, the range of landings (y-axis) was kept the same for both figures (Source: SAFMC based on SAFE data from SEFSC).



**Figure 4.7.1.4.** Average monthly commercial landings (pounds whole weight) of **red grouper** 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 commercial landings (lbs ww) of **red grouper** from 2014 through 2015 are shown in **Figure 4.7.1.5**.



**Figure 4.7.1.5.** Annual commercial landings (pounds whole weight) 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

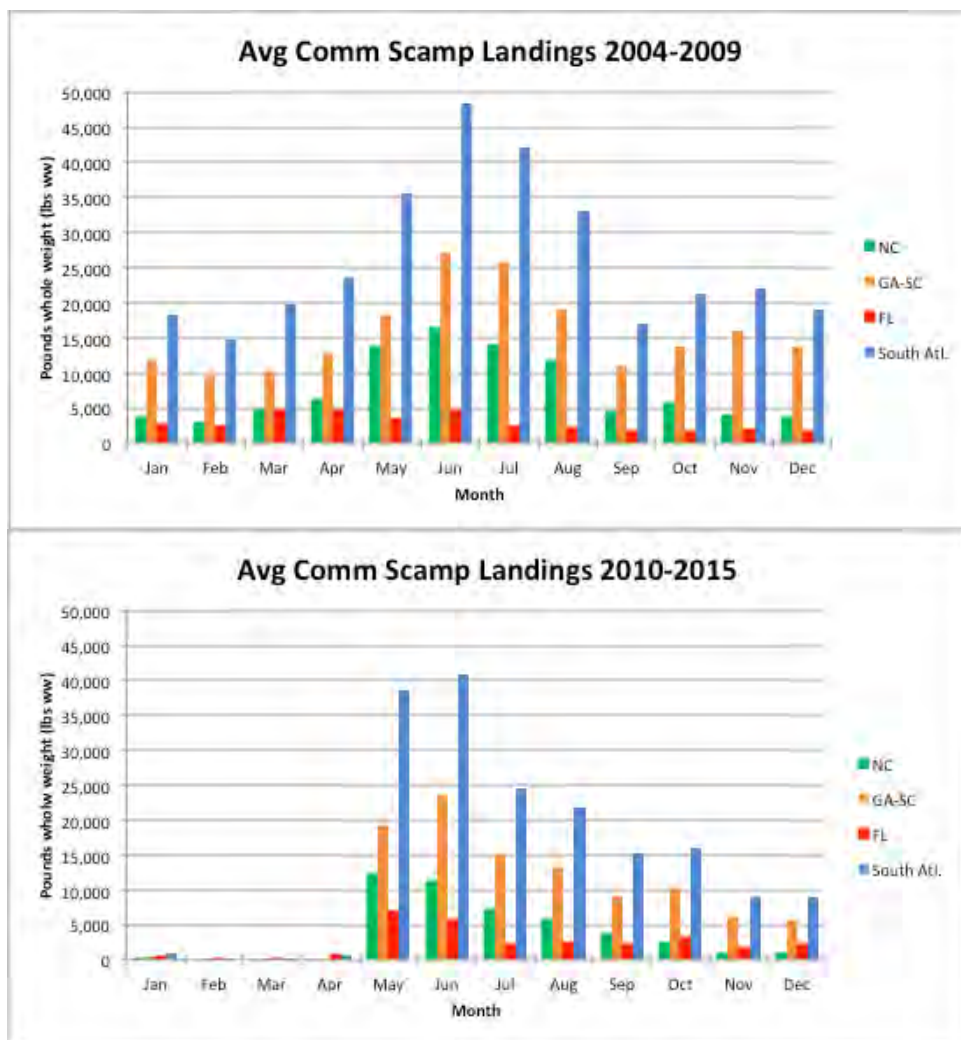
Prior to implementation of the seasonal closure, red grouper landings in the South Atlantic peaked in June whereas the peak has occurred in May since implementation of the closure in 2009. There has been an overall decrease in red grouper commercial landings in the South Atlantic since 2009 compared to prior years (**Figure 4.7.1.4**). The trend is mirrored in the commercial landings of red grouper off North Carolina. Indeed, **Figure 4.7.1.4** shows that North Carolina has significantly higher landings of red grouper than the rest of the South Atlantic states. Landings were reported from Florida in 2015 during March (12,775 lbs ww) and April (18,785 lbs ww).

Red grouper spawn from February through June in the South Atlantic with a peak in April (**Table 4.1.1.2**). 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 are most abundant off North Carolina (**Figure 4.7.1.4**); 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



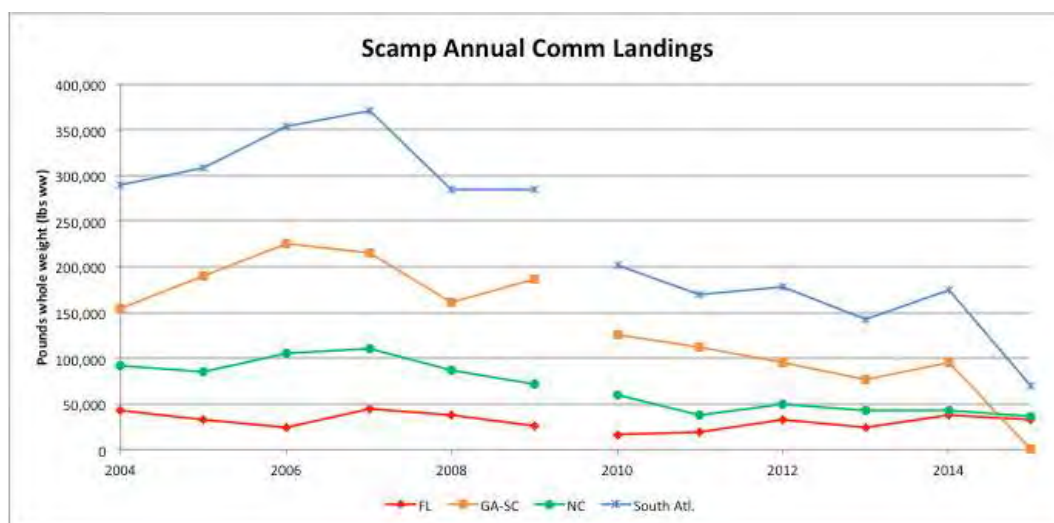
by a month, and **Sub-alternative 5c** would shift the closure by two months. It is expected that **Sub-alternatives 5a** and **5b** would have similar biological effects as they both include the month of May and commercial fishing for red grouper is low or non-existent in January off North Carolina. **Sub-alternative 5c** would allow fishing for red grouper in February, when the species is reportedly commencing spawning activity in the South Atlantic (**Table 4.1.1.2**). 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.

Average commercial landings (pounds whole weight; lbs ww) of **scamp** are shown in **Figure 4.7.1.6** by month and state for pre-closure (2004-2009) and post-closure (2010-2015) years. For easier comparison, the range of landings (y-axis) was kept the same for both figures (Source: SAFMC based on SAFE data from SEFSC).



**Figure 4.7.1.6.** Average monthly commercial landings (pounds whole weight) of **scamp** 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 commercial landings (lbs ww) of **scamp** from 2014 through 2015 are shown in **Figure 4.7.1.7**.



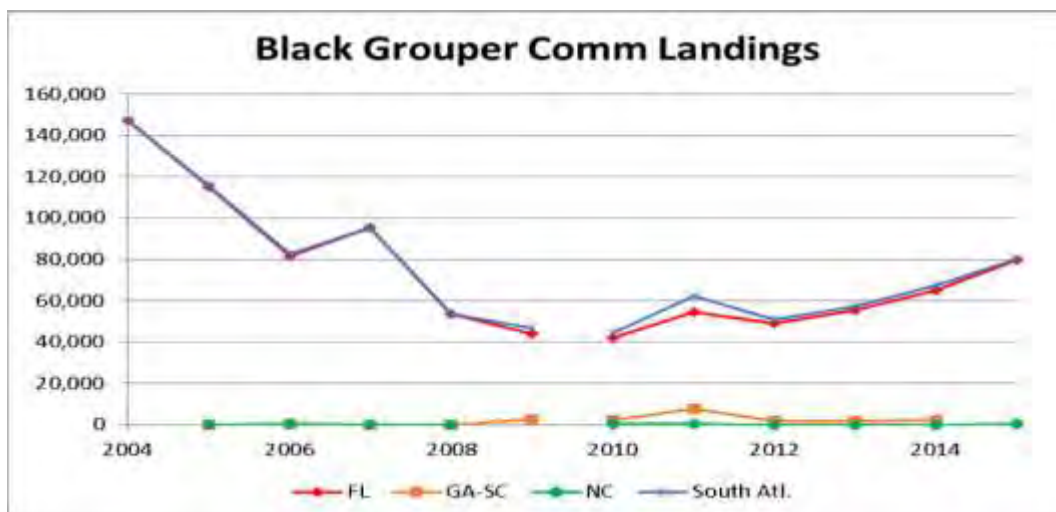
**Figure 4.7.1.7.** Annual commercial landings (pounds whole weight) of **scamp** from 2004 through 2015 by state. The shallow-water grouper closure was implemented in 2009, depicted in the figure by a break in the series.

Source: SAFMC

The overall trend in the distribution of commercial landings of scamp in the South Atlantic prior to the seasonal closure and thereafter appear essentially unchanged (**Figure 4.7.1.6**). The magnitude of landings, however, has diminished since 2009. Landings show a peak in June both in years prior to and after implementation of the closure and have been highest off South Carolina-Georgia compared to the rest of the South Atlantic states.

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 4.1.1.2**). Based on this information, the current seasonal closure on commercial 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 4.1.1.2**). 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**.

Annual commercial landings (lbs ww) of **black grouper** from 2004 through 2015 are shown in **Figure 4.7.1.8**.



**Figure 4.7.1.8.** Annual commercial 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

In the South Atlantic, black grouper are most commonly found in the Florida Keys along the reef tract, and are caught along high relief areas in deeper waters off of the west coast of Florida to the Florida Middle Grounds and off of the east coast of Florida (SEDAR 19 2010). Indeed, annual commercial landings indicate that the vast majority of commercial black grouper harvest takes place in Florida.

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 commercial 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.

Mean monthly estimates of commercial discards for the affected species in this amendment, including Shallow-water groupers, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. From 2014 through 2016, discards of



shallow-water grouper species in the commercial fishery were higher overall than those for other snapper grouper species, except red porgy, with peaks in May and September-November.

#### **4.7.2 Economic Effects**

#### **4.7.3 Social Effects**

A description of the communities that would most likely be affected by changes in commercial management of shallow water snapper grouper species is included in **Section 3.4**. The potential effects on commercial fishing 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 commercial 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 access to the shallow water species.

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 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 commercial 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 4.7.1**). 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**.

#### **4.7.4 Administrative Effects**

## 4.8 Action 8. Remove the commercial minimum size limit for certain deep-water species

### 4.8.1 Biological Effects

The current commercial size limit of 12 inches total length (TL) for queen snapper, silk snapper, and blackfin snapper was established in Amendment 9 (SAFMC 1998). It was difficult to determine the effects of **Alternative 2** due to the lack of commercial discard data available. The only discard data available for the years 2014-2016 were from the SEFSC Supplemental Discard Logbook Program. The discard logbook database (accessed May 2017) contains self-reported discard data from a 20% sub-sample (by region and gear fished) of all commercial vessels with federal fishing permits. From 2014-2016, only two trips reported discards for silk snapper and no discards were reported for queen snapper or blackfin snapper (**Table 4.8.1.1**). None of the species were reported as being kept for bait. Among trips with reported discards for any of the three species, there were five silk snapper discarded alive due to being undersized. Even though the discard condition was reported as alive, it is likely that discard mortality is high. A literature search did not reveal any discard mortality studies specific to the species in this action, but other studies of commercially discarded red snapper have estimated discard mortality rates > 50% outside of 60 m (Campbell et al. 2014, Pulver 2017).

Expanding the observed discard rates to the fishery as a whole is non-informative due to low reported encounters in recent years (see **Table 4.1.1.2**). Available data suggest minimal changes in discard or harvest rates would be expected under **Alternative 2**. 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.

**Table 4.8.1.1.** Number of discards of queen, silk, and blackfin snapper reported to the coastal logbook program from 2014 through 2016 for the South Atlantic.

Species	Number Discarded	Discard Condition	Discard Reason
Queen Snapper	0	_____	_____
Silk Snapper	5	All Alive	Size Limit
Blackfin Snapper	0	_____	_____

#### *Alternatives\**

1. No Action. The commercial 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 commercial 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

## **4.8.2 Economic Effects**

## **4.8.3 Social Effects**

A description of the communities that would most likely be affected by changes in commercial management of queen, silk and blackfin snapper is included in **Section 3.4**. 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 4.8.1**). 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 these stocks.

However, as discussed in **Section 4.8.1**, 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 commercial trips, and are similar to expected effects of **Alternative 1 (No Action)**, because these species are not commonly caught.

## **4.8.4 Administrative Effects**

Beneficial administrative effects would be expected from **Alternative 2**, when compared with **Alternative 1 (No Action)**. Removing the minimum size limit for deep water species would create consistent regulations with other managed deep water species, which would help the public avoid confusion with regulations and aid law enforcement. Administrative impacts on the agency associated with the action alternatives would be incurred by rulemaking, outreach, education and enforcement. Because there is a minimum size limit already in place for these three deep water species in the South Atlantic Region under **Alternative 1 (No Action)**, removing the minimum size limit under **Alternatives 2** would not be unusually burdensome.

## 4.9 Action 9. Decrease the commercial size limit for gray triggerfish off the east coast of Florida

### 4.9.1 Biological Effects

The South Atlantic Fishery Management Council recently modified the gray triggerfish minimum size limit for the commercial sector in federal waters off the east coast of Florida in Amendment 29, effective July 1, 2015 (SAFMC 2014). This amendment raised the minimum size limit in federal waters off the east coast of Florida from 12 inches total length (TL) to 14 inches fork length (FL). To evaluate the effects of lowering the current minimum size limit, commercial catch data collected by the Southeast Fisheries Science Center's (SEFSC) Trip Intercept Program (TIP) prior to the current rule were used to determine potential impacts. Only gray triggerfish harvested from January 2014 through June 2015 by the commercial sector in federal waters off east Florida were used in the analyses. For detailed methodology of the analysis refer to **Appendix J**.

#### *Alternatives\**

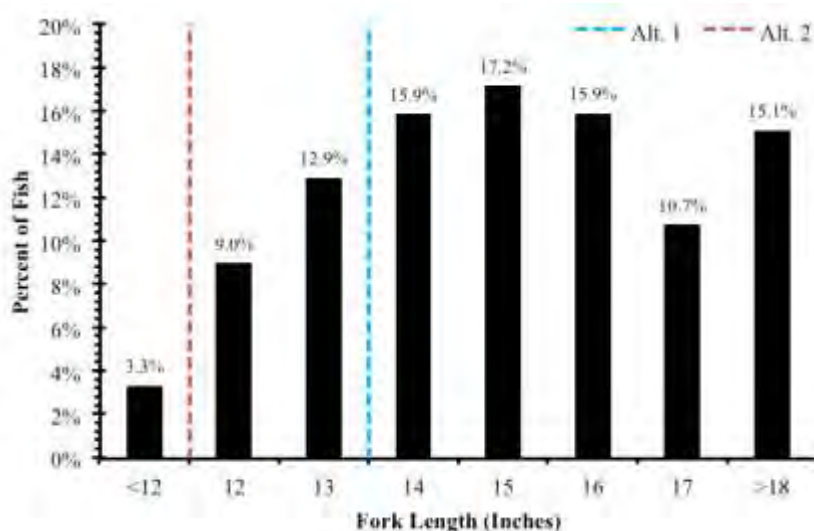
1. **No Action.** The commercial minimum size limit for gray triggerfish in the South Atlantic federal waters off the east coast of Florida is 14 inches fork length (FL). The commercial minimum size limit for gray triggerfish in the federal waters off Georgia, South Carolina, and North Carolina is 12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

Alternative 2. Decrease the commercial minimum size limit for gray triggerfish in the 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

**Figure 4.9.1.1** shows gray triggerfish length distribution in 1-inch increments from January 2014 to June 2015 for the commercial sector. The majority of the gray triggerfish harvested were above the current minimum size limit of 14 inches FL (**Alternative 1 (No Action)**). Lowering the current size limit to 12 inches FL (**Alternative 2**) would result in approximately 20% additional gray triggerfish available for harvest. This is consistent with recent analyses from Amendment 29 (SAFMC 2014) that reported between 11% and 26% of the mean monthly landings were less than 14 inches FL in the South Atlantic from 2007 through 2012. **Alternative 2** would also likely reduce discards during the open months; however, harvest rates could also increase possibly shortening the commercial fishing seasons. In-season closures have been implemented for gray triggerfish every year since 2012 (**Table 4.9.1.1**).

Fishing Year	Fishing Season	Total Landings	ACL	Units	Quota %	Closure Date
2015	Jan 1 - June 30	243,566	272,880	ww	89.26	5/8/15
	July 1 - Dec 31	85,164	63,918		133.24	9/8/15
2014	Jan 1 - Dec 31	252,783	272,880		92.64	5/12/14
2013		322,455	272,880		118.17	7/7/2013
2012		317,161	305,262		103.90	9/11/12; Re-opened 12/12/12-12/19/12



**Figure 4.9.1.1.** Length distribution of gray triggerfish (inches fork length) caught in federal waters off east Florida generated from commercial TIP (n=2,616) data from January 2014 to June 2015. Dashed lines denote the commercial minimum size limit proposed in each alternative.

Similar to the length distribution, lowering the size limit to 12 inches FL would increase the rate of harvest, thus increasing landings and possibly shortening the current commercial seasons (**Table 4.9.1.1**). The reliability of this analysis is dependent upon the accuracy of the underlying data and input assumptions. This analysis assumes that the size distribution of the commercial harvest of gray triggerfish from January 2014 to June 2015 will reflect the size distribution of gray triggerfish commercial harvest in the future.

**Table 4.9.1.1.** Estimated percent increase in whole weight of commercial gray triggerfish landings at 1-inch intervals between 12-14 inches fork length (FL). The increases were generated with TIP data from January 2014 to June 2015 from a sample of 2,616 fish.

Minimum Size Limit (inches FL)	Percent Increase
12	19.7
13	12.5
14	0.0

The biological effects of **Alternative 2** could be negative even with overall harvest limited to the ACL and with AMs in place to prevent overages. The reduction in discarded fish during the open months may have minimal impact due to the low discard mortality of 12.5% estimated in SEDAR 41 (2016) and the loss in egg production. However, a decrease in the size limit, as proposed under **Alternative 2**, could have negative biological effects if larger fish produce more eggs. The length at 50% maturity (L50) in SEDAR 41 (2016) was estimated at 177 mm (7 inches) for female gray triggerfish. Based on equations in SEDAR 41 for length-age relationship (Von Bertalanffy equation) and egg production at age, a 12-inch gray triggerfish female produces about half the number of eggs as a 14-inch fish.

Mean monthly estimates of commercial discards for the affected species in this amendment, including gray triggerfish, from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Table 4.1.1.3**. From 2014 through 2016, discards of gray

triggerfish in the commercial fishery were highest from July through September. However, the current commercial split season, was implemented in July 2015 (Amendment 29; SAFMC 2014).

#### **4.9.2 Economic Effects**

#### **4.9.3 Social Effects**

A description of the communities that would most likely be affected by changes in commercial management of gray triggerfish is included in **Section 3.4**. Some social effects of minimum size limits would be associated with the biological effects on gray triggerfish (**Section 4.9.1**). 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 commercial trip profitability, 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 Florida commercial fishermen by increasing the number of fish that can be kept, which may increase trip profitability. **Alternative 2** would also make the minimum size limit consistent for all South Atlantic states, and be expected to reduce the number of discards.

There is a greater likelihood that landings and rate of harvest would increase under the proposed minimum size limit in **Alternative 2** than 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 commercial fishermen targeting gray triggerfish. The benefits and costs to commercial 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 commercial season.

#### **4.9.4 Administrative Effects**

Beneficial administrative effects would be expected from **Alternative 2**, when compared with **Alternative 1 (No Action)**. Alternatives that specify a consistent minimum size limits in state and federal waters throughout the South Atlantic Council's jurisdiction would help the public avoid confusion with regulations and aid law enforcement. Administrative impacts on the agency associated with the action alternatives would be incurred by rulemaking, outreach, education and enforcement.

## Chapter 5. Council's Choice for the Preferred Alternatives

### 5.1 Action 1. Establish a commercial split season for blueline tilefish

#### 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?

#### ***Alternatives\****

1. No Action. The commercial fishing year for blueline tilefish in the South Atlantic EEZ is from January 1 to December 31.
2. Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.
3. Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

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

## 5.2 Action 2. Establish a commercial split season for red porgy

### 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?

#### ***Alternatives\****

1 (No Action). The commercial fishing year for red porgy in the South Atlantic federal waters is from January 1 to December 31. During January, February, March, and April, the seasonal harvest limit of red porgy in or from South Atlantic federal waters is three per person per day or three per person per trip, whichever is more restrictive. From May 1 through December 31, the trip limit is 120 fish.

2. Maintain the annual January 1 to April 30 seasonal harvest limit for red porgy.

Sub-Alternative 2a. Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

Sub-alternative 2b. Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

3. Remove the annual January 1 to April 30 seasonal harvest limit for red porgy.

Sub-Alternative 3a. Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

Sub-Alternative 3b. Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

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



### **5.3 Action 3. Establish a commercial split season for snowy grouper**

#### **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?**

#### ***Alternatives\****

1 No Action. The commercial fishing year for snowy grouper in the South Atlantic federal waters is from January 1 to December 31.

2. Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

3. Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

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

## **5.4 Action 4. Establish a commercial split season for greater amberjack**

### **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?**

#### ***Alternatives\****

1 No Action. The commercial fishing year for greater amberjack in the South Atlantic federal waters is from March 1 to the end of February. During April, commercial harvest is limited to one per person per day or one per person per trip, whichever is more restrictive.

2. Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through August 31 and XX% to the period September 1 through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. Commercial harvest would still be prohibited annually in April.

3. Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. Commercial harvest would still be prohibited annually in April.

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

## **5.5 Action 5. Modify the commercial trip limit for vermillion snapper in the second season**

### **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?**

#### ***Alternatives\****

1 No Action. The commercial trip limit for vermillion snapper in the South Atlantic federal waters is 1,000 pounds gutted weight (lbs gw) and the commercial ACL is split equally between two 6-month seasons. When 75% of the vermillion snapper seasonal quota is met or is projected to be met, the trip limit is reduced to 500 lbs gw. Any remaining quota from Season 1 transfers to Season 2. Any remaining quota from Season 2 is not carried forward.

2. Implement a 750 lbs gw vermillion snapper commercial trip limit for the second season (July 1 through December 31). The commercial trip limit is reduced to 500 lbs gw when 75% of the second season quota is met or is projected to be met.

3. Remove the step-down to 500 lbs gw when 75% of the seasonal quota is met or projected to be met, and implement a 500 lbs gw vermillion snapper commercial trip limit for the second season (July 1 through December 31).

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

## 5.6 Action 6. Implement a commercial trip limit for the Other Jacks Complex

### 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?

#### *Alternatives\**

1 No Action. There is no commercial trip limit for the Other Jacks Complex (lesser amberjack, almaco jack, and banded rudderfish).

2. Establish a commercial trip limit for the Other Jacks Complex.

Sub-alternative 2a. 500 pounds whole weight (lbs ww)

Sub-alternative 2b. 400 lbs ww

Sub-alternative 2c. 300 lbs ww

3. Establish a commercial trip limit for almaco jack.

Sub-alternative 3a. 500 lbs ww

Sub-alternative 3b. 400 lbs ww

Sub-alternative 3c. 300 lbs ww

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

## **5.7 Action 7. Modify the seasonal prohibition on commercial harvest and possession of shallow-water groupers**

### **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?**

#### ***Alternatives\****

1. No Action. Commercial 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 federal waters from January 1 through April 30.

