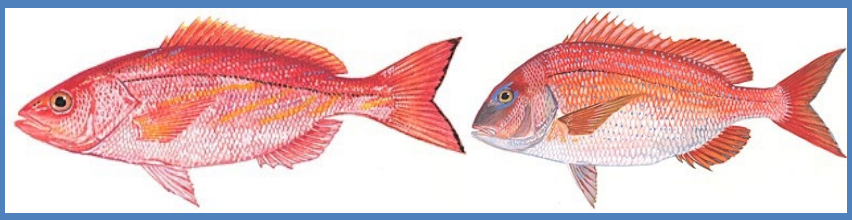
Regulatory Amendment 18

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



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Abbreviations and Acronyms Used in the FMP

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

Regulatory Amendment 18 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Environmental Assessment

Proposed action:	Revise annual catch limits and optimum yield for vermilion snapper and red porgy, and revise the annual catch target for red porgy. Modify the commercial trip limit, commercial fishing seasons, and the recreational closed season for vermilion snapper.
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Summary

Southeast Data, Assessment, and Review (SEDAR) stock assessment updates for vermilion snapper and red porgy were completed in 2012, and suggest the annual catch limit (ACL) for both species could be modified based upon the new allowable biological catch (ABC) levels that were recommended by the South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical Committee (SSC). The stock assessment updates indicate vermilion snapper is no longer undergoing overfishing and is not overfished, and red porgy is not undergoing overfishing but is still overfished. Based on the outcome of the stock assessment update for vermilion snapper, the SSC applied the approved ABC control rule to vermilion snapper, revised P* to be 40%, and recommended new ABC values for 2013-2016. For red porgy, the SSC recommended that a benchmark stock assessment be completed in 2014, applied the approved ABC control rule, and recommended an ABC for red porgy based on the yield at 75%F_{MSY}.

At their December 2012 meeting, the South Atlantic Council determined it would be appropriate to modify certain management measures that are currently in place for vermilion snapper including the commercial trip limit and the recreational closed season. The South Atlantic Council also discussed that the accountability measures (AMs) for red porgy and vermilion snapper should be updated, but decided to address AMs in the future through a future regulatory amendment to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP).

The South Atlantic Council stated in **Section 1.4** of the Comprehensive ACL Amendment that necessary changes to the ABCs, ACLs, annual catch targets (ACT), and AMs for snapper grouper species would be made through the framework procedure modified in Amendment 17B to the Snapper Grouper FMP, which is a more rapid process than a plan amendment. In Regulatory Amendment 18 to the Snapper Grouper FMP (Regulatory Amendment 18), the Council is considering:

- changes to the ACLs (including sector ACLs)/optimum yield for vermilion snapper and red porgy, and changes to the ACT for red porgy based on the ABC recommendation of the SSC, which is supported by the recent stock assessment updates for both species;
- changes to the commercial trip limit for vermilion snapper; and
- changes to the recreational and commercial fishing seasons for vermilion snapper.

In accordance with the provisions set forth in the Magnuson-Stevens Fishery Conservation and Management Act, the intent of Regulatory Amendment 18 is to: prevent unnecessary negative socio-economic impacts that may otherwise be realized in the snapper grouper fishery and fishing community; prevent overfishing; and ensure the use of best available science.

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Chapter 1.
Introduction

1.1 What Actions Are Being Proposed?

Revisions to annual catch limits (ACLs) (including sector ACLs)/optimum yield for vermilion snapper and red porgy, revisions to the annual catch target (ACT) for red porgy, modification of the commercial trip limit for vermilion snapper, modification of the commercial fishing seasons for vermilion snapper, and modification of the recreational closed season for vermilion