2. Prohibit commercial harvest and possession of shallow-water grouper species annually by area:

Sub-alternative 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).

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)

3. Prohibit commercial harvest and possession of shallow-water grouper species (excluding black grouper) south of 28° North latitude (approximately off Palm Bay, Florida):

Sub-alternative 3a. January – March (3 months)

Sub-alternative 3b. February – March (2 months)

Sub-alternative 3c. February – April (3 months)

Sub-alternative 3d. February – May (4 months)

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

Sub-alternative 4a. January – March (3 months)

Sub-alternative 4b. January

Sub-alternative 4c. February

Sub-alternative 4d. March

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

Sub-alternative 5a. January – May (5 months)

Sub-alternative 5b. February – May (4 months)

Sub-alternative 5c. March – June (4 months)

\* Preferred indicated in bold. Refer to Chapter 2 for detailed

## **5.8 Action 8. Remove the commercial minimum size limit for certain deep-water species**

### **5.8.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations**

### **5.8.2 Law Enforcement AP Comments and Recommendations**

### **5.8.3 Scientific and Statistical Committee (SSC) Comments and Recommendations**

### **5.8.4 Public Comments and Recommendations**

### **5.8.5 South Atlantic Council's Conclusion**

### **5.8.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?**

#### ***Alternatives\****

1. No Action. The commercial 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 commercial 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

## **5.8 Action 9. Decrease the commercial minimum size limit for gray triggerfish off the east coast of Florida**

### **5.9.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations**

### **5.9.2 Law Enforcement AP Comments and Recommendations**

### **5.9.3 Scientific and Statistical Committee (SSC) Comments and Recommendations**

### **5.9.4 Public Comments and Recommendations**

### **5.9.5 South Atlantic Council's Conclusion**

### **5.9.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?**

#### ***Alternatives\****

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

Alternative 2. Decrease the commercial minimum size limit for gray triggerfish in the 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

## Chapter 6. Cumulative Effects



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

Name	Agency/Division	Title
Brian Chevront	SAFMC	Deputy Executive Director
Myra Brouwer	SAFMC	IPT Lead/Fishery Biologist
Kari McLauchlin	SAFMC	Social 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
Adam Bailey	SERO/SF	Technical Writer and Editor
Nick Farmer	SERO/SF	Data Analyst
Mike Travis	SERO/SF	Economist
Mike Jepson	SERO/SF	Social Scientist
Mary Wunderlich	SERO/PR	Fishery Biologist
David Dale	SERO/HC	EFH Specialist
Noah Silverman	NMFS/SER	Regional NEPA Coordinator
Jocelyn Dambrosio	NOAA GC	General Counsel
	SERO/OLE	Criminal Investigator
Larry Perruso	SEFSC	
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  
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NMFS, Southeast Region  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701  
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### **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

## 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<sub>MSY</sub>:** 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  $B_{MSY}$  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<sub>30%SPR</sub>:** Fishing mortality that will produce a static  $SPR = 30\%$ .

**F<sub>45%SPR</sub>:** Fishing mortality that will produce a static  $SPR = 45\%$ .

**F<sub>OY</sub>:** 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<sub>MSY</sub>:** 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.
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	10/30/90	PR: 55 FR 31406	-Prohibited harvest/possession of goliath grouper in or

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

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			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).
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.

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

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.
			<ul style="list-style-type: none"> <li>-Granted non-transferable permit with 225 lb trip limit to all other vessels;</li> <li>-Modified problems, objectives, OY, and overfishing definitions;</li> <li>-Expanded the Council's habitat responsibility;</li> <li>-Allowed retention of snapper grouper species in excess of bag limit on permitted vessel with a single bait net or cast nets on board;</li> <li>-Allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.</li> </ul>
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule.
Regulatory Amendment #7 (1998a)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.
Amendment #9 (1998b)	2/24/99	PR: 63 FR 63276 FR: 64 FR 3624	<ul style="list-style-type: none"> <li>-<u>Red porgy</u>: 14" TL (recreational and commercial); 5 fish rec. bag limit; no harvest or possession &gt; bag limit, and no purchase or sale, in March and April;</li> <li>-<u>Black sea bass</u>: 10" TL (recreational and commercial); 20 fish rec. bag limit; required escape vents and escape panels with degradable fasteners in bsb pots;</li> <li>-<u>Greater amberjack</u>: 1 fish rec. bag limit; no harvest or possession &gt; bag limit, and no purchase or sale, during April; quota = 1,169,931 lb; began fishing year May 1; prohibited coring;</li> <li>-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) ;</li> <li>-<u>Vermilion snapper</u>: 11" TL (recreational), 12" TL commercial;</li> <li>-<u>Gag</u>: 24" TL (recreational); no commercial harvest or possession &gt; bag limit, and no purchase or sale, during March and April;</li> <li>-<u>Black grouper</u>: 24" TL (recreational and commercial); no harvest or possession &gt; bag limit, and no purchase or sale, during March and April;</li> <li>-<u>Gag and Black grouper</u>: within 5 fish aggregate grouper bag limit, no more than 2 fish may be gag or black grouper (individually or in combination);</li> <li>-<u>All snapper grouper without a bag limit</u>: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runner;</li> <li>-<u>Vessels with longline gear</u> aboard may only possess snowy, warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish.</li> </ul>



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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.
Amendment #11  Comprehensive Sustainable Fisheries Act Amendment  (1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	<p>-Maximum sustainable yield (MSY) proxy: goliath and Nassau grouper = 40% static spawning potential ratio (SPR); all other species = 30% static SPR;</p> <p>-OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR</p> <p>-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)</p> <p>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%)</p> <p>Golden tilefish: overfished (couldn't estimate static SPR)  Nassau grouper: overfished (couldn't estimate static SPR)  Goliath grouper: overfished (couldn't estimate static SPR)</p> <p>-overfishing level: goliath and Nassau grouper = <math>F &gt; F_{40\%}</math> static SPR; all other species: = <math>F &gt; F_{30\%}</math> static SPR</p> <p>Approved definitions for overfished and overfishing.  MSST = <math>[(1-M) \text{ or } 0.5 \text{ whichever is greater}] * B_{MSY}</math>.  MFMT = <math>F_{MSY}</math>.</p>

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 #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.
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 <i>Oculina</i> 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.

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			<p>4. <u>Black Sea Bass</u>  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.</p> <p>5. <u>Red Porgy</u> 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.</p>
Notice of Control Date	3/8/07	72 FR 60794	-Considered measures to limit participation in the snapper grouper for-hire sector.
Amendment #14 (2007)	2/12/09	PR: 73 FR 32281 FR: 74 FR 1621	-Established eight deepwater Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deepwater snapper grouper species.
Amendment #15A (2008a)	3/14/08	73 FR 14942	- Established rebuilding plans and status determination criteria for snowy grouper, black sea bass, and red porgy.
Notice of Control Date	12/4/08	74 FR 7849	-Established a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic.
Notice of Control Date	12/4/08	74 FR 7849	-Established control date for black sea bass pot sector in the South Atlantic.

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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 vermillion snapper;  For gag: -Specified interim allocations 51% commercial & 49% recreational; -Recreational and commercial shallow-water grouper spawning closure January through April; -Directed commercial quota= 352,940 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 vermillion snapper and species within the 3-fish grouper aggregate; For vermillion 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 deepwater coral HAPCs; -Created a “shrimp fishery access area” (SFAA) within the Stetson-Miami Terrace CHAPC boundaries; -Created allowable “golden crab fishing areas” with the Stetson-Miami Terrace CHAPC and Pourtales Terrace CHAPC boundaries; -Amended the golden crab FMP to require vessel monitoring.
Amendment #17A  (2010a)	12/3/10 red snapper closure; circle hooks 3/3/2011	PR: 75 FR 49447 FR: 75 FR 76874	-Required use of non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear north of 28 deg. N latitude in the South Atlantic EEZ; -Specified an annual catch limit (ACL) and an accountability measure (AM) for red snapper with management measures to reduce the probability that catches will exceed the stocks’ ACL; -Specified a rebuilding plan for red snapper; -Specified status determination criteria for red snapper; -Specified a fishery-independent monitoring program for red snapper. -Implemented an area closure for snapper-grouper species.
Emergency Rule	12/3/10	75 FR 76890	-Delayed the effective date of the area closure for snapper grouper species implemented through Amendment 17A.
Amendment #17B (2010b)	1/30/11	PR: 75 FR 62488 FR: 75 FR 82280	-Specify ACL of 0 and prohibit fishing for speckled hind and warsaw grouper; -Prohibited harvest of 6 deepwater species seaward of 240 feet to curb bycatch of speckled hind and warsaw grouper (snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper, silk snapper). -Specify allocations, ACLs and AMs for golden tilefish; -Modified management measures as needed to limit harvest to the ACL or ACT; -Updated the framework procedure for specification of total allowable catch; -Specified ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing (snowy grouper, black grouper, black sea bass, red grouper, vermilion snapper, gag, speckled hind, warsaw grouper, golden tilefish);
Regulatory Amendment #9  (2010a)	Bag limit: 6/22/11 Trip limits: 7/15/11	PR: 76 FR 23930 FR: 76 FR 34892	-Established trip limits for vermilion snapper and gag; -Increased trip limit for greater amberjack; -Harvest management measures for black sea bass (trip limit, split season quotas, carry-over of unused ACL, gear restrictions, bag limit modification, and a spawning season closure).
Regulatory Amendment #10	5/31/11	PR: 76 FR 9530 FR: 76 FR 23728	-Eliminated closed area for snapper grouper species approved in Amendment 17A.

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

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

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Regulatory Amendment #19 (2013f)	ACL: 9/23/13 Pot closure: 10/23/13	PR: 78 FR 39700 FR: 78 FR 58249	-Specified ABC, and adjusted the ACL, recreational ACT and OY for black sea bass; -Implemented an annual closure on the use of black sea bass pots from November 1 to April 30.
Amendment #27 (2013g)	1/27/2014	PR:78 FR 78770 FR: 78 FR 57337	-Established the South Atlantic Council as the responsible entity for managing Nassau grouper throughout its range including federal waters of the Gulf of Mexico; -Modified the crew member limit on dual-permitted snapper grouper vessels; -Modified the restriction on retention of bag limit quantities of some snapper grouper species by captain and crew of for-hire vessels; -Minimized regulatory delay when adjustments to snapper grouper species' ABC, ACLs, and ACTs are needed as a result of new stock assessments; -Removed blue runner from snapper grouper FMP; -Addressed harvest of blue runner by commercial fishermen who do not possess a South Atlantic Snapper Grouper Permit.
Amendment #31 Joint South Atlantic and Gulf of Mexico Generic Headboat Reporting Amendment (2013h)	1/27/2014	PR:78 FR 59641 FR: 78 FR 78779	-Included under the Generic charter/headboat reporting amendment, that modified required logbook reporting for headboat vessels to require electronic reporting, regarding snapper grouper landings.
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;



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			-Modified gray triggerfish minimum size limits; -Established a commercial split season and commercial trip limits for gray triggerfish.
BlueLine Tilefish Emergency Rule	4/17/2014 through 10/10/2014 or 4/18/2015	PR: 79 FR 21636 FR:79 FR 61262	-Removed the blueLine tilefish portion from the deep-water complex ACL; -Established separate commercial and recreational ACLs and AMs for blueLine tilefish.
Regulatory Amendment #20 (2014d)	8/20/2015	PR: 80 FR 18797 FR: 80 FR 43033	-Adjusted the recreational and commercial ACLs for snowy grouper; -Adjusted the rebuilding strategy; -Modified the commercial trip limit; -Modified recreational bag limit; -Modified the recreational fishing season.
Amendment #32 (2014e)	3/30/2015	PR: 80 FR 3207 FR: 80 FR 16583	-End overfishing of blueLine tilefish; -Removed blueLine tilefish from the deepwater complex; -Specified AMs, ACLs, recreational ACLs, commercial trip limit, adjust recreational bag limit for blueLine tilefish; -Specified ACLs and revised the AMs for the recreational section of the deepwater complex (yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, black snapper, and blackfin snapper);
Regulatory Amendment #22 (2015a)	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.

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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 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 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 deepwater Coral HAPCs to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine, deepwater coral ecosystems in the world.

The Fishery Ecosystem Plan, slated to be revised every 5 years, will again be the vehicle to update and refine information supporting designation and future review of EFH and EFH-HAPCs for managed species. Planning for the update is being conducted in cooperation with the Habitat Advisory Panel during the fall and winter of 2013 with initiation during 2014.

### ***Ecosystem Approach to Deepwater Ecosystem Management***

The South Atlantic Council manages coral, coral reefs and live/hard bottom habitat, including deepwater corals, through the Fishery Management Plan for Coral, Coral Reefs and Live/Hard Bottom Habitat of the South Atlantic Region (Coral FMP). Mechanisms exist in the FMP, as amended, to further protect deepwater coral and live/hard bottom habitats. The SAFMC's Habitat and Environmental Protection Advisory Panel and Coral Advisory Panel have supported proactive efforts to identify and protect deepwater coral ecosystems in the South Atlantic region. Management actions in Comprehensive Ecosystem-Based Amendment (CE-BA 1) (SAFMC 2009b) established deepwater coral HAPCs (C- HAPCs) to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine deepwater coral ecosystems in the world. In addition, CE-BA 1 established areas within the CHAPC, which provide for traditional fishing in limited areas, which do not impact deepwater coral habitat. CE-BA 1, supported by the FEP, also addressed non-regulatory updates for existing EFH and EFH- HAPC information and addressed the spatial requirements of the Final EFH Rule (i.e., GIS presented for all EFH and EFH-HAPCs). Actions in this amendment included modifications in the management of the following: octocorals; special management zones (SMZs) off the coast of South Carolina; and sea turtle release gear requirements for snapper grouper fishermen. The amendment also designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPCs).

CE-BA 2 established annual catch limits (ACL) for octocorals in the South Atlantic as well as modifying the Fishery Management Unit (FMU) for octocorals to remove octocorals off the coast of Florida from the FMU (SAFMC 2011). The amendment also limited the possession of

managed species in the SMZs off South Carolina to the recreational bag limit for snapper grouper and coastal migratory pelagic species; modified sea turtle release gear requirements for the snapper grouper fishery based upon freeboard height of vessels; amends Council fishery management plans (FMPs) to designate or modify EFH and EFH-HAPCs, including the FMP for Pelagic Sargassum Habitat; amended the Coral FMP to designate EFH for deepwater Coral HAPCs designated under CE-BA 1; and amended the Snapper Grouper FMP to designate EFH-HAPCs for golden and blueline tilefish and the deepwater Marine Protected Areas. The final rule was published in the federal register on December 30, 2011, and regulations became effective on January 30, 2012.

### ***Building from a Habitat to an Ecosystem Network to Support the Evolution***

Starting with our Habitat and Environmental Protection Advisory Panel, the Council expanded and fostered a comprehensive Habitat network in our region to develop the Habitat Plan of the South Atlantic Region completed in 1998 to support the EFH rule. Building on the core regional collaborations, the Council facilitated an expansion to a Habitat and Ecosystem network to support development of the FEP and CE-BA as well as coordinate with partners on other regional efforts.

### ***Integrated Ocean Observing System (IOOS) and Southeast Coastal and Ocean Observing Regional Association (SECOORA)***

The Integrated Ocean Observing System (IOOS®) is a partnership among federal, regional, academic, and private sector parties that works to provide new tools and forecasts to improve safety, enhance the economy, and protect our environment. IOOS supplies critical information about our Nation's oceans, coasts, and Great Lakes. Scientists working to understand climate change, governments adapting to changes in the Arctic, municipalities monitoring local water quality, and industries affected by coastal and marine spatial planning all have the same need: reliable, timely, and sustained access to data and information that inform decision making. Improving access to key marine data and information supports several purposes. IOOS data sustain national defense, marine commerce, and navigation safety. Scientists use these data to issue weather, climate, and marine forecasts. IOOS data are also used to make decisions for energy siting and production, economic development, and ecosystem-based resource management. Emergency managers and health officials need IOOS information to make decisions about public safety. Teachers and government officials rely on IOOS data for public outreach, training, and education.

SECOORA is one of 11 Regional Associations established nationwide through the US 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, Deepwater Coral Habitat Areas of Particular Concern, Special Management Zones, and Allowable Gear Areas.
- Integration of OOS program capabilities and research Needs into the South Atlantic Fishery Ecosystem Plan.
- Collaboration with SECOORA to integrate OOS products with information included in the Council's Habitat and Ecosystem Web Services and Atlas to facilitate model and tool development.
- Expanding Map Services and the Regional Habitat and Ecosystem Atlas in cooperation with SECOORAs Web Services that will provide researchers access to data or products including those collected/developed by SA OOS partners.

SECOORA researchers are developing a comprehensive data portal to provide discovery of, access to, and metadata about coastal ocean observations in the southeast US. Below are various ways to access the currently available data.

One project recently funded by SECOORA initiated development of species specific habitat models that integrate remotely sensed and in situ data to enhance stock assessments for species managed by the Council. The project during 2013/2014 was initiated to address red porgy, gray triggerfish, black seabass, and vermilion snapper. Gray triggerfish and red porgy are slated for assessment through SEDAR in 2014/15 and 2015/16 respectively.

#### *National Fish Habitat Plan and Southeast Aquatic Resource Partnership (SARP)*

In addition, the Council serves on the National Habitat Board and, as a member of the Southeast Aquatic Resource Partnership (SARP), has highlighted this collaboration by including the Southeast Aquatic Habitat Plan (SAHP) and associated watershed conservation restoration targets into the FEP. Many of the habitat, water quality, and water quantity conservation needs identified in the threats and recommendations Volume of the FEP are directly addressed by on-the-ground projects supported by SARP. This cooperation results in funding fish habitat restoration and conservation intended to increase the viability of fish populations and fishing opportunity, which also meets the needs to conserve and manage Essential Fish Habitat for Council managed species or habitat important to their prey. To date, SARP has funded 53 projects in the region through this program. This work supports conservation objectives identified in the SAHP to improve, establish, or maintain riparian zones, water quality, watershed connectivity, sediment flows, bottoms and shorelines, and fish passage, and addresses other key factors associated with the loss and degradation of fish habitats. SARP

also developed the Southern Instream Flow Network (SIFN) to address the impacts of flow alterations in the Southeastern US aquatic ecosystems which leverages policy, technical experience, and scientific resources among partners based in 15 states. Maintaining appropriate flow into South Atlantic estuarine systems to support healthy inshore habitats essential to Council managed species is a major regional concern and efforts of SARP through SIFN are envisioned to enhance state and local partners ability to maintain appropriate flow rates.

### *Governor's South Atlantic Alliance (GSAA)*

Initially discussed as a South Atlantic Eco-regional Compact, the Council has also cooperated with South Atlantic States in the formation of a Governor's South Atlantic Alliance (GSAA). This will also provide regional guidance and resources that will address State and Council broader habitat and ecosystem conservation goals. The GSAA was initiated in 2006. An Executive Planning Team (EPT), by the end of 2007, had created a framework for the Governors South Atlantic Alliance. The formal agreement between the four states (NC, SC, GA, and FL) was executed in May 2009. The Agreement specifies that the Alliance will prepare a "Governors South Atlantic Alliance Action Plan" which will be reviewed annually for progress and updated every five years for relevance of content. The Alliance's mission and purpose is to promote collaboration among the four states, and with the support and interaction of federal agencies, academe, regional organizations, non-governmental organizations, and the private sector, to sustain and enhance the region's coastal and marine resources. The Alliance proposes to regionally implement science-based actions and policies that balance coastal and marine ecosystems capacities to support both human and natural systems. The GSAA Action Plan was released in December 2010 and describes the four Priority Issue Areas that were identified by the Governors to be of mutual importance to the sustainability of the region's resources: Healthy Ecosystems; Working Waterfronts; Clean Coastal and Ocean Waters; and Disaster-Resilient Communities. The goals, objectives, actions, and implementation steps for each of these priorities were further described in the GSAA Implementation Plan released in July 2011. The final Action Plan was released on December 1, 2010 and marked the beginning of intensive work by the Alliance Issue Area Technical Teams (IATTs) to develop implementation steps for the actions and objectives. The GSAA Implementation Plan was published July 6, 2011, and the Alliance has been working to implement the Plan through the IATTs and two NOAA-funded Projects. The Alliance also partners with other federal agencies, academia, non-profits, private industry, regional organizations, and others. The Alliance supports both national and state-level ocean and coastal policy by coordinating federal, state, and local entities to ensure the sustainability of the region's economic, cultural, and natural resources. The Alliance has organized itself around the founding principles outlined in the GSAA Terms of Reference and detailed in the GSAA Business Plan. A team of natural resource managers, scientists, and information management system experts have partnered to develop a Regional Information Management System (RIMS) and recommend decision support tools that will support regional collaboration and decision-making. In addition to regional-level stakeholders, state and local coastal managers and decision makers will also be served by this project, which will enable ready access to new and existing data and information. The collection and synthesis of spatial data into a suite of visualization tools is a critical step for long-term collaborative planning in the South Atlantic region for a wide range of coastal uses. The Council's Atlas presents the spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat

distribution, and fishery operation information and it can be linked to or drawn on as a critical part of the collaboration with the RIMS.

### *South Atlantic Landscape Conservation Cooperative*

One of the more recent collaborations is the Council's participation as Steering Committee member for the newly establish South Atlantic Landscape Conservation Cooperative (SALCC). Landscape Conservation Cooperatives (LCCs) are applied conservation science partnerships focused on a defined geographic area that informs on-the-ground strategic conservation efforts at landscape scales. LCC partners include DOI agencies, other federal agencies, states, tribes, non-governmental organizations, universities, and others. The newly formed Department of Interior Southeast Climate Services Center (CSC) has the LCCs in the region as their primary clients. One of the initial charges of the CSCs is to downscale climate models for use at finer scales.

The SALCC developed a Strategic Plan through an iterative process that began in December 2011. The plan provides a simple strategy for moving forward over the next few years. An operations plan was developed under direction from the SALCC Steering Committee to redouble efforts to develop version 1.0 of a shared conservation blueprint by spring-summer of 2014. The SALCC is developing the regional blueprint to address the rapid changes in the South Atlantic including but not limited to climate change, urban growth, and increasing human demands on resources which are reshaping the landscape. While these forces cut across political and jurisdictional boundaries, the conservation community does not have a consistent cross-boundary, cross-organization plan for how to respond. The South Atlantic Conservation Blueprint will be that plan. The blueprint is envisioned to be a spatially-explicit map depicting the places and actions need to sustain South Atlantic LCC objectives in the face of future change. The steps to creating the blueprint include development of: indicators and targets (shared metrics of success); the State of the South Atlantic (past, present, and future condition of indicators); and a Conservation Blueprint. Potential ways the blueprint could be used include: finding the best places for people and organizations to work together; raising new money to implement conservation actions; guiding infrastructure development (highways, wind, urban growth, etc.); creating incentives as an alternative to regulation; bringing a landscape perspective to local adaptation efforts; and locating places and actions to build resilience after major disasters (hurricanes, oil spills, etc.). Integration of connectivity, function, and threats to river, estuarine and marine systems supporting Council managed species is supported by the SALCC and enhanced by the Council being a voting member of its Steering Committee. In addition, the Council's Regional Atlas presents spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it be linked to or drawn on as a critical part of the collaboration with the recently developed SALCC Conservation Planning Atlas.

### *Building Tools to support EBM in the South Atlantic Region*

The Council has developed a Habitat and Ecosystem Section of the website <http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx> and, in cooperation with the Florida Wildlife Research Institute (FWRI), developed a Habitat and Ecosystem Internet Map Server (IMS). The IMS was developed to support Council and regional partners' efforts in the transition to EBM. Other regional partners include NMFS Habitat Conservation, South Atlantic States, local management authorities, other Federal partners,

universities, conservation organizations, and recreational and commercial fishermen. As technology and spatial information needs evolved, the distribution and use of GIS demands greater capabilities. The Council has continued its collaboration with FWRI in the now evolution to Web Services provided through the regional SAFMC Habitat and Ecosystem Atlas ([http://ocean.floridamarine.org/safmc\\_atlas/](http://ocean.floridamarine.org/safmc_atlas/)) and the SAFMC Digital Dashboard ([http://ocean.floridamarine.org/safmc\\_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/](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/](http://ocean.floridamarine.org/sa_efh/))

Spatial presentation of managed areas in the region; SAFMC Managed Areas: ([http://ocean.floridamarine.org/safmc\\_managedareas/](http://ocean.floridamarine.org/safmc_managedareas/))

An online life history and habitat information system supporting Council managed, State managed, and other regional species was developed in cooperation with FWRI. The Ecospecies system is considered dynamic and presents, as developed, detailed individual species life history reports and provides an interactive online query capability for all species included in the system: <http://atoll.floridamarine.org/EcoSpecies>

#### Web Services System Updates:

Essential Fish Habitat (EFH) – displays EFH and EFH-HAPCS for SAFMC managed species and NOAA Fisheries Highly Migratory Species.

Fisheries - displays Marine Resources Monitoring, Assessment, and Prediction (MARMAP) and Southeast Area Monitoring and Assessment Program South Atlantic (SEAMAP-SA) data.

Managed Areas - displays a variety of regulatory boundaries (SAFMC and Federal) or management boundaries within the SAFMC's jurisdiction.

Habitat – displays habitat data collected by SEADESC, Harbor Branch Oceanographic Institute (HBOI), and Ocean Exploration dives, as well as the SEAMAP shallow and ESDIM deepwater bottom mapping projects, multibeam imagery, and scientific cruise data.

Multibeam Bathymetry - displays a variety of multibeam data sources and scanned bathymetry charts.

Nautical Charts – displays coastal, general, and overview nautical charts for the SAFMC's jurisdictional area.

#### ***Ecosystem Based Action, Future Challenges and Needs***

The Council has implemented ecosystem-based principles through several existing fishery management actions including establishment of deepwater Marine Protected Areas for the Snapper Grouper fishery, proactive harvest control rules on species (e.g., dolphin and wahoo) which are not overfished, implementing extensive gear area closures which in most cases eliminate the impact of fishing gear on Essential Fish Habitat, and use of other spatial management tools including Special Management Zones. Pursuant to development of the



Comprehensive Ecosystem-Based Amendment, the Council has taken an ecosystem approach to protect deepwater ecosystems while providing for traditional fisheries for the Golden Crab and Royal Red shrimp in areas where they do not impact deepwater coral habitat. The stakeholder based process taps in on an extensive regional Habitat and Ecosystem network. Support tools facilitate Council deliberations and with the help of regional partners, are being refined to address long-term ecosystem management needs.

One of the greatest challenges to the long-term move to EBM in the region is funding high priority research, including but not limited to, comprehensive benthic mapping and ecosystem model and management tool development. In addition, collecting detailed information on fishing fleet dynamics including defining fishing operation areas by species, species complex, and season, as well as catch relative to habitat is critical for assessment of fishery, community, and habitat impacts and for Council use in place based management measures. Additional resources need to be dedicated to expand regional coordination of modeling, mapping, characterization of species use of habitats, and full funding of regional fishery independent surveys (e.g., MARMAP, SEAMAP, and SEFIS) which are linking directly to addressing high priority management needs. Development of ecosystem information systems to support Council management should build on existing tools (e.g., Regional Habitat and Ecosystem GIS and Arc Services) and provide resources to regional cooperating partners for expansion to address long-term Council needs.

The FEP and CE-BA 1 complement, but do not replace, existing FMPs. In addition, the FEP serves as a source document to the CE-BAs. NOAA should support and build on the regional coordination efforts of the Council as it transitions to a broader management approach. Resources need to be provided to collect information necessary to update and refine our FEP and support future fishery actions including but not limited to completing one of the highest priority needs to support EBM, the completion of mapping of near-shore, mid-shelf, shelf edge, and deepwater habitats in the South Atlantic region. In developing future FEPs, the Council will draw on SAFEs (Stock Assessment and Fishery Evaluation reports) which NMFS is required to provide the Council for all FMPs implemented under the Magnuson-Stevens Act. The FEP, which has served as the source document for CE-BAs, could also meet some of the NMFS SAFE requirements if information is provided to the Council to update necessary sections.

### ***EFH and EFH-HAPC Designations Translated to Cooperative Habitat Policy Development and Protection***

The Council actively comments on non-fishing projects or policies that may impact fish habitat. Appendix A of the Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (SAFMC 1998b) outlines the Council's comment and policy development process and the establishment of a four-state Habitat Advisory Panel. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. AP members bring projects to the Council's attention, draft comment letters, and attend public meetings. With guidance from the Advisory Panel, the Council has developed and approved policies on:

1. Energy exploration, development, transportation, and hydropower re-licensing;
2. Beach dredging and filling and large-scale coastal engineering;
3. Protection and enhancement of submerged aquatic vegetation;

4. Alterations to riverine, estuarine, and nearshore flows;
5. Marine aquaculture;
6. Marine Ecosystems and Non-Native and Invasive Species; and
7. Estuarine Ecosystems and Non-Native and Invasive Species.

NOAA Fisheries, State and other Federal agencies apply EFH and EFH-HAPC designations and protection policies in the day-to-day permit review process. The revision and updating of existing habitat policies and the development of new policies is being coordinated with core agency representatives on the Habitat and Coral Advisory Panels. Existing policies are included at the end of this Appendix.

The Habitat and Environmental Protection Advisory Panel, as part of their role in providing continued policy guidance to the Council, is during 2013/14, reviewing and proposing revisions and updates to the existing policy statements and developing new ones for Council consideration. The effort is intended to enhance the value of the statements and support cooperation and collaboration with NOAA Fisheries Habitat Conservation Division and State and Federal partners in better addressing the Congressional mandates to the Council associated with designation and conservation of EFH in the region.

### ***South Atlantic Bight Ecopath Model***

The Council worked cooperatively with the University of British Columbia and the Sea Around Us project to develop a straw-man and preliminary food web models (Ecopath with Ecosim) to characterize the ecological relationships of South Atlantic species, including those managed by the Council. This effort was envisioned to help the Council and cooperators in identifying available information and data gaps while providing insight into ecosystem function. More importantly, the model development process provides a vehicle to identify research necessary to better define populations, fisheries, and their interrelationships. While individual efforts are still underway in the South Atlantic, only with significant investment of new resources through other programs will a comprehensive regional model be further developed.

The latest collaboration builds on the previous Ecopath model developed through the Sea Around Us project for the South Atlantic Bight with a focus on beginning a dialogue on the implications of potential changes in forage fish populations in the region that could be associated with environmental or climate change or changes in direct exploitation of those populations.

### ***Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern***

Following is a summary of the current South Atlantic Council's EFH and EFH-HAPCs. Information supporting their designation was updated (pursuant to the EFH Final Rule) in the Council's Fishery Ecosystem Plan and Comprehensive Ecosystem Amendment:

### **Snapper Grouper FMP**

Essential fish habitat for snapper grouper species includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs, and medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 feet (but to at least 2,000 feet for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex. EFH includes the spawning area in the

water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for larval survival and growth up to and including settlement. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse snapper grouper larvae.

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

Areas which meet the criteria for EFH-HAPCs for species in the snapper-grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the *Oculina* Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs). In addition, the Council through CEBA 2 (SAFMC 2011) designated the deepwater snapper grouper MPAs and golden tilefish and blueline tilefish habitat as EFH-HAPCs under the Snapper Grouper FMP as follows:

EFH-HAPCs for golden tilefish to include irregular bottom comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom. Mud-clay bottoms in depths of 150-300 meters are HAPC. Golden tilefish are generally found in 80-540 meters, but most commonly found in 200-meter depths.

EFH-HAPC for blueline tilefish to include irregular bottom habitats along the shelf edge in 45-65 meters depth; shelf break or upper slope along the 100-fathom contour (150-225 meters); hardbottom habitats characterized as rock overhangs, rock outcrops, manganese-phosphorite rock slab formations, or rocky reefs in the South Atlantic Bight; and the Georgetown Hole (Charleston Lumps) off Georgetown, SC.

EFH-HAPCs for the snapper grouper complex to include the following deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.

Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 are designated as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

### **Shrimp FMP**

For penaeid shrimp, Essential Fish Habitat includes inshore estuarine nursery areas, offshore marine habitats used for spawning and growth to maturity, and all interconnecting water bodies as described in the Habitat Plan. Inshore nursery areas include tidal freshwater (palustrine), estuarine, and marine emergent wetlands (e.g., intertidal marshes); tidal palustrine forested areas; mangroves; tidal freshwater, estuarine, and marine submerged aquatic vegetation (e.g., seagrass); and subtidal and intertidal non-vegetated flats. This applies from North Carolina through the Florida Keys.

For rock shrimp, essential fish habitat consists of offshore terrigenous and biogenic sand bottom habitats from 18 to 182 meters in depth with highest concentrations occurring between 34 and 55 meters. This applies for all areas from North Carolina through the Florida Keys. Essential fish habitat includes the shelf current systems near Cape Canaveral, Florida, which provide major transport mechanisms affecting planktonic larval rock shrimp. These currents keep larvae on the Florida Shelf and may transport them inshore in spring. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse rock shrimp larvae.

Essential fish habitat for royal red shrimp include the upper regions of the continental slope from 180 meters (590 feet) to about 730 meters (2,395 feet), with concentrations found at depths of between 250 meters (820 feet) and 475 meters (1,558 feet) over blue/black mud, sand, muddy sand, or white calcareous mud. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse royal red shrimp larvae.

Areas which meet the criteria for EFH-HAPCs for penaeid shrimp include all coastal inlets, all state-designated nursery habitats of particular importance to shrimp (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas), and state-identified overwintering areas.

### **Coastal Migratory Pelagics FMP**

Essential fish habitat for coastal migratory pelagic species includes sandy shoals of capes and offshore bars, high profile rocky bottom, and barrier island ocean-side waters, from the surf to the shelf break zone, but from the Gulf Stream shoreward, including *Sargassum*. In addition, all coastal inlets and all state-designated nursery habitats of particular importance to coastal migratory pelagics (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas).

For Cobia essential fish habitat also includes high salinity bays, estuaries, and seagrass habitat. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse coastal migratory pelagic larvae.

For king and Spanish mackerel and cobia essential fish habitat occurs in the South Atlantic and Mid-Atlantic Bights.

Areas which meet the criteria for EFH-HAPCs include sandy shoals of Capes Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf stream; The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The “Wall” off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the ELMR Program. Estuaries meeting 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 foraminiferan 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‰) 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‰) salinity waters in depths exceeding 18 meters (54 feet), not restricted by light penetration on the outer shelf throughout the management area.

C. Essential fish habitat for octocorals excepting the order Pennatulacea (sea pens and sea pansies) includes rough, hard, exposed, stable substrate in subtidal to outer shelf depths within a wide range of salinity and light penetration throughout the management area.

D. Essential fish habitat for Pennatulacea (sea pens and sea pansies) includes muddy, silty bottoms in subtidal to outer shelf depths within a wide range of salinity and light penetration.

Areas which meet the criteria for EFH-HAPCs for coral, coral reefs, and live/hard bottom include: The 10-Fathom Ledge, Big Rock, and The Point (North Carolina); Hurl Rocks and The Charleston Bump (South Carolina); Gray's Reef National Marine Sanctuary (Georgia); The *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; Oculina Banks off the east coast of Florida from Ft. Pierce to Cape Canaveral; nearshore (0-4 meters; 0-12 feet) hard bottom off the east coast of Florida from Cape Canaveral to Broward County); offshore (5-30 meter; 15-90 feet) hard bottom off the east coast of Florida from Palm Beach County to Fowey Rocks; Biscayne Bay, Florida; Biscayne National Park, Florida; and the Florida Keys National Marine Sanctuary. In addition, the Council through CEBA 2 (SAFMC 2011) designated the Deepwater Coral HAPCs as EFH-HAPCs under the Coral FMP as follows:

Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtales Terrace Coral HAPC.

### **Dolphin and Wahoo FMP**

EFH for dolphin and wahoo is the Gulf Stream, Charleston Gyre, Florida Current, and pelagic *Sargassum*. This EFH definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (SAFMC 1998b) (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

Areas which meet the criteria for EFH-HAPCs for dolphin and wahoo in the Atlantic include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet (Florida); The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; and Pelagic *Sargassum*. This EFH-HAPC definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

### **Pelagic *Sargassum* Habitat FMP**

The Council through CEBA 2 (SAFMC 2011) designated the top 10 meters of the water column in the South Atlantic EEZ bounded by the Gulfstream, as EFH for pelagic Sargassum.

### ***Actions Implemented That Protect EFH and EFH-HAPCs***

#### **Snapper Grouper FMP**

- Prohibited the use of the following gears to protect habitat: bottom longlines in the EEZ inside of 50 fathoms or anywhere south of St. Lucie Inlet, Florida; bottom longlines in the wreckfish fishery; fish traps; bottom tending (roller- rig) trawls on live bottom habitat; and entanglement gear.
  - Established the *Oculina* Experimental Closed Area where the harvest or possession of all species in the snapper grouper complex is prohibited.
- Established deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.

#### **Shrimp FMP**

- Prohibition of rock shrimp trawling in a designated area around the *Oculina* Bank,
- Mandatory use of bycatch reduction devices in the penaeid shrimp fishery,
- Mandatory Vessel Monitoring System (VMS) in the Rock Shrimp Fishery.
- A mechanism that provides for the concurrent closure of the EEZ to penaeid shrimping if environmental conditions in state waters are such that the overwintering spawning stock is severely depleted.

#### ***Pelagic Sargassum* Habitat FMP**

- Prohibited all harvest and possession of *Sargassum* from the South Atlantic EEZ south of the latitude line representing the North Carolina/South Carolina border (34° North Latitude).
- Prohibited all harvest of *Sargassum* from the South Atlantic EEZ within 100 miles of shore between the 34° North Latitude line and the Latitude line representing the North Carolina/Virginia border.
- Harvest of *Sargassum* from the South Atlantic EEZ is limited to the months of November through June.
- Established an annual Total Allowable Catch (TAC) of 5,000 pounds landed wet weight.
- Required that an official observer be present on each *Sargassum* harvesting trip. Require that nets used to harvest *Sargassum* be constructed of four-inch stretch mesh or larger fitted to a frame no larger than 4 feet by 6 feet.

#### **Coastal Migratory Pelagics FMP**

- Prohibited of the use of drift gillnets in the coastal migratory pelagic fishery.

#### **Golden Crab FMP**

- In the northern zone, golden crab traps can only be deployed in waters deeper than 900 feet; in the middle and southern zones traps can only be deployed in waters deeper than 700 feet. Northern zone - north of the 28°N. latitude to the North Carolina/Virginia border;

Middle zone - 28°N. latitude to 25° N. latitude; and  
Southern zone - south of 25°N. latitude to the border between the South Atlantic and Gulf of Mexico Fishery Management Councils.

### **Coral, Coral Reefs and Live/Hard Bottom FMP**

- Established an optimum yield of zero and prohibiting all harvest or possession of these resources which serve as essential fish habitat to many managed species.
- Designated the *Oculina* Bank Habitat Area of Particular Concern.
- Expanded the *Oculina* Bank Habitat Area of Particular Concern (HAPC) to an area bounded to the west by 80°W. longitude, to the north by 28°30' N. latitude, to the south by 27°30' N. latitude, and to the east by the 100 fathom (600 feet) depth contour.
- Established the following two Satellite *Oculina* HAPCs: (1) Satellite *Oculina* HAPC #1 is bounded on the north by 28°30'N. latitude, on the south by 28°29'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude; and (2) Satellite *Oculina* HAPC #2 is bounded on the north by 28°17'N. latitude, on the south by 28°16'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude.
- Prohibited the use of all bottom tending fishing gear and fishing vessels from anchoring or using grapples in the *Oculina* Bank HAPC.
- Established a framework procedure to modify or establish Coral HAPCs.
- Established the following five deepwater CHAPCs:  
Cape Lookout Lophelia Banks CHAPC;  
Cape Fear Lophelia Banks CHAPC;  
Stetson Reefs, Savannah and East Florida Lithoherms, and Miami Terrace (Stetson- Miami Terrace) CHAPC;  
Pourtales Terrace CHAPC; and  
Blake Ridge Diapir Methane Seep CHAPC.
- Within the deepwater CHAPCs, the possession of coral species and the use of all bottom damaging gear are prohibited including bottom longline, trawl (bottom and mid-water), dredge, pot or trap, or the use of an anchor, anchor and chain, or grapple and chain by all fishing vessels.



### ***South Atlantic Council Policies for Protection and Restoration of Essential Fish Habitat SAFMC Habitat and Environmental Protection Policy***

In recognizing that species are dependent on the quantity and quality of their essential habitats, it is the policy of the SAFMC to protect, restore, and develop habitats upon which fisheries species depend; to increase the extent of their distribution and abundance; and to improve their productive capacity for the benefit of present and future generations. For purposes of this policy, “habitat” is defined as the physical, chemical, and biological parameters that are necessary for continued productivity of the species that is being managed. The objectives of the SAFMC policy will be accomplished through the recommendation of no net loss or significant environmental degradation of existing habitat. A long-term objective is to support and promote a net-gain of fisheries habitat through the restoration and rehabilitation of the productive capacity of habitats that have been degraded, and the creation and development of productive habitats where increased fishery production is probable. The SAFMC will pursue these goals at state, Federal, and local levels. The Council shall assume an aggressive role in the protection and enhancement of habitats important to fishery species, and shall actively enter Federal, decision making processes where proposed actions may otherwise compromise the productivity of fishery resources of concern to the Council.

### ***SAFMC EFH Policy Statements***

In addition to implementing regulations to protect habitat from fishing related degradation, the Council in cooperation with NOAA Fisheries, actively comments on non-fishing projects or policies that may impact fish habitat. The Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. Members of the Habitat Advisory Panel serve as the Council’s habitat contacts and professionals in the field. With guidance from the Advisory Panel, the Council has developed and approved a number of habitat policy statements which are available on the Habitat and Ecosystem section of the Council website

(<http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx> ).

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## **Appendix I. Fishery Impact Statement**

## Appendix J. Commercial Data Analyses of Management Alternatives

Draft dated May 19 2017

LAPP/DM Branch  
Southeast Regional Office  
NOAA Fisheries Service

### Introduction

The South Atlantic Fishery Management Council (Council) manages Snapper-Grouper stocks in federal waters from the Florida Keys to the Virginia/North Carolina border. In Vision Blueprint Commercial Regulatory Amendment 27 for the Snapper Grouper Fishery of the South Atlantic Region (Reg-27), the Council has proposed modifications of commercial regulations such as fishing seasons, trip limits, seasonal closures, and size limits for species in the snapper grouper fishery. These proposed management measures are intended to lengthen commercial fishing seasons, minimize discard mortality, to improve compliance, and aid in enforcement of regulations in the South Atlantic region. This document evaluates the impacts of proposed alternatives in Reg-27 and provides analytical support for the Council's decision-making process.

### Methods & Results

#### Action 1. Establish a commercial split season for blueline tilefish

- **Alternative 1 (No Action).** The commercial fishing year for blueline tilefish in the South Atlantic EEZ is from January 1 to December 31.
- **Alternative 2.** Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.
- **Alternative 3.** Specify two commercial fishing seasons for blueline tilefish. Allocate the blueline tilefish commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

It was difficult to evaluate alternative given the unspecified percentages. Due to recent quota closures (**Table 1**), data were not available from recent years to inform Season 2 landings. The Council may want to consider moving this action to blueline tilefish amendment (Amendment 38) given the pending completion in June 2018 of the SEDAR50 stock assessment, which may provide updated stock status and ABC recommendations. Also, blueline tilefish management has been very dynamic over the past few years, with many regulatory changes including a

prohibition of harvest beyond 240 fathoms in 2011. The input data available for forecasting future landings have consequently been affected, which has implications for the reliability of analyses. In general, the most recent year is probably the best available predictor of future trends.

To predict baseline 2018 landings for Alternative 1, monthly commercial landings data for 1997-2016 was obtained from the NOAA Southeast Fisheries Science Center (SEFSC) annual catch limit (ACL) commercial database (accessed May 2017). Input data was evaluated from 1997 onward because species identification has improved through time. Landings were converted to daily catch rates by month, which considered the number of open days during months with quota closures or seasonal restrictions on harvest. Two projection models were developed: (1) based on the last three years of data (2014-2016; “Last 3”), and (2) a seasonal auto-regressive integrated moving average (SARIMA) model. For the first model, the mean and standard deviation of the last three years of data were used to generate monthly mean and 95% confidence interval projection estimates for daily catch rates, which were subsequently expanded into estimates of monthly landings by multiplying by the number of days in each month. Commercial discards were estimated by month using the SEFSC Commercial Logbook and Supplemental Discard Logbook (accessed May 2017) to develop a discard rate in numbers of fish per unit effort, by species, gear, and region, and expand that rate to the total effort in the fishery by gear and region.

A second projection was developed by fitting SARIMA models to the data (Box et al. 2013). In a SARIMA(p,d,q)x(P,D,Q) model, the autoregressive component (p) represents the lingering effects of previous observations, the integrated component (d) represents temporal trends, and the moving average component (q) represents lingering effects of previous random shocks (or error). The SARIMA models were implemented using Proc ARIMA in SAS version 9.2 (SAS Institute). Following Farmer & Froeschke (2015), all possible combinations of single-difference SARIMA models for landings per day by wave were considered (**Table S-1**). A single-difference SARIMA model only considers a maximum of one differencing term in the annual and one differencing term in the seasonal component. Differencing terms considered were annual and monthly. All SARIMA models were fit using conditional least squares. Stationarity tests were used to guide differencing selection. Final SARIMA model selection was guided by the examination of autocorrelations, inverse autocorrelations, partial autocorrelations, cross-correlations, residual diagnostics, and AIC. For blueline tilefish, models with differencing on the monthly term predicted population collapses; as such, model selection was restricted to annual differencing models. The final selected model was a ARIMA(1,0,0)X(0,1,1)<sub>s</sub> with  $R^2=0.77$  (**Figure 1**). Projected mean and 95% confidence intervals for daily catch rates were expanded into estimates of monthly landings by multiplying by the number of days in each month. Peak blueline tilefish landings were projected for August, followed by July (**Figure 2**). Projections using the Last 3 model anticipated 50% of the ACL would be reached in April (95% CI: Mar-June). SARIMA projections estimated 50% of the ACL would be reached in May (95% CI: Jan-Dec). Due to recent dynamic changes in the fishery and challenges accounting for the imposition of a 300-lb trip limit in July 2016, there is substantial uncertainty in these projections. Expanded estimates of commercial discards for blueline tilefish from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Figure S-1**.

**Action 2. Establish a commercial split season for red porgy**

- **Alternative 1 (No Action).** The commercial fishing year for red porgy in the South Atlantic federal waters is from January 1 to December 31. During January, February, March, and April, the seasonal harvest limit of red porgy in or from South Atlantic federal waters is three per person per day or three per person per trip, whichever is more restrictive. From May 1 through December 31, the trip limit is 120 fish.
- **Alternative 2.** Maintain the annual January 1 to April 30 seasonal harvest limit for red porgy.
  - Sub-Alternative 2a. Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.
  - Sub-alternative 2b. Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.
- **Alternative 3.** Remove the annual January 1 to April 30 seasonal harvest limit for red porgy.
  - Sub-Alternative 3a. Allocate the directed commercial red porgy ACL into two quotas: 50% to the period January 1 through June 30 and 50% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.
  - Sub-Alternative 3b. Allocate the directed commercial red porgy ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

It was difficult to this evaluate alternative given the unspecified percentages. Similar to blueline tilefish (see Action 1, above), commercial landings data were converted to daily catch rates within months for 1997-2016. There has only been one recent quota closure for red porgy (**Table 2**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model. For the Last 3 model, landings in the event of a Jan-Apr opening of the fishery were extrapolated from mean 2014-2016 May landings using the mean ratio of May landings to Jan-Apr landings 1986-1999 (the final year the fishery was open Jan-Apr). Final SARIMA model selection was guided by the examination of autocorrelations, inverse autocorrelations, partial autocorrelations, cross-correlations, residual diagnostics, and AIC. In the SARIMA model, Jan-Apr catch rates were left blank 2000-present, allowing the model to freely estimate these parameters from the input time series. The final selected model was a ARIMA(1,1,0)X(0,1,1)s with  $R^2=0.89$  (**Figure 3**).

With a Jan-Apr closure, 50% of the ACL is projected to be caught by August (95% CI: July-Sept) or Sept (95% CI: June-No Closure) by the Last 3 and SARIMA models, respectively (**Figure 4: left**). Between Jan-June 30, 38,247 lb ww (95% CI: 23,862-52,632 lb ww) to 24,646

lb ww (95% CI: 0-111,485 lb ww) is projected to be caught by the Last 3 and SARIMA models, respectively.

Without a Jan-Apr closure, 50% of the ACL is projected to be caught by May (95% CI: Apr-July) or July (95% CI: Feb-Dec 31) by the Last 3 and SARIMA models, respectively (**Figure 4: right**). Between Jan-June 30, 110,456 lb (95% CI: 63,041-157,871 lb ww) to 60,393 lb ww (95% CI: 0-294,705 lb ww) is projected to be caught by the Last 3 and SARIMA models, respectively. The wide confidence intervals for these projections indicate the substantial uncertainty in the predictions, especially for the impacts of removing the Jan-Apr closure, which has been in place since 2000.

Expanded estimates of commercial discards for red porgy from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Figure S-2**.

**Action 3. Establish a commercial split season for snowy grouper**

- **Alternative 1 (No Action).** The commercial fishing year for snowy grouper in the South Atlantic federal waters is from January 1 to December 31.
- **Alternative 2.** Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through June 30 and YY% to the period July 1 through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.
- **Alternative 3.** Specify two commercial fishing seasons for snowy grouper. Allocate the snowy grouper commercial ACL into two quotas: XX% to the period January 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through December 31. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward.

It was difficult to this evaluate alternative given the unspecified percentages. Similar to blueline tilefish (see Action 1, above), commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for snowy grouper (**Table 3**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model. In the Last 3 model, the ratio of Sept to Oct-Dec landings 2010-2012 was used to generate extrapolated catch estimates for Oct-Dec due to quota closures in the 2014-2016 period. No data adjustments were made for the change in trip limit from 100 lbs to 200 lbs in Aug 2015. For the SARIMA model, a covariate was introduced for the trip limits of 2500 lbs (1994-Sept 2006), 275 lbs (Oct 2006-Dec 2006), 175 lbs (2007), 100 lbs (2008-July 2015), and 200 lbs (Aug 2015-on). Based on commercial logbook self-reported catch records, some trips with harvest above the status quo trip limit was identified in each year 2010-2015. The final selected SARIMA model was a ARIMA(0,1,1)X(0,1,1)<sub>s</sub> with  $R^2=0.85$  (**Figure 5**). The numerous recent changes in trip limits and other regulations for snowy grouper likely make past data a poor predictor of future trends. Under Alternative 1 (No Action), the ACL is anticipated to be met by Sept (95% CI: June-No Closure) or Mar (95% CI: Feb-Nov) by the Last 3 and SARIMA models, respectively (**Figure 6**). The Last 3 model predicts 50% of the ACL will be achieved by May (95% CI: Apr-Sept); the SARIMA model predicts 50% of the ACL will be met by Feb (95% CI: Jan-July). The broad confidence intervals for these predictions and the recent changes in the trip limit indicate high uncertainty in these predictions and they should be interpreted with caution.

Expanded estimates of commercial discards for snowy grouper from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Figure S-3**.



**Action 4. Establish a commercial split season for greater amberjack**

- **Alternative 1 (No Action).** The commercial fishing year for greater amberjack in the South Atlantic federal waters is from March 1 to the end of February. During April, commercial harvest is limited to one per person per day or one per person per trip, whichever is more restrictive.
- **Alternative 2.** Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through August 31 and XX% to the period September 1 through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. Commercial harvest would still be prohibited annually in April.
- **Alternative 3.** Specify two commercial fishing seasons for greater amberjack. Allocate the commercial ACL for greater amberjack into two quotas: XX% to the period March 1 through \_\_\_\_\_ and YY% to the period \_\_\_\_\_ through the end of February. Any remaining quota from Season 1 would transfer to Season 2. Any remaining quota from Season 2 would not be carried forward. Commercial harvest would still be prohibited annually in April.

It was difficult to this evaluate alternative given the unspecified percentages. Similar to blueline tilefish (see Action 1, above), commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for greater amberjack (**Table 4**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 ("Last 3") and (2) a SARIMA model. The final selected SARIMA model was a ARIMA(1,1,0)X(0,1,1)s with  $R^2=0.86$  (**Figure 7**).

Under Alternative 1 (No Action), the ACL is anticipated to be met by Nov (95% CI: Sept-No Closure) or July (95% CI: Feb-No Closure) by the Last 3 and SARIMA models, respectively (**Figure 8**). The Last 3 model predicts 50% of the ACL will be achieved by June (95% CI: May-July); the SARIMA model predicts 50% of the ACL will be met by May (95% CI: Mar-Not Met). The broad confidence intervals indicate high uncertainty and these predictions should be interpreted with caution.

Expanded estimates of commercial discards for greater amberjack from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Figure S-4**.

**Action 5. Modify the commercial trip limit for vermilion snapper in the second season**

- **Alternative 1 (No Action).** The commercial trip limit for vermilion snapper in the South Atlantic federal waters is 1,000 pounds gutted weight (lbs gw) and the commercial ACL is split equally between two six-month seasons. When 75% of the vermilion snapper seasonal quota is met or is projected to be met, the trip limit is reduced to 500 lbs gw. Any remaining quota from Season 1 transfers to Season 2. Any remaining quota from Season 2 is not carried forward.
- **Alternative 2.** Implement a 750 lbs gw vermilion snapper commercial trip limit for the second season (July 1 through December 31). The commercial trip limit is reduced to 500 lbs gw when 75% of the second season quota is met or is projected to be met.
- **Alternative 3.** Remove the step-down to 500 lbs gw when 75% of the seasonal quota is met or projected to be met, and implement a 500 lbs gw vermilion snapper commercial trip limit for the second season (July 1 through December 31).

Similar to blueline tilefish (see Action 1, above), commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for vermilion snapper (**Table 5**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model. For vermilion snapper, models with differencing on the monthly term predicted population collapses; as such, model selection was restricted to annual differencing models. The final selected model was a  $ARIMA(1,0,0)X(0,1,1)_s$  with  $R^2=0.88$  (**Figure 9**). Trip limit impacts were simulated by modifying and re-summarizing landings from commercial logbook trip records (SEFSC commercial logbook data, accessed April 2017). Total monthly landings 2006-2016 were compared between modified (750 and 500 lb gw trip limit) and unmodified trip records. Monthly scalars were applied to projected landings data for the alternatives listed above. Monthly trip limit scalars on projected catches were determined using the last three fully open years (**Table 6**).

Daily catches were projected for Season 1 and Season 2 using projected monthly catch rates. Cumulative landings were tracked and trip limits were applied to scale monthly catch rates when 75% of the ACL was met. For Season 1, the ACL is anticipated to be met by Mar (95% CI: Mar-Apr) or Apr (95% CI: Feb-June) by the Last 3 and SARIMA models, respectively. Projected trip limit reduction dates and closure dates for Season 2 are provided in **Table 7**. Last 3 and SARIMA model projections were relatively consistent, indicating fairly high confidence in projected closure dates (**Figure 10**).

Expanded estimates of commercial discards for vermilion snapper from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Figure S-5**.

**Action 6. Implement a commercial trip limit for the Other Jacks Complex**

- **Alternative 1 (No Action).** There is no commercial trip limit for the Other Jacks Complex (lesser amberjack, almaco jack, and banded rudderfish).
- **Alternative 2.** Establish a commercial trip limit for the Other Jacks Complex.
  - Sub-alternative 2a. 500 pounds whole weight (lbs ww)
  - Sub-alternative 2b. 400 lbs ww
  - Sub-alternative 2c. 300 lbs ww
- **Alternative 3.** Establish a commercial trip limit for almaco jack.
  - Sub-alternative 3a. 500 lbs ww
  - Sub-alternative 3b. 400 lbs ww
  - Sub-alternative 3c. 300 lbs ww

Similar to blueline tilefish (see Action 1, above), commercial landings data were converted to daily catch rates within months for 1997-2016. There have been several recent quota closures for the Jacks complex (**Table 8**). Two projection models were fit to the data: (1) mean catch rates 2014-2016 (“Last 3”) and (2) a SARIMA model. For the Last 3 model, projected catch rates for Sept-Dec were based on the mean ratio of August to Sept-Dec landings from the last three completely open fishing years during those months (2009-2011) applied to mean August 2014-2016 catch rates. The final selected SARIMA model was a ARIMA(0,0,1)X(0,1,1)s with  $R^2=0.79$  (**Figure 11**). Projections were developed for the Jacks complex, with Alternative 3 almaco jack landings partitioned using the mean monthly ratio of almaco jack to Jacks complex landings from the most recent three fishing years (**Figure 12**).

Trip limit impacts were simulated by modifying and re-summarizing landings from commercial logbook trip records (SEFSC commercial logbook data, accessed April 2017). Total monthly landings 2006-2016 were compared between modified (500, 400, and 300 lb gw trip limit) and unmodified trip records. Monthly scalars were applied to projected landings data for the alternatives listed above. Monthly trip limit scalars on projected catches were determined using the last three fully open years (**Table 9**). Daily catches were estimated using projected monthly catch rates. Cumulative landings were tracked under different trip limit alternatives.

Under Alternative 1 (No Action), the ACL is anticipated to be met by July (95% CI: June-Dec) or June (95% CI: Apr-No Closure) by the Last 3 and SARIMA models, respectively (**Figure 13**). **Table 10** provides the projected mean and 95% confidence limits for quota closure dates under the various Action 6 alternatives. Although the predictions from the Last 3 model and SARIMA model are similar, the broad confidence intervals for these predictions suggest some uncertainty in these predictions and they should be interpreted with caution.

Expanded estimates of commercial discards for the Jacks complex from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Figure S-6**.

**Action 7. Modify the seasonal prohibition on commercial harvest and possession of shallow-water groupers**

- **Alternative 1 (No Action).** Commercial 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 federal waters from January 1 through April 30.
- **Alternative 2.** Prohibit commercial harvest and possession of shallow-water grouper species annually by area:
  - Sub-alternative 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).
  - 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 commercial harvest and possession of shallow-water grouper species (excluding black grouper) south of 28° North latitude (approximately off Palm Bay, Florida):
  - Sub-alternative 3a. January – March (3 months)
  - Sub-alternative 3b. February – March (2 months)
  - Sub-alternative 3c. February – April (3 months)
  - Sub-alternative 3d. February – May (4 months)
- **Alternative 4.** Prohibit commercial harvest and possession of black grouper in federal waters off (specify area based on Alternative 2 above)
  - Sub-alternative 4a. January – March (3 months)
  - Sub-alternative 4b. January
  - Sub-alternative 4c. February
  - Sub-alternative 4d. March
- **Alternative 5.** Prohibit commercial harvest and possession of red grouper in federal waters off (specify area based on Alternative 2 above)
  - Sub-alternative 5a. January – May (5 months)
  - Sub-alternative 5b. February – May (4 months)
  - Sub-alternative 5c. March – June (4 months)

Alternative 2 was difficult to evaluate as the months were not specified. Also of note is that 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. All landings are assumed to be correctly identified to species in these analyses. It is very challenging to make meaningful predictions of the amount of harvest that will be realized with the removal/modification of the shallow-water grouper closure due to the duration it has been in place. Confidentiality concerns prohibit the disclosure of a time series of landings for the various species considered in the action. Mean 2014-2016 monthly landings of shallow-water grouper species are provided in **Figure 14**.

This analysis required backfilling landings for the Jan-Apr closed time period. The months of Mar-Apr were closed to gag and black grouper were closed by Amendment 9 in 1999. The months of Jan-Apr were closed to all shallow-water grouper were closed by Amendment 16 in mid-2009. Estimates of landings that would be realized during openings in the Jan-Apr time period are based on the mean ratios from the last three completely open fishing years, for all shallow-water grouper stocks, for those months. For Jan-Feb, the mean ratio of Jan-Feb to May 2007-2009 landings was applied. For Mar-Apr, the mean ratio of Mar-Apr to May 1996-1998 landings was applied. Landings in the Jan-Apr period are projected to be relatively high (between 40-80% of May landings); however, this analytical approach does not account for the potential redistribution of peak effort to May following the implementation of the Mar-Apr closure in 1999, nor does it account for potential declines in catch rates in the May-Dec period if the fishery opened earlier in the calendar year. Thus, it is likely the projected landings presented in Figure 14 are an upper bound for what might be caught if the closure months were modified. If the Council moves forward with this action following their June meeting, additional analysis may be provided to attempt to quantify uncertainty and directly address the impacts of the proposed alternatives.

Expanded estimates of commercial discards for shallow-water grouper from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017) are provided in **Figure S-7**.

**Action 8. Remove the commercial minimum size limits for deep-water species**

- **Alternative 1 (No Action).** The commercial minimum size limit for queen snapper, silk snapper, and blackfin snapper in the South Atlantic EEZ is 12 inches total length (TL).
- **Alternative 2.** Remove the 12-inch TL commercial minimum size limit for queen snapper, silk snapper, and blackfin snapper in South Atlantic federal waters.

The current commercial size limit of 12 inches TL for queen snapper, silk snapper, and blackfin snapper was established in Amendment 9 (1998). It was difficult to determine the effects of Alternative 2 due to the lack of commercial discard data available. The only discard data available for the years 2014-2016 was from the SEFSC Supplemental Discard Logbook Program. The discard logbook database (accessed May 2017) contains self-reported discard reports from a 20 percent sub-sample (by region and gear fished) of all commercial vessels with federal fishing permits. From 2014-2016, only two trips reported discards for silk snapper and no discards were reported for queen snapper and blackfin snapper (**Table 11**). None of the three species were reported as kept for bait. For the only trips with reported discards for any of the three species, five silk snapper were discarded alive due to the local or federal size limit forbidding it. Expanding the observed discard rates to the fishery as a whole is non-informative due to low reported encounters in recent years (**Figure S-8**). Available data suggests minimal changes in discard or harvest rates would be expected under Alternative 2. The reliability of this analysis is dependent upon the accuracy of the underlying data and input assumptions.

**Action 9. Decrease the commercial minimum size limit for gray triggerfish off the east coast of Florida**

- **Alternative 1 (No Action).** The commercial minimum size limit for gray triggerfish in the South Atlantic federal waters off the east coast of Florida is 14 inches fork length (FL). The commercial minimum size limit for gray triggerfish in the federal waters off Georgia, South Carolina, and North Carolina is 12 inches FL.
- **Alternative 2.** Decrease the commercial minimum size limit for gray triggerfish in the federal waters off the east coast of Florida to 12 inches FL.

*NOTE: 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.*

The South Atlantic Fishery Management Council recently modified the gray triggerfish minimum size limit for the commercial sector in federal waters off the east coast of Florida in Amendment 29, effective July 1, 2015. This amendment raised the minimum size limit in federal waters off the east coast of Florida from 12 inches total length (TL) to 14 inches FL. To evaluate the effects of lowering the current minimum size limit, commercial catch data collected by the Southeast Fisheries Science Center's (SEFSC) Trip Intercept Program (TIP) prior to the current rule were used to determine the proposed impact. Only gray triggerfish harvested from January 2014 through June 2015 by the commercial sector in federal waters off east Florida were used in the analyses.

TIP recorded 2,616 gray triggerfish for this area and time period after eliminating a small number of outliers (FL < 4 inches). All lengths were converted to inches FL using standard conversion factors and equations used in SEDAR 41 (2016). The size limit analysis estimated the percent increase in whole weight if the current 14-inch FL size limit was reduced during this time, thus the weight of each fish was required. When whole weight data was available it was used, and gutted weights were converted using the SEFSC conversion factor of 1.04. When weight data was unavailable, it was estimated from length using the gray triggerfish weight-length equations defined in SEDAR 41 (2016).

**Figure 15** provides the commercial sector gray triggerfish length distribution in 1-inch increments from January 2014 to June 2015. The majority of the gray triggerfish harvested were above the current minimum size limit of 14 inches FL. Lowering the current size limit to 12 inches FL (Alternative 2) would result in approximately 20% additional gray triggerfish available for harvest. This is consistent with recent analyses from Amendment 29 that reported between 11% and 26% of the mean monthly landings were less than 14 inches FL in the South Atlantic from 2007-2012. Alternative 2 would also likely reduce discards when the season was open, but may increase harvest rates, possibly shortening the commercial fishing seasons. Quota closures have been implemented for gray triggerfish every year since 2012.

Increases in landings in weight were calculated for minimum size limits (MSL) at 1-inch intervals between 12-14 inches FL as follows:

$$\text{Percent increase} = (C + G + RU) / (C + RC), \text{ where:}$$



*C = catch in pounds with a MSL of 14-inch FL*

*G = weight of fish that are less than the MSL of 14-inch FL and greater than or equal to the reduced MSL*

*RU = release mortality multiplied against the fish that less than the reduced MSL and greater than the 12-inch MSL being considered*

*RC = release mortality multiplied against the fish that less than the 14-inch FL MSL and greater than the 12-inch MSL being considered*

Percent increases associated with MSL were normalized to a 0% increase at the commercial status quo size limit of 14 inches FL in Alternative 1. Data were pooled for the time with the assumption that recent lengths will likely reflect future lengths harvested in the fishery. All of the weights used in the analysis are in pounds whole weight. Release mortality was incorporated into the analysis, and the mid-range discard mortality of 12.5% following SEDAR 41 (2016) was used.

Similar to the length distribution, lowering the size limit to 12 inches FL would likely increase the rate of fish harvested, thus increasing the landings and shortening the current commercial seasons (**Table 12**). The reliability of this analysis is dependent upon the accuracy of the underlying data and input assumptions. This analysis assumes that the commercial harvest of gray triggerfish size distribution from January 2014 to June 2015 will reflect the size distribution of gray triggerfish commercial harvest in the future.

## References

SEDAR 41. 2016. SEDAR 41 – South Atlantic Gray Triggerfish Assessment Report. SEDAR, North Charleston, SC. 428 pp. <http://sedarweb.org/sedar-41>.



**Table 1.** Blueline tilefish recent landings and quota closures.

<b>Fishing Year</b>	<b>Current Landings</b>	<b>ACL</b>	<b>%ACL</b>	<b>Closure Date</b>
2017	35,464	87,521	40.52	
2016	101,043	87,521	115.45	6/1/16; reopened 7/13/16, closed 8/30/16
2015	78,802	17,841	441.69	4/7/2015
2014	143,942	112,207	128.28	6/23/2014
2013	309,411	376,469	82.19	
2012	378,667	343,869	110.12	9/8/2012

Source: SERO ACL Monitoring Webpage.

**Table 2.** Red porgy recent landings and quota closures.

<b>Year</b>	<b>Landings</b>	<b>ACL</b>	<b>Units</b>	<b>%ACL</b>	<b>Closure</b>
2016	115,235	164,000	ww	70.27	
2015	134,185	164,000	ww	81.82	
2014	142,406	154,500	ww	92.17	
2013	155,967	153,000	gw	101.94	12/02/13
2012	155,346	190,050	gw	81.74	
2011	195,049	190,050	gw	102.63	
2010	152,743	190,050	gw	80.37	
2009	158,221	190,050	gw	83.25	
2008	165,461	127,000	gw	130.28	
2007	136,382	127,000	gw	107.39	
2006	80,293	127,000	gw	63.22	
2005	46,844	None	gw		
2004	47,848	None	gw		

Source: SERO ACL Monitoring Webpage.

**Table 3.** Snowy grouper recent landings and quota closures.

Year	Landings	ACL	Units	%ACL	Closure
2017	70,394	135,380	gw	24.34	
2016	46,615	125,760	gw	116.58	6/14/2016
2015	125777	115451	gw	108.94	9/22/2015
2014	92101	82900	gw	111.1	7/25/2014
2013	79479	82900	gw	95.87	8/10/2013
2012	89048	82900	gw	107.42	12/19/2012
2011	37338	82900	gw	45.04	
2010	86693	82900	gw	104.58	
2009	75614	82900	gw	91.21	
2008	72774	84000	gw	86.64	
2007	111994	118000	gw	94.91	
2006	213813	151000	gw	141.6	10/23/2006
2005	206638	344508	gw	59.98	
2004	220958	344508	gw	64.14	

Source: SERO ACL Monitoring Webpage.

**Table 4.** Greater amberjack recent landings and quota closures.

<b>Fishing Year</b>	<b>Total Landings</b>	<b>ACL</b>	<b>Units</b>	<b>ACL</b>	<b>Closure Date</b>
March 1, 2017 – February 28, 2018	187,007	769,388	gw	24.31	April 1-30 SEASONAL CLOSURE
March 1, 2016 – February 28, 2017	748,950	769,388	gw	97.34	10/4/2016
March 1, 2015 - Feb 28, 2016	757,881	769,388	gw	98.5	1/21/2016
May 1, 2014 - Feb 28, 2015	594,624	769,388	gw	77.29	
May 1, 2013 - April 30, 2014	842,234	800,163	ww	105.26	
May 1, 2012 - April 30, 2013	826,018	800,163	ww	103.23	
May 1, 2011 - April 30, 2012	1,032,080	1,169,931	gw	88.22	
May 1, 2010 - April 30, 2011	857,839	1,169,931	gw	73.32	
May 1, 2009 - April 30, 2010	837,077	1,169,931	gw	71.55	
May 1, 2008 - April 30, 2009	648,247	1,169,931	gw	55.41	
May 1, 2007 - April 30, 2008	542,438	1,169,931	gw	46.36	

Source: SERO ACL Monitoring Webpage.

**Table 5.** Vermilion snapper recent landings and quota closures.

Fishing Year	Landings	ACL	Units	ACL	Trip Limit	Closure
January 1 -June 30, 2017	350,609	431,460	ww	81.26	3/22/2017	
July 1 - Dec 31, 2017	0	431,460		0		
January 1 - June 30, 2016	429,774	431,460	ww	99.61	3/2/2016	3/29/2016
July 1 - Dec 31, 2016	425,014	432,305		98.31	8/28/2016	10/11/16; reopened 12/14- 12/15/16
Jan 1 - June 30, 2015	435,435	438,260		99.69	3/2/2015	4/15/2015
July 1 - Dec 31, 2015	457,259	438,260		104.3	9/10/2015	9/22/2015
Jan 1 - June 30, 2014	454,084	446,080		101.8	3/11/2014	4/19/2014
July 1 - Dec 31, 2014	437,523	446,080		98.08	8/23/2014	9/12/2014
Jan 1 - June 30, 2013	304,432	466,480		65.26		2/13/2013
July 1 - Dec 31, 2013	623,347	613,278		101.6		12/2/2013
Jan 1 - June 30, 2012	400,787	315,523	gw	127		2/29/2012
July 1 - Dec 31, 2012	504,525	302,523		166.8		9/28/2012
Jan 1 - June 30, 2011	333,001	315,523		105.5		3/10/11; Re-opened 5/1/11- 5/8/11
July 1 - Dec 31, 2011	591,067	302,523		195.4		9/30/2011
Jan 1 - June 30, 2010	360,065	315,523		114.1		3/19/2010
July 1 - Dec 31, 2010	524,797	302,523		173.5		10/6/2010
Jan 1 - June 30, 2009	425,665	315,523		134.9		
July 1 - Dec 31, 2009	409,858	302,523		135.5		9/18/2009
Jan 1 - Dec 31, 2008	1,112,224	1,100,000		101.1		
	981,369	1,100,000		89.22		
	772,496	1,100,000		70.23		
	1,029,081	None				
	1,017,889	None				

Source: SERO ACL Monitoring Webpage.

**Table 6.** Projected vermilion snapper commercial trip limit scalars, by month, based on most recent three years without a quota closure.

<b>Limit</b>	<b>Month</b>	<b>Scalar</b>	<b>Based on:</b>
750	1	85%	2014-2016
750	2	86%	2014-2016
750	3	89%	2007-2009
750	4	89%	2007-2009
750	5	91%	2007-2009
750	6	92%	2007-2009
750	7	88%	2014-2016
750	8	85%	2012-2013, 2015
750	9	87%	2008, 2010, 2013
750	10	88%	2006-2008
750	11	89%	2006-2008
750	12	90%	2006-2008
500	1	62%	2014-2016
500	2	65%	2014-2016
500	3	73%	2007-2009
500	4	72%	2007-2009
500	5	76%	2007-2009
500	6	78%	2007-2009
500	7	68%	2014-2016
500	8	64%	2012-2013, 2015
500	9	66%	2008, 2010, 2013
500	10	71%	2006-2008
500	11	70%	2006-2008
500	12	73%	2006-2008

**Table 7.** Projected mean and 95% lower and upper (L95, U95) confidence limits trip limit reduction and quota closure dates for vermilion snapper under different alternatives proposed for Action 5.

	<b>TRIP LIMIT REDUCED</b>					
	<b>Last 3 Years</b>			<b>SARIMA</b>		
Alternative	L95_Last3	<b>Last3</b>	U95_Last3	L95_SARIMA	<b>SARIMA</b>	U95_SARIMA
1	18-Sep	<b>25-Aug</b>	13-Aug	4-Oct	<b>22-Aug</b>	4-Aug
2	28-Sep	<b>1-Sep</b>	18-Aug	18-Oct	<b>30-Aug</b>	9-Aug
3	n/a					
	<b>FISHERY CLOSED</b>					
	<b>Last 3 Years</b>			<b>SARIMA</b>		
Alternative	L95_Last3	<b>Last3</b>	U95_Last3	L95_SARIMA	<b>SARIMA</b>	U95_SARIMA
1	25-Oct	<b>16-Sep</b>	30-Aug		<b>15-Sep</b>	23-Aug
2	8-Nov	<b>23-Sep</b>	4-Sep		<b>23-Sep</b>	28-Aug
3	12-Dec	<b>11-Oct</b>	17-Sep		<b>10-Oct</b>	9-Sep

**Table 8.** Jacks complex recent landings and quota closures.

<b>Fishing Year</b>	<b>Current Landings</b>	<b>ACL</b>	<b>Units</b>	<b>ACL</b>	<b>Closure Date</b>
2017	78,956	189,422	ww	41.68	
2016	206,726	189,422	ww	109.14	8/9/2016
2015	235,969	189,422	ww	124.57	6/23/2015
2014	212,474	189,422	ww	112.17	7/15/2014
2013	201,398	189,422	ww	106.32	6/18/2013
2012	333,561	193,999	ww	171.94	7/2/2012

Source: SERO ACL Monitoring Webpage.



**Table 9.** Projected Jacks complex and almaco jack commercial trip limit scalars, by month, based on most recent three years without a quota closure.

<b>Trip Limit</b>	<b>Month</b>	<b>Jacks</b>	<b>Almaco</b>	<b>Years</b>
500	1	99%	99%	2014-2016
500	2	96%	97%	2014-2016
500	3	95%	96%	2014-2016
500	4	60%	90%	2014-2016
500	5	89%	93%	2014-2016
500	6	73%	73%	2012, 2014, 2016
500	7	85%	85%	2010, 2011, 2016
500	8	89%	89%	2009, 2010, 2011
500	9	81%	90%	2009, 2010, 2011
500	10	85%	88%	2009, 2010, 2011
500	11	85%	85%	2009, 2010, 2011
500	12	88%	88%	2009, 2010, 2011
400	1	98%	97%	2014-2016
400	2	93%	95%	2014-2016
400	3	91%	93%	2014-2016
400	4	54%	85%	2014-2016
400	5	83%	87%	2014-2016
400	6	68%	68%	2012, 2014, 2016
400	7	80%	80%	2010, 2011, 2016
400	8	84%	85%	2009, 2010, 2011
400	9	77%	87%	2009, 2010, 2011
400	10	80%	83%	2009, 2010, 2011
400	11	80%	80%	2009, 2010, 2011
400	12	82%	82%	2009, 2010, 2011
300	1	94%	95%	2014-2016
300	2	89%	91%	2014-2016
300	3	86%	89%	2014-2016
300	4	46%	79%	2014-2016
300	5	73%	78%	2014-2016
300	6	59%	60%	2012, 2014, 2016
300	7	73%	72%	2010, 2011, 2016
300	8	77%	78%	2009, 2010, 2011
300	9	71%	82%	2009, 2010, 2011
300	10	73%	78%	2009, 2010, 2011
300	11	73%	73%	2009, 2010, 2011
300	12	73%	74%	2009, 2010, 2011

**Table 10.** Projected mean and 95% lower and upper (L95, U95) confidence limits for quota closure dates for Jacks complex under different alternatives proposed for Action 6.

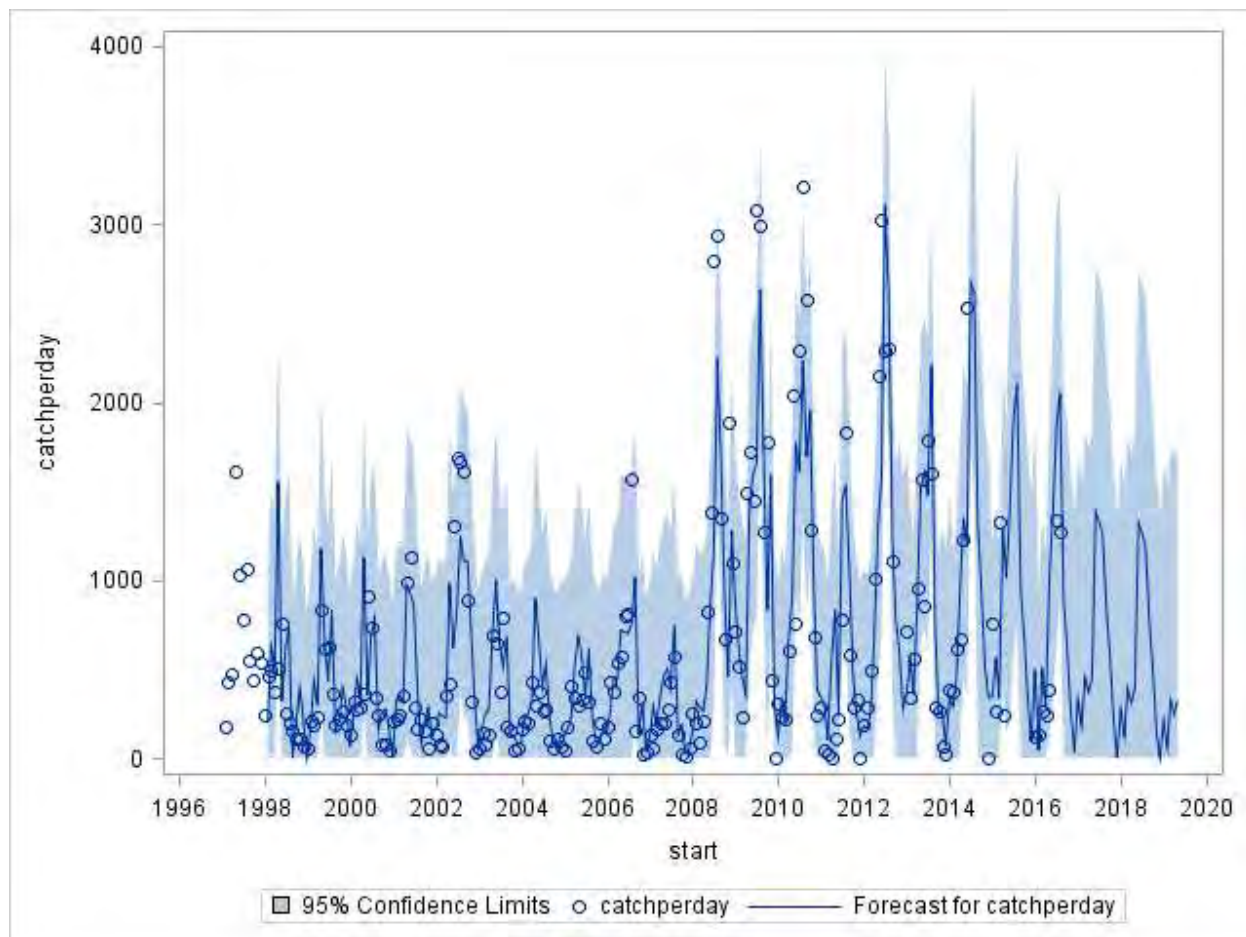
	<b>Overage Date</b>					
	<b>Last 3 Years</b>			<b>SARIMA</b>		
<b>Alt</b>	<b>L95</b>	<b>Mean</b>	<b>U95</b>	<b>L95</b>	<b>Mean</b>	<b>U95</b>
1	14-Dec	3-Jul	5-Jun		12-Jun	24-Apr
2a		28-Jul	26-Jun		9-Jul	8-May
2b		8-Aug	3-Jul		19-Jul	12-May
2c		29-Aug	13-Jul		5-Aug	20-May
3a	28-Dec	14-Jul	11-Jun		21-Jun	26-Apr
3b		27-Jul	20-Jun		5-Jul	29-Apr
3c		27-Jul	20-Jun		5-Jul	29-Apr

**Table 11.** The number of self-reported discards reported to the coastal logbook program from 2014-2016 for the South Atlantic for queen, silk, and blackfin snapper.

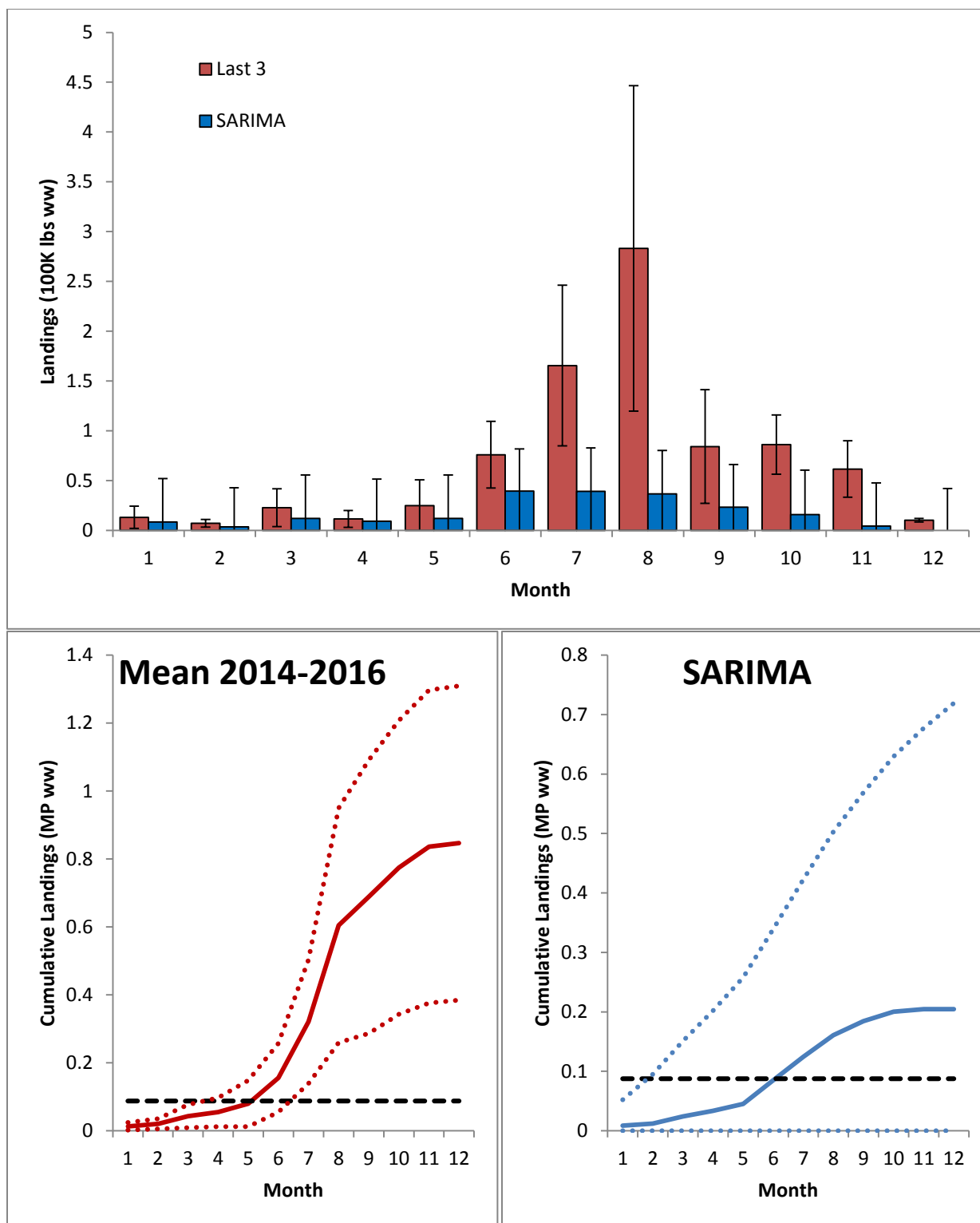
Species	Number Discarded	Discard Condition	Discard Reason
Queen Snapper	0	_____	_____
Silk Snapper	5	All Alive	Size Limit
Blackfin Snapper	0	_____	_____

**Table 12.** The estimated percent increase in whole weight of commercial gray triggerfish landings at 1-inch intervals between 12-14 inches FL. The increases were generated with TIP data from January 2014 to June 2015 from a sample of 2,616 fish.

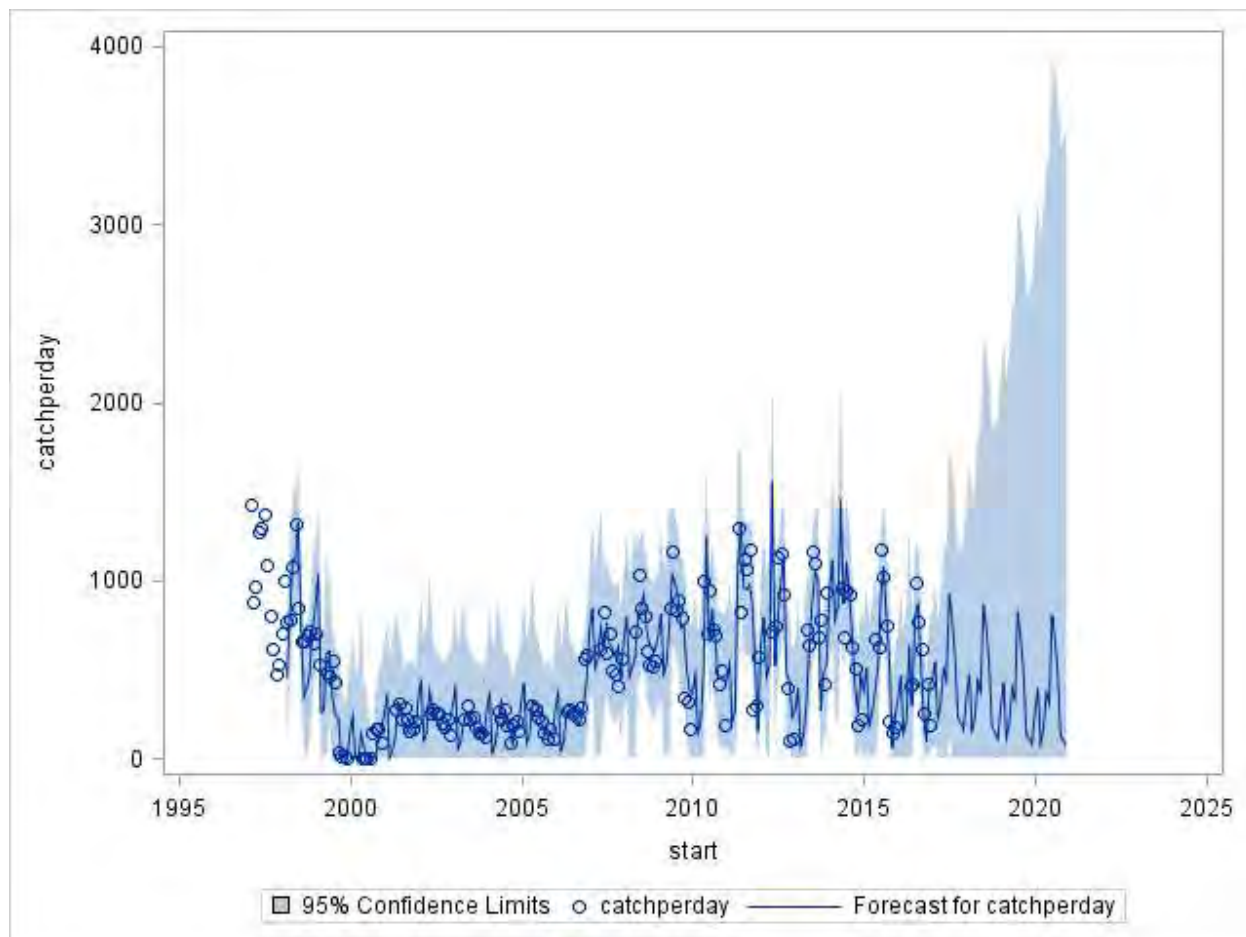
<b>Minimum Size Limit (inches FL)</b>	<b>Percent Increase</b>
12	19.7
13	12.5
14	0.0



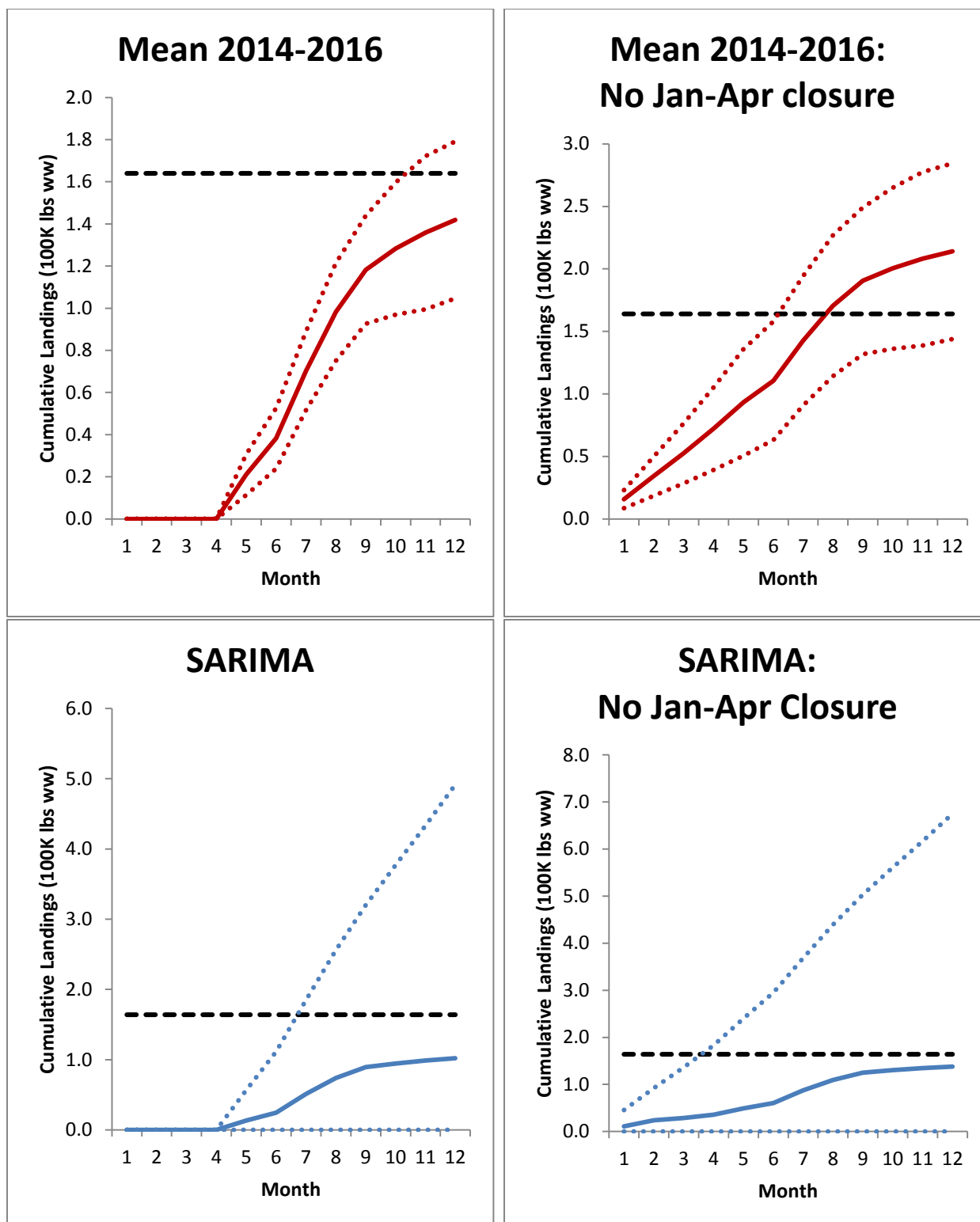
**Figure 1.** Final SARIMA model fit for blueline tilefish monthly commercial landings (lb ww) per open day.



**Figure 2.** Blueline tilefish projected commercial landings (MP: million pounds, whole weight) by month (top) and mean (solid line) and 95% confidence limits (dotted lines) estimates for cumulative landings relative to ACL (bottom) for two projection models: Mean of last 3 years (2014-2016) and SARIMA.

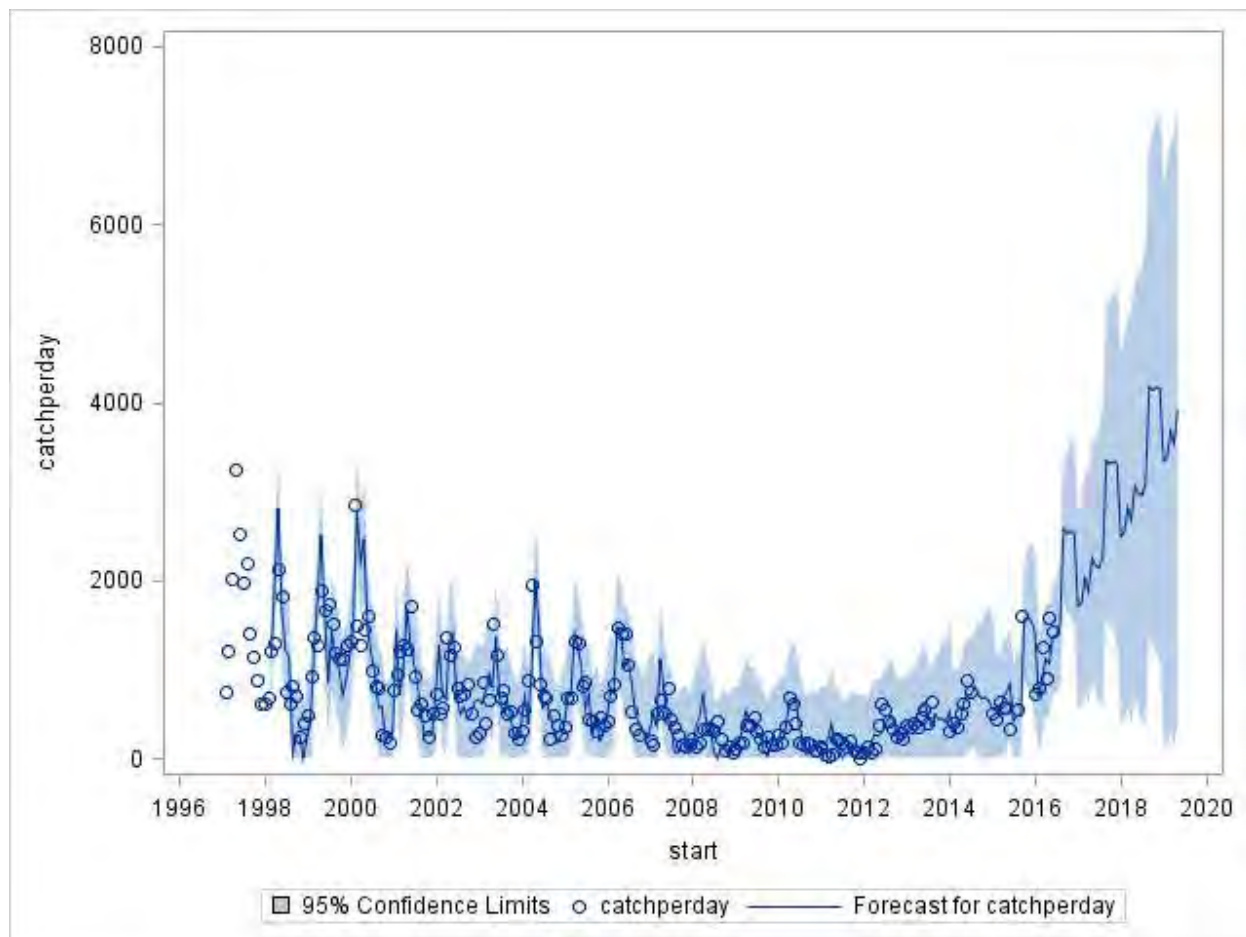


**Figure 3.** Final SARIMA model fit for red porgy monthly commercial landings (lb ww) per open day.

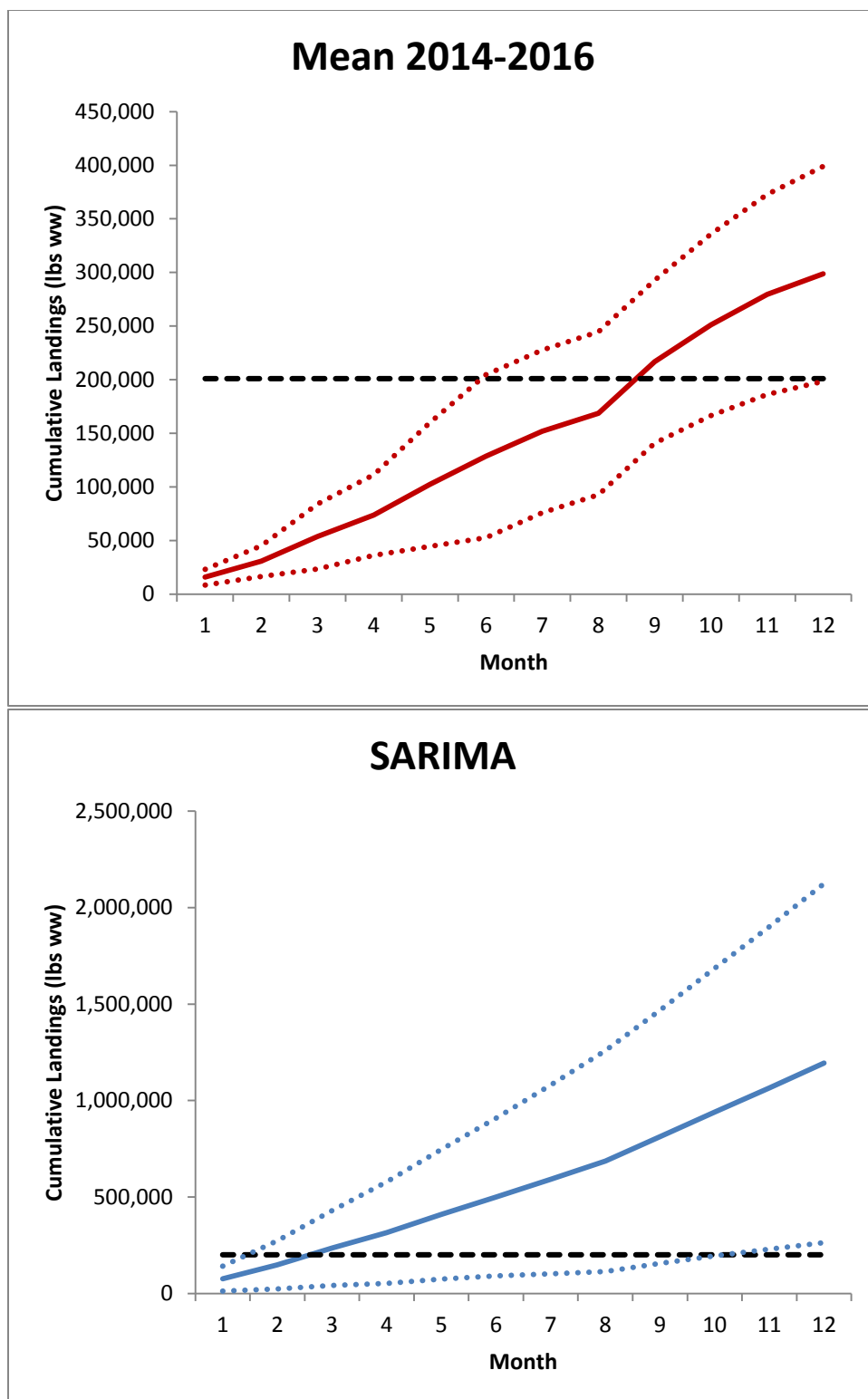


**Figure 4.** Mean (solid line) and 95% confidence limits (dotted lines) for Red porgy projected cumulative landings relative to ACL, with and without Jan-Apr closure, for two projection models: Mean of last 3 years (2014-2016) and SARIMA.

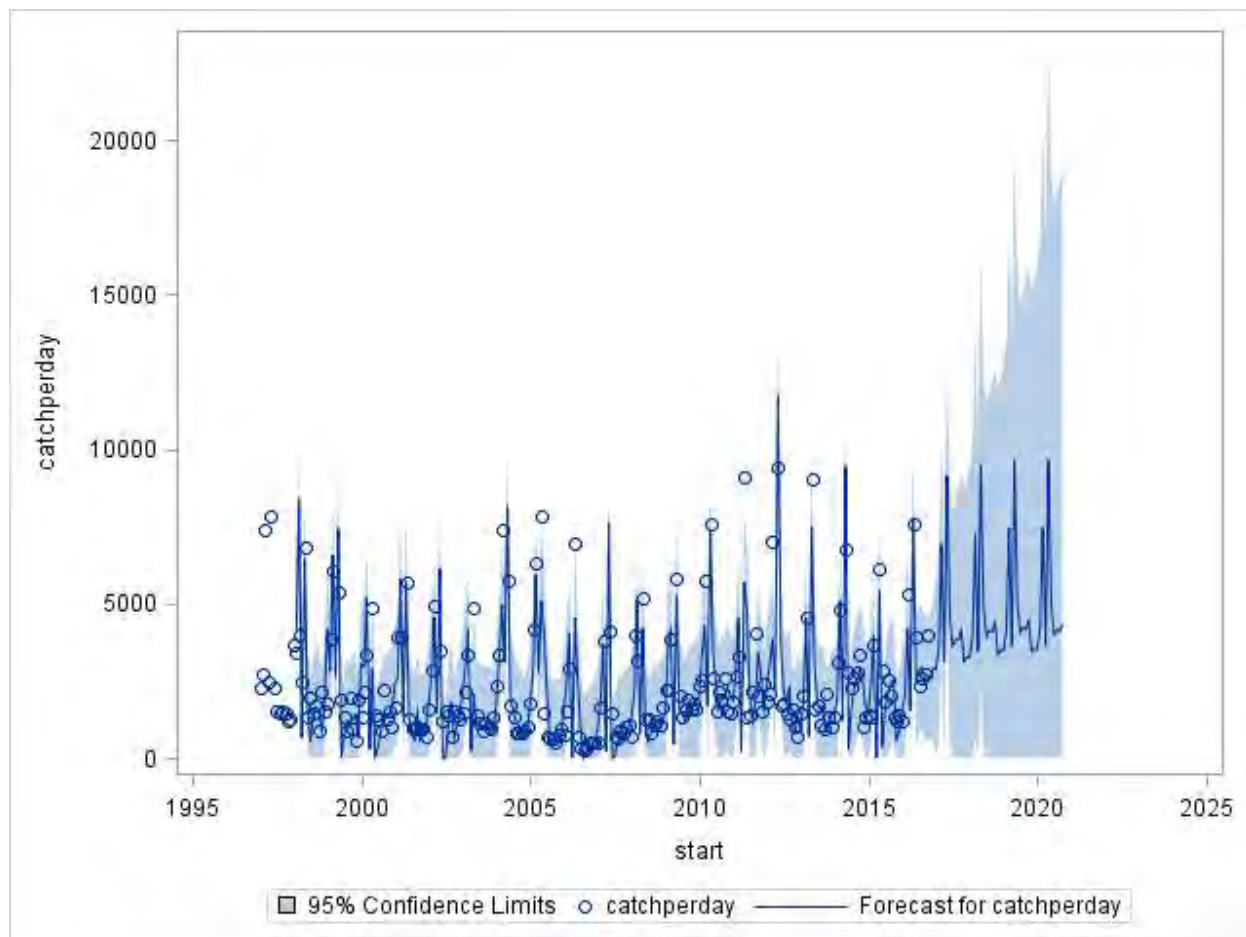




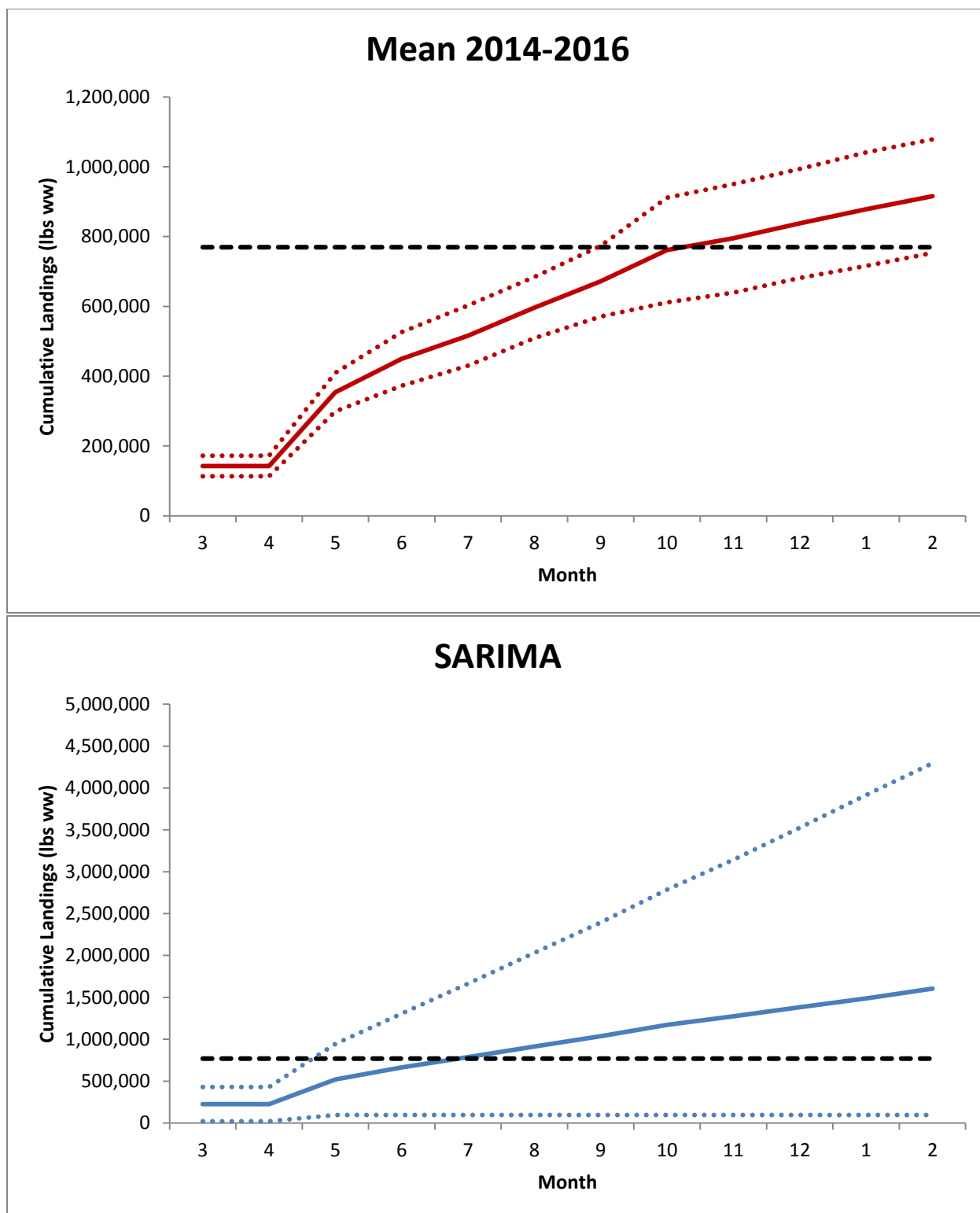
**Figure 5.** Final SARIMA model fit for snowy grouper monthly commercial landings (lb ww) per open day.



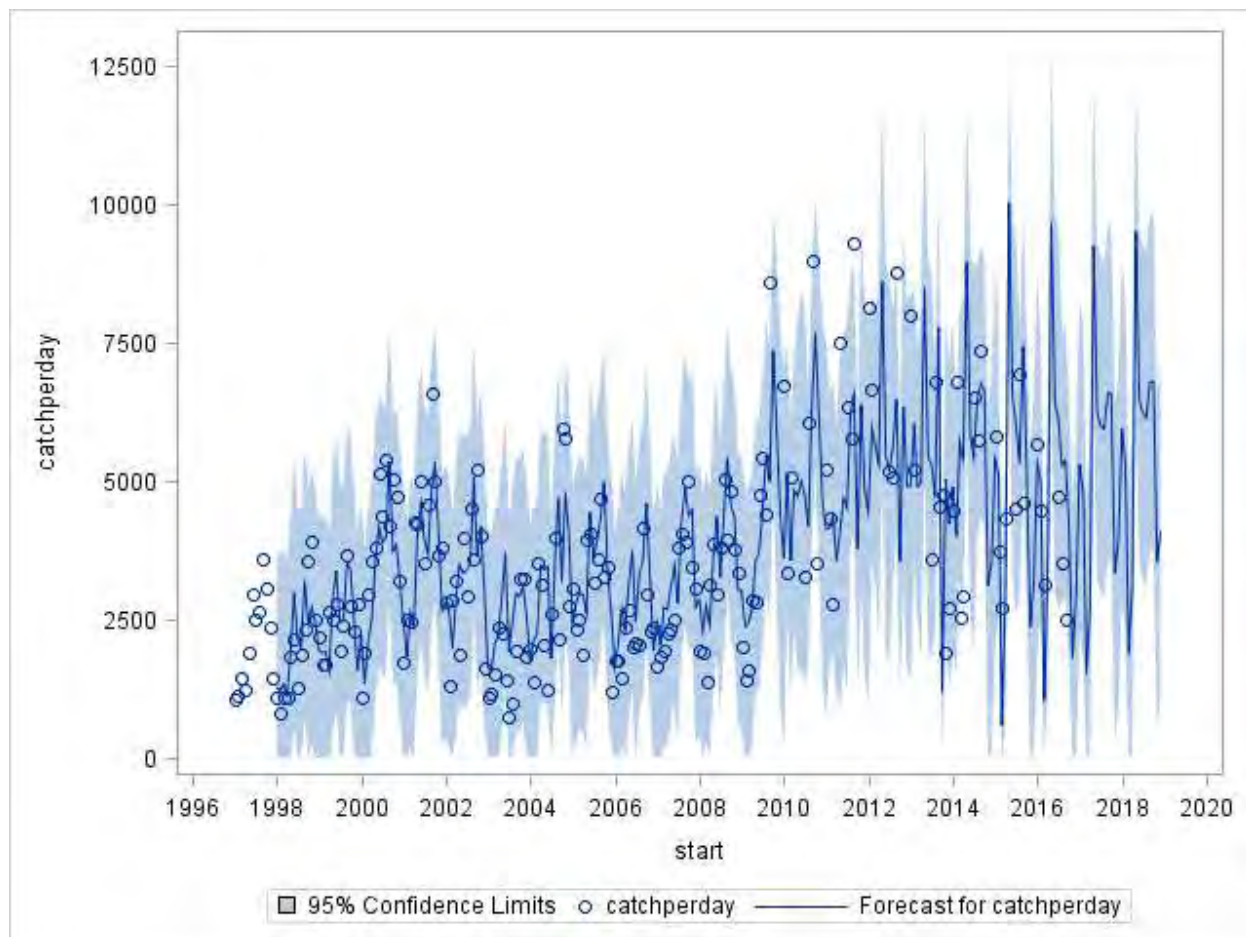
**Figure 6.** Mean (solid line) and 95% confidence limits (dotted lines) for Snowy grouper projected cumulative landings relative to ACL under two projection models: Mean of last 3 years (2014-2016) and SARIMA.



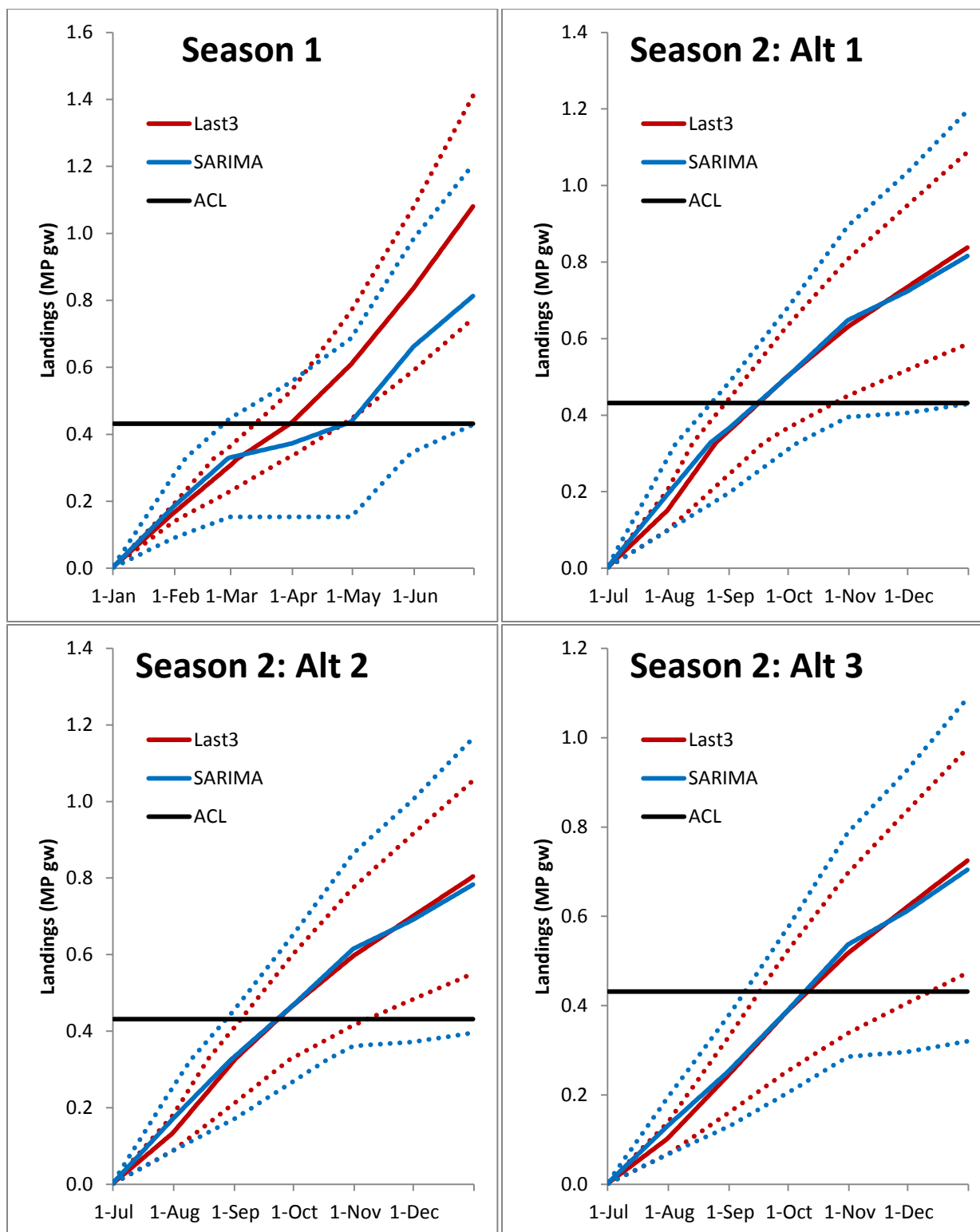
**Figure 7.** Final SARIMA model fit for greater amberjack monthly commercial landings (lb ww) per open day.



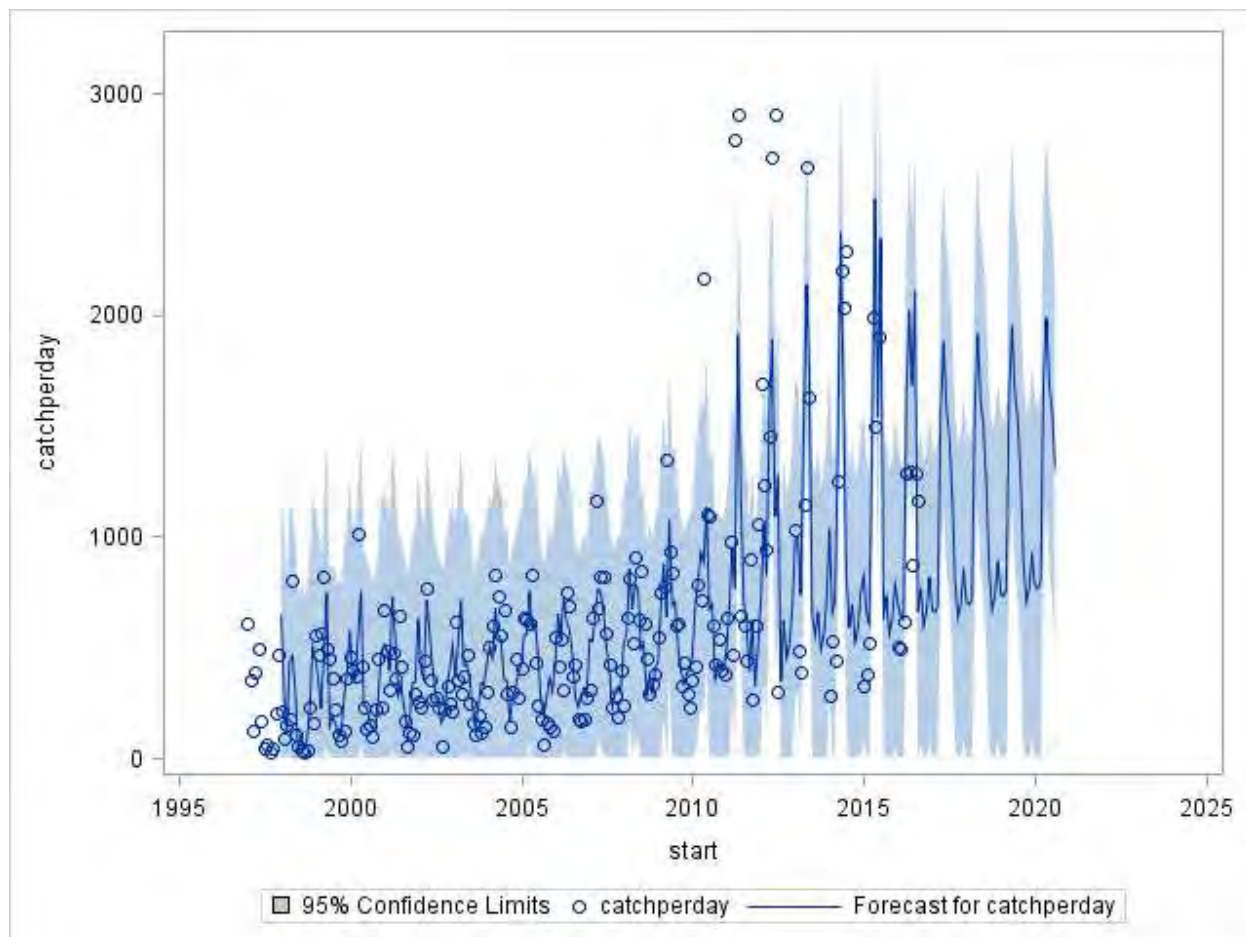
**Figure 8.** Mean (solid line) and 95% confidence limits (dotted lines) for Greater amberjack projected cumulative landings relative to ACL under two projection models: Mean of last 3 years (2014-2016) and SARIMA.



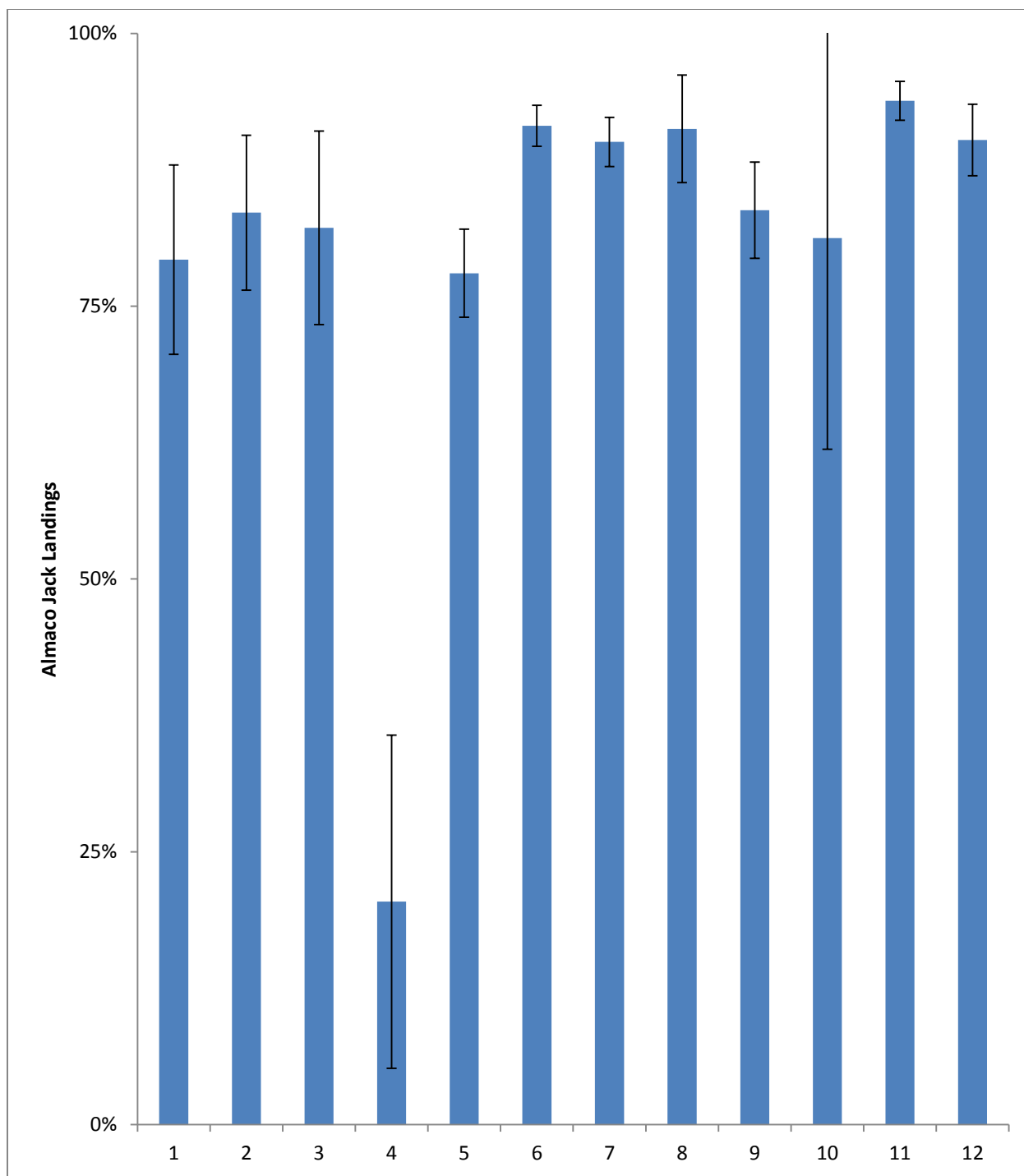
**Figure 9.** Final SARIMA model fit for vermilion snapper monthly commercial landings (lb ww) per open day.



**Figure 10.** Mean (solid line) and 95% confidence limits (dotted lines) for vermilion snapper projected cumulative landings relative to ACL under two projection models: Mean of last 3 years (2014-2016) and SARIMA.

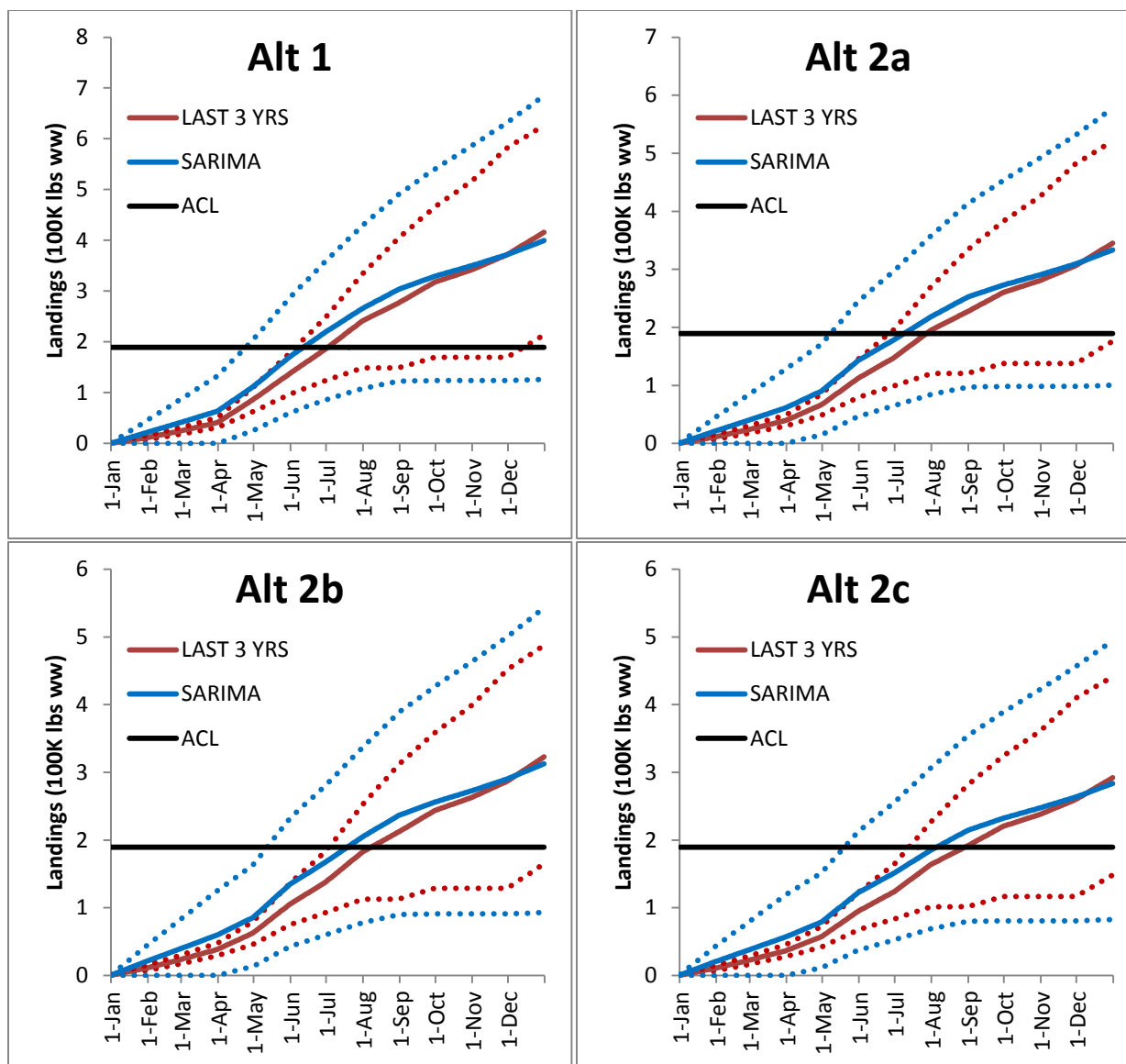


**Figure 11.** Final SARIMA model fit for Jacks complex monthly commercial landings (lb ww) per open day.

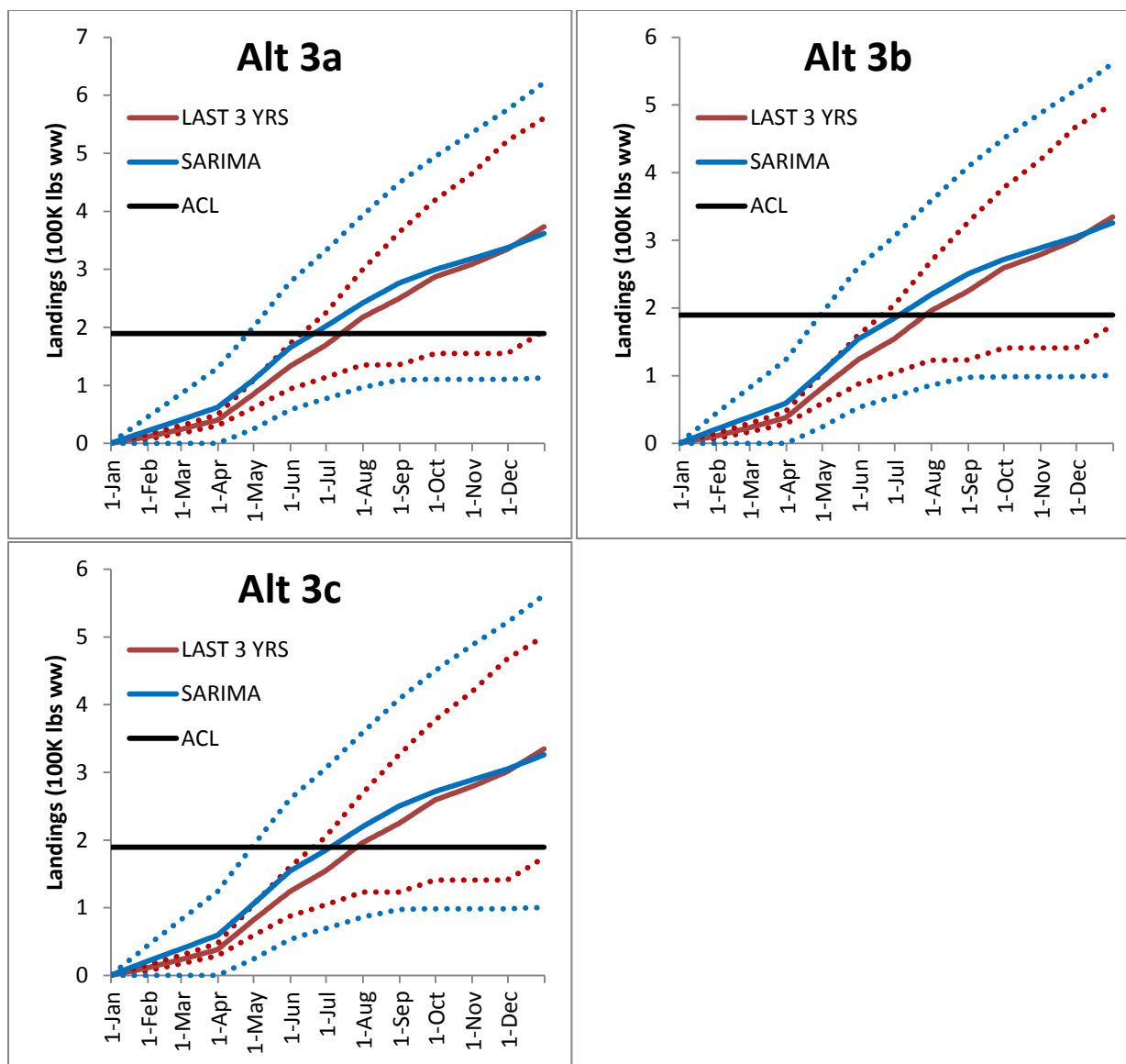


**Figure 12.** Monthly ratio of almaco jack to Jacks complex commercial landings from the most recent three completely open fishing years. Error bars denote standard deviation.

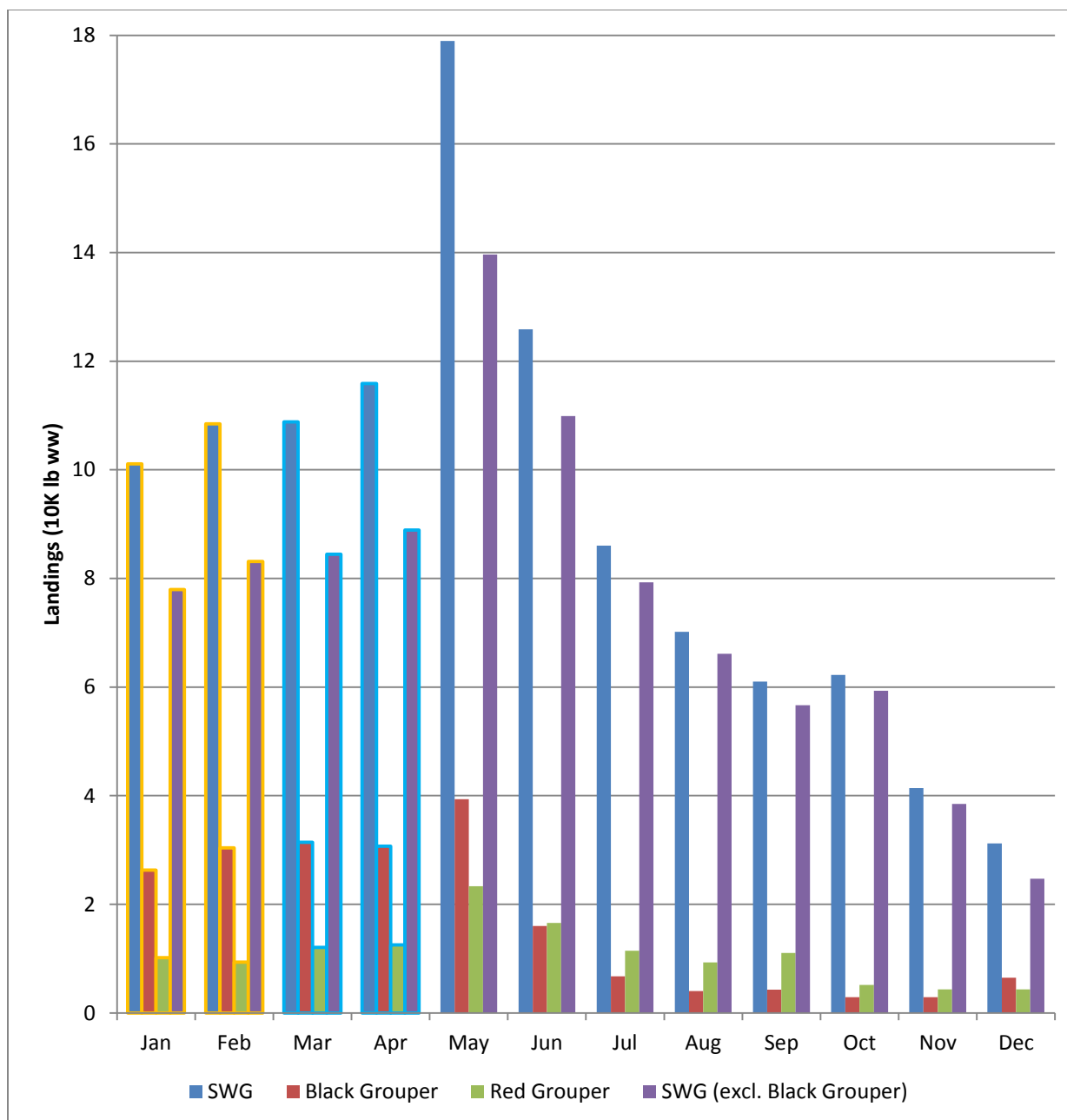




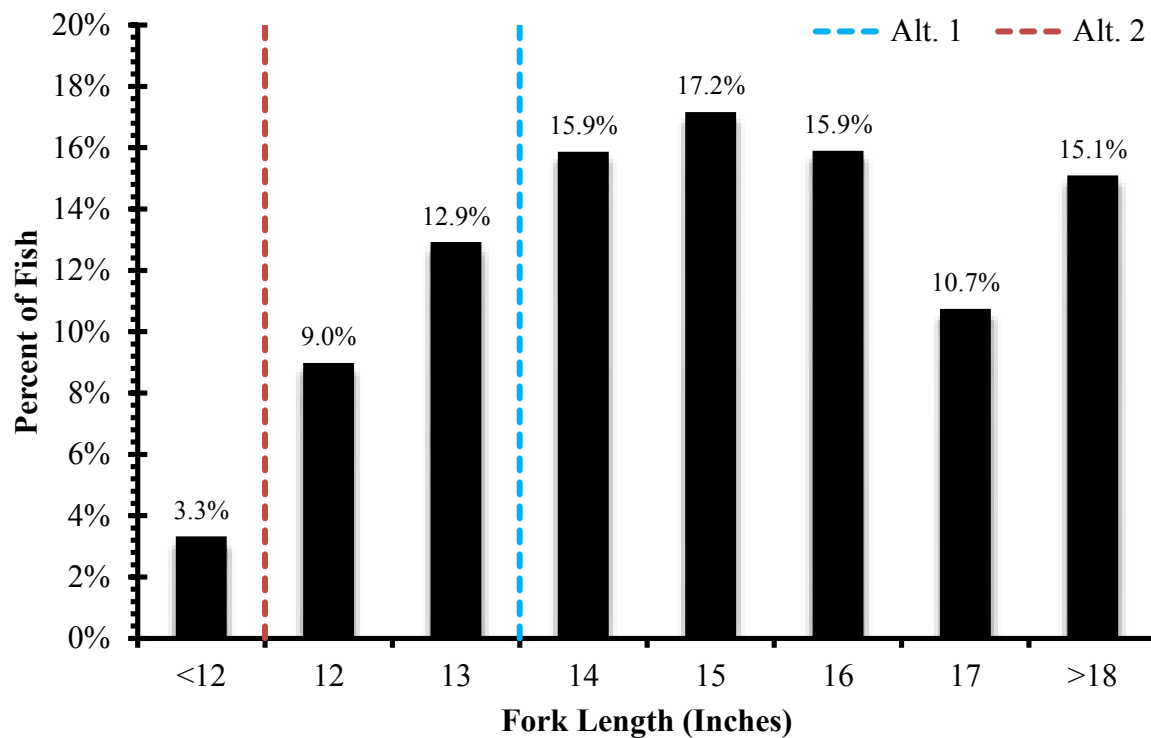
**Figure 13.** Mean (solid line) and 95% confidence limits (dotted lines) for Jacks complex projected cumulative landings relative to ACL under two projection models: Mean of last 3 years (2014-2016) and SARIMA.



**Figure 13 (con't).** Mean (solid line) and 95% confidence limits (dotted lines) for Jacks complex projected cumulative landings relative to ACL under two projection models: Mean of last 3 years (2014-2016) and SARIMA.



**Figure 14.** Mean 2014-2016 (no outline) and projected (outlines) monthly commercial landings for shallow-water grouper (SWG: gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney), black grouper, red grouper, and SWG excluding black grouper. Orange outlines denote expansions using mean ratio of Jan-Feb to May 2007-2009 landings; blue outlines denote expansions using mean ratio of Mar-Apr to May 1996-1998 landings.



**Figure 15.** The length distribution of gray triggerfish captured in federal waters off east Florida generated from commercial TIP (n=2,616) data from January 2014 to June 2015. The dashed lines denote the commercial minimum size limit proposed in each alternative.

## SUPPLEMENTAL TABLES AND FIGURES

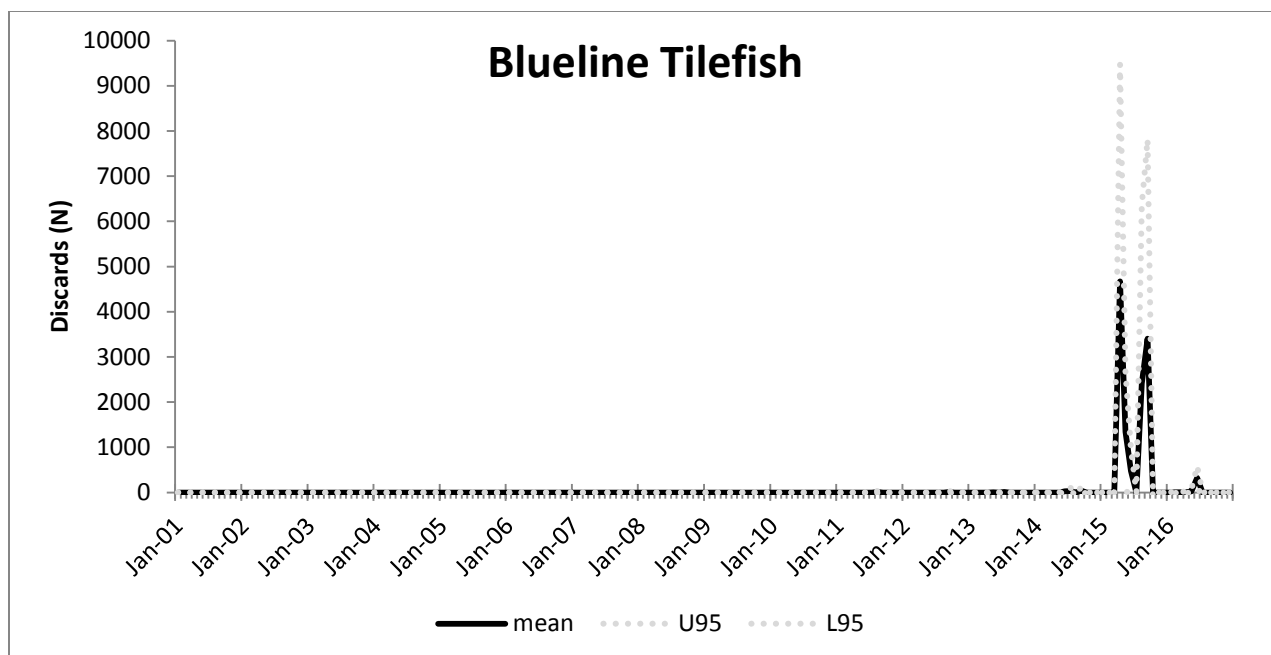
**Table S-1.** Seasonal ( $s$ ) autoregressive integrated moving average (SARIMA)  $(p,d,q) \times (P,D,Q)_s$  model combinations evaluated, where the autoregressive component ( $p$ ) represents the lingering effects of previous observations, the integrated component ( $d$ ) represents temporal trends, the moving average component ( $q$ ) represents lingering effects of previous random shocks (or error), and  $s$  denotes the seasonal time step. As recreational landings are primarily collected in 2-month waves,  $s$  was set to 6. A “1” denotes an active component in the model.

<b>ARIMA(<math>p,d,q</math>)X(<math>P,D,Q</math>)<math>s</math> Model</b>
ARIMA(0,1,1)X(0,1,1) $s$
ARIMA(1,0,0)X(0,1,1) $s$
ARIMA(0,0,1)X(0,1,1) $s$
ARIMA(0,1,1)X(1,1,0) $s$
ARIMA(1,0,0)X(1,1,0) $s$
ARIMA(0,0,1)X(1,1,0) $s$
ARIMA(1,1,0)X(0,1,1) $s$
ARIMA(1,1,0)X(1,1,0) $s$

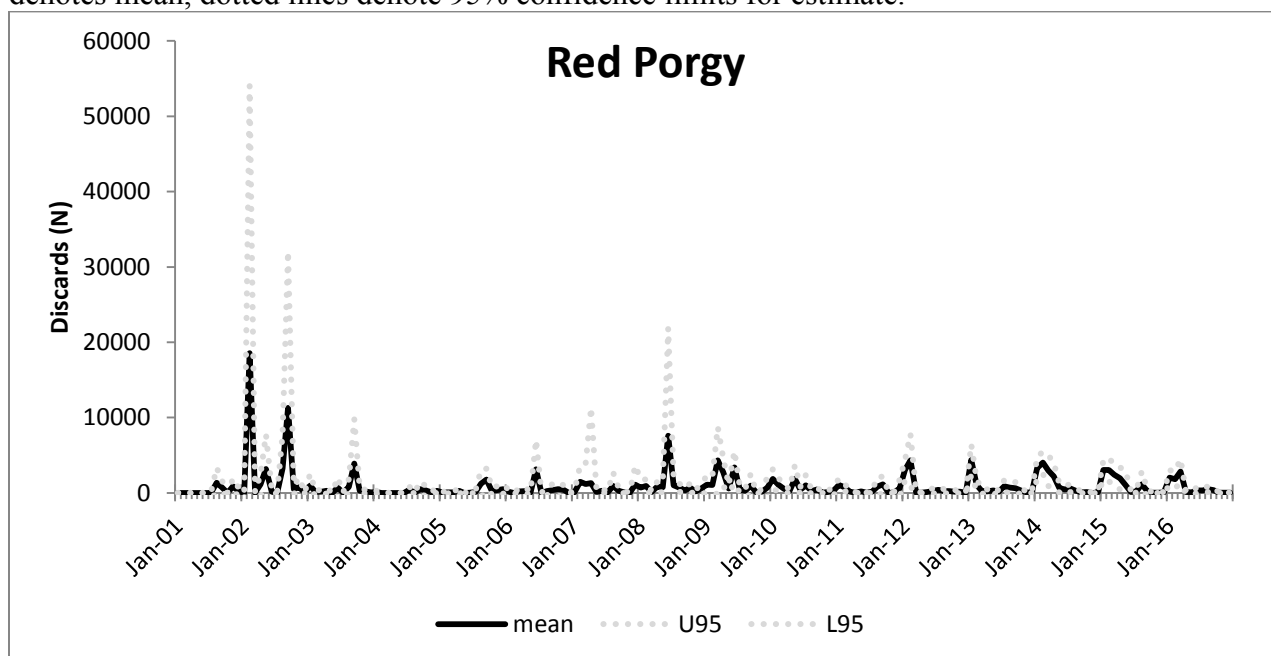
**Table S-2.** Mean monthly estimates of discards (numbers of fish) from all South Atlantic commercial trips (2014-2016) based on self-reported discard rates (SEFSC Supplemental Discard Logbook, accessed May 2017) expanded to overall South Atlantic commercial fishing effort (SEFSC Commercial Logbook, accessed May 2017), aggregated across all gears. Note that SEDAR has found this approach consistently underestimates discarded fish relative to observer data in the Gulf of Mexico, and the 95% confidence limits for many of these expanded estimates overlap zero, indicating substantial uncertainty in the data (see **Figures S1-9**).

Month	Blueline Tilefish	Red Porgy	Snowy Grouper	Greater Amberjack	Vermilion Snapper	Jacks	SWG	DWS	Gray Triggerfish
1	0.00	2784.62	21.79	126.52	112.93	14.60	361.09	0.00	5.33
2	2.38	2950.04	9.69	100.28	10.54	9.20	404.17	0.00	97.35
3	2.04	2732.02	31.40	105.94	68.95	4.93	557.48	0.61	6.12
4	1558.58	1405.03	17.00	31.43	67.77	0.54	368.23	0.00	87.54
5	456.90	599.67	61.73	467.96	581.99	32.44	1335.87	0.00	301.74
6	276.24	287.47	87.23	521.50	325.87	99.53	579.78	0.00	119.99
7	11.35	364.42	50.90	258.53	643.80	254.69	971.22	0.00	492.58
8	805.09	636.27	19.76	233.53	176.77	582.11	901.70	0.00	722.74
9	1146.26	202.66	13.41	168.20	229.39	439.25	1088.71	0.00	526.26
10	0.00	43.29	1.70	223.60	617.30	587.64	1224.53	0.00	49.79
11	0.00	14.12	22.80	24.84	1356.20	65.21	1360.18	0.00	141.87
12	0.00	39.50	1.57	31.26	904.97	152.30	615.67	0.00	106.90

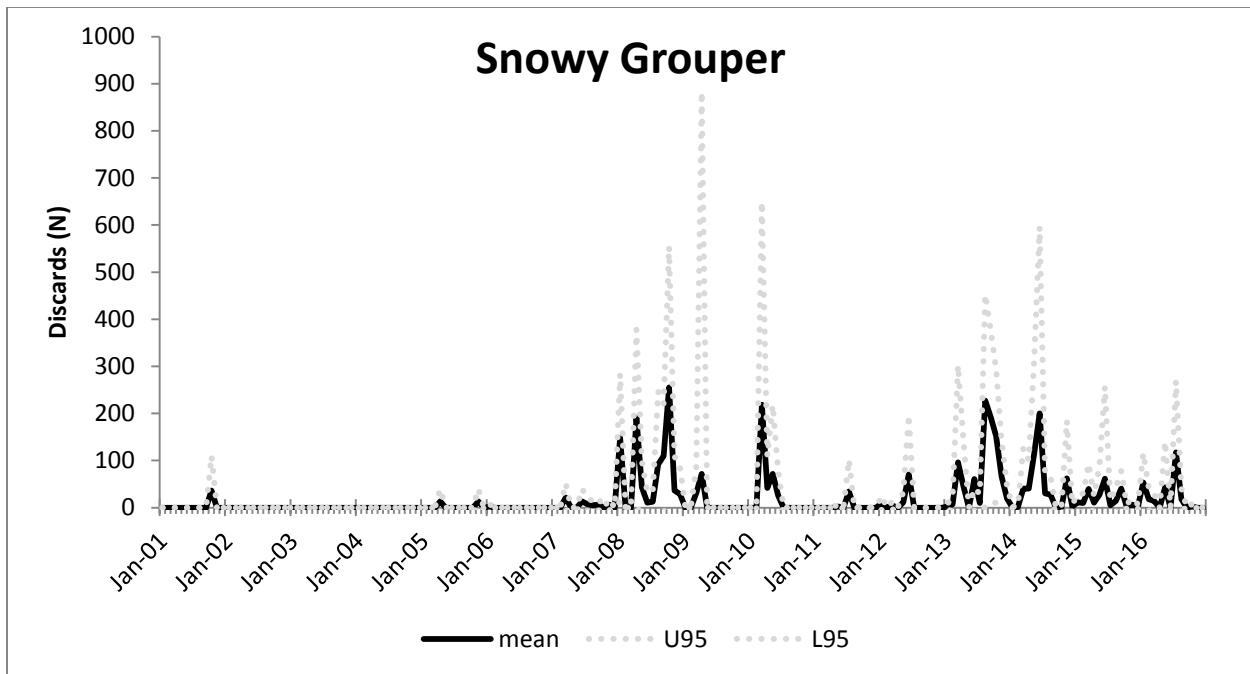
SWG: Shallow-water grouper (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney), DWS: Deep-water snapper (blackfin, queen, silk snapper).



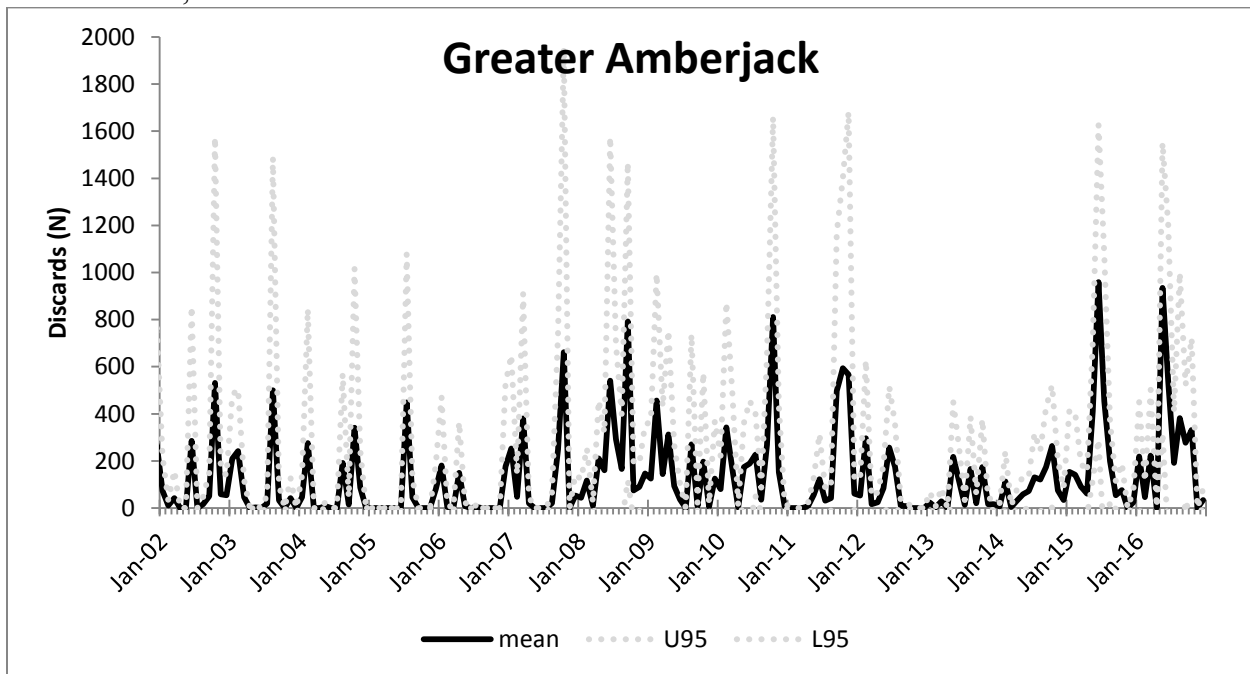
**Figure S-1.** Blueline tilefish expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.



**Figure S-2.** Red porgy expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.

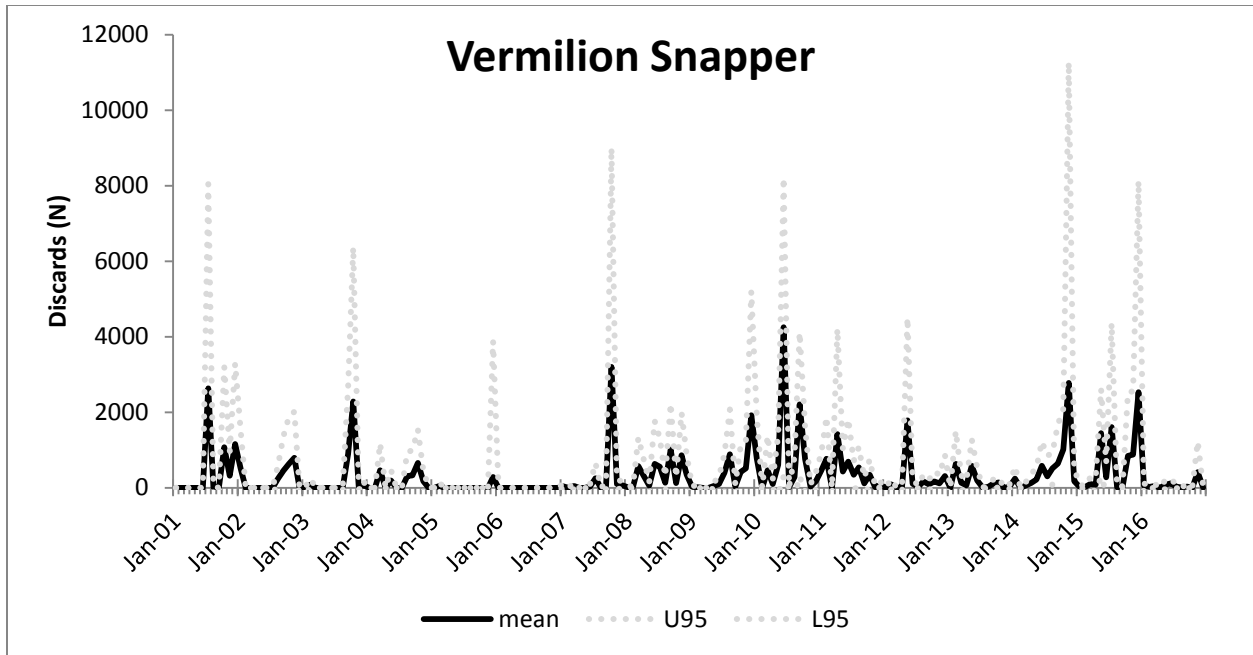


**Figure S-3.** Snowy grouper expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.

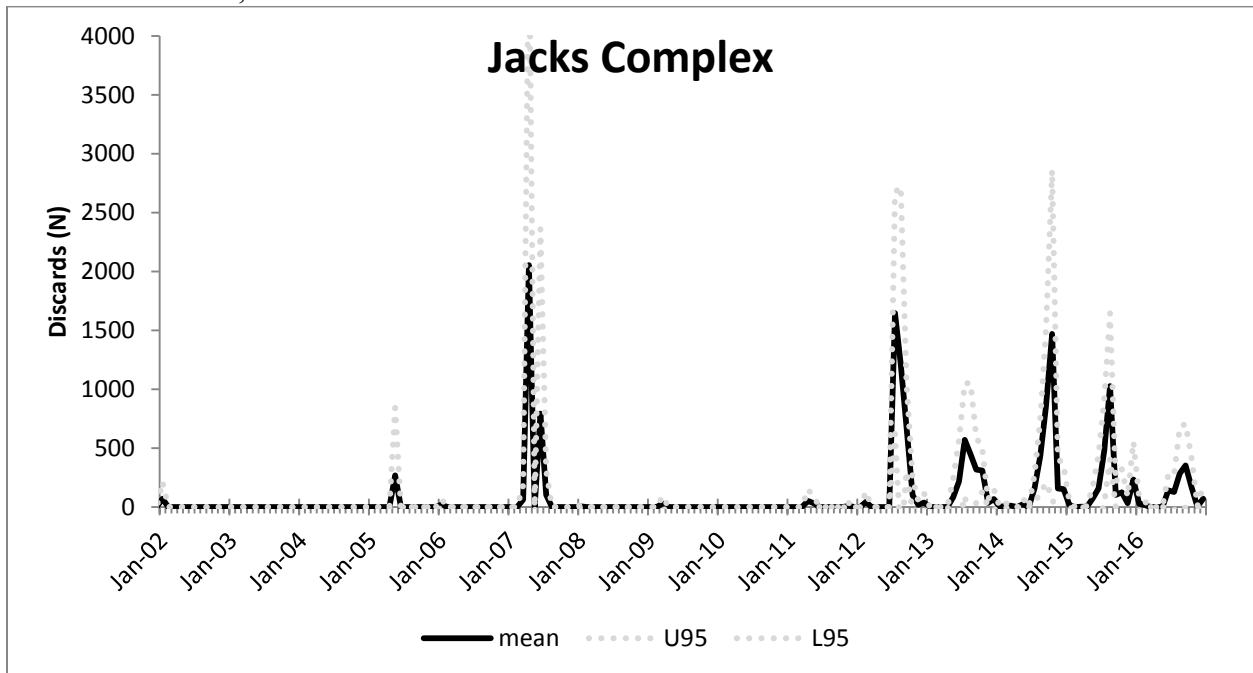


**Figure S-4.** Greater amberjack expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.

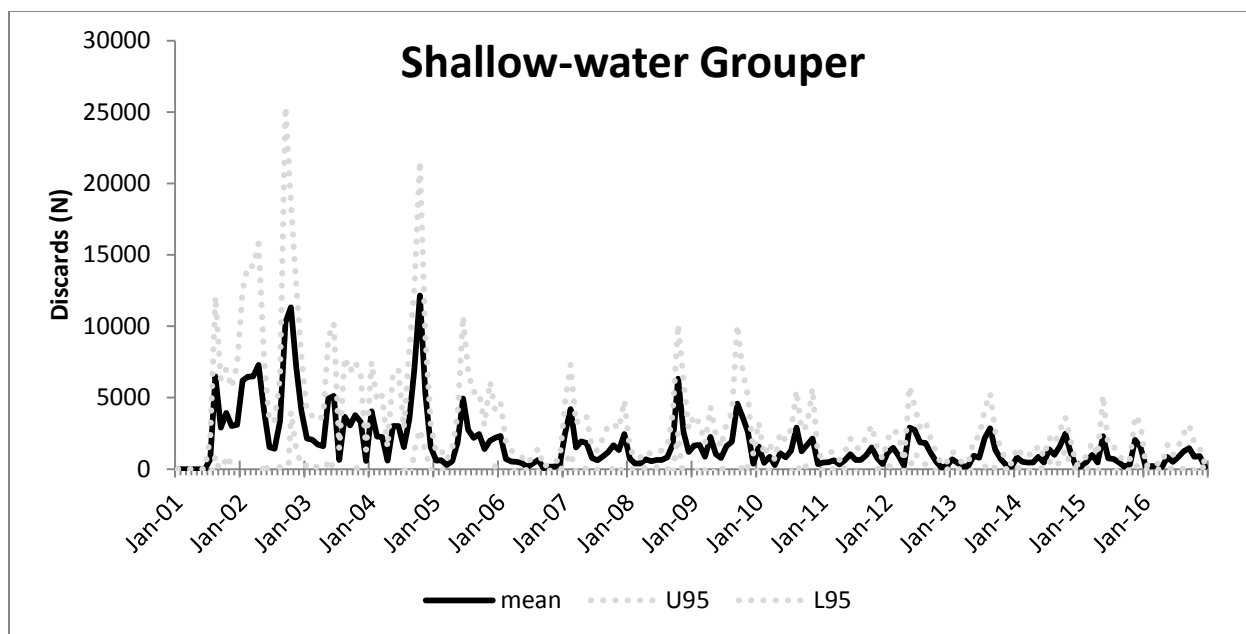




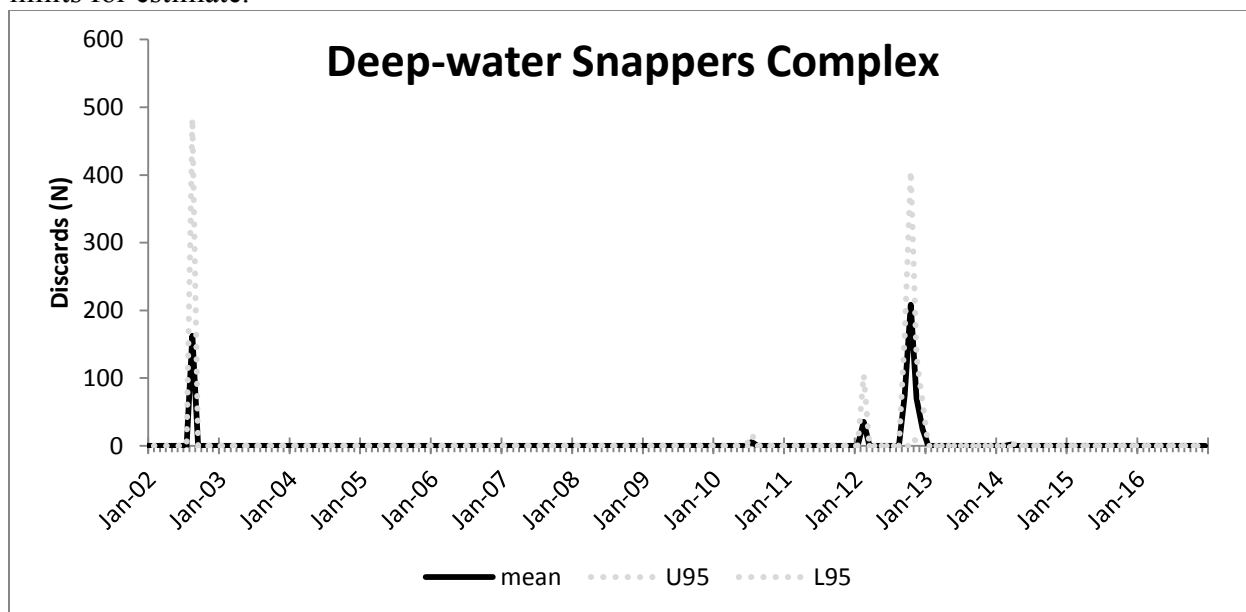
**Figure S-5.** Vermilion snapper expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.



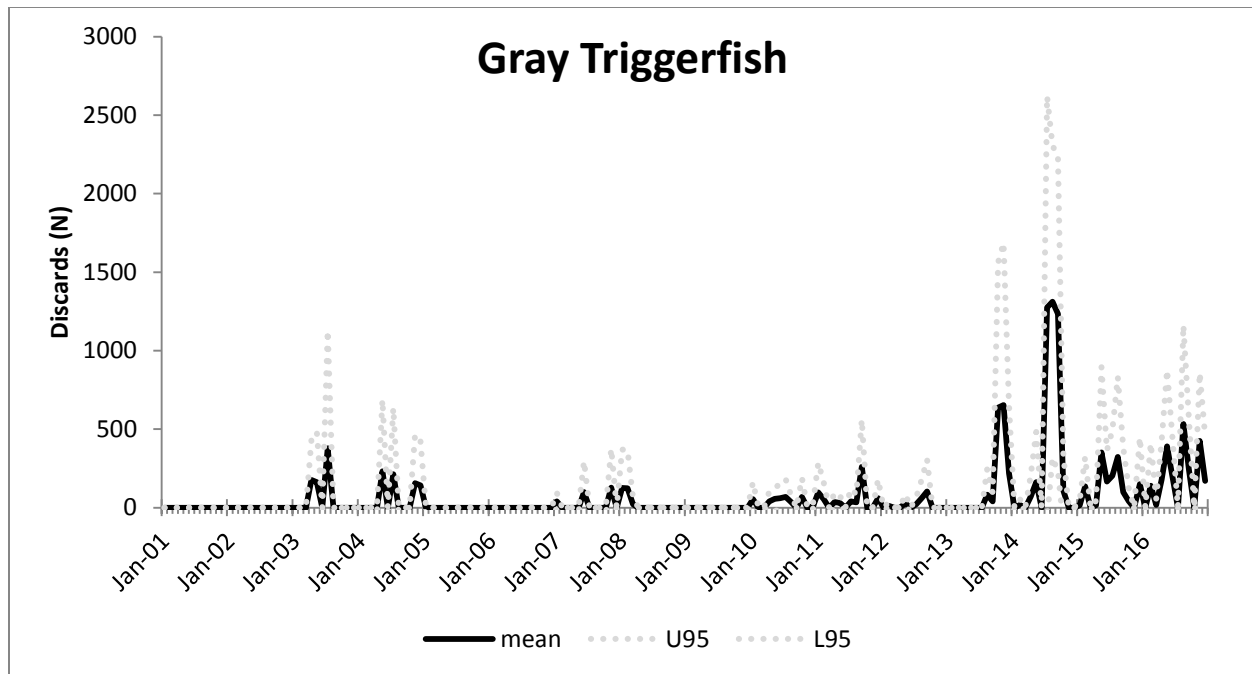
**Figure S-6.** Jacks complex (lesser amberjack, banded rudderfish, almaco jack) expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.



**Figure S-7.** Shallow-water grouper (gag, black grouper, scamp, red grouper, yellowfin grouper, yellowmouth grouper, red hind, rock hind, graysby, and coney) expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.



**Figure S-8.** Deep-water snapper (queen snapper, silk snapper, blackfin snapper) expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate.



**Figure S-9.** Gray triggerfish expanded monthly commercial discard estimates (numbers of fish) from the SEFSC Supplemental Commercial Discard Logbook (accessed May 2017). Black line denotes mean, dotted lines denote 95% confidence limits for estimate. Note an outlier was removed for trolling gear in Nov 2006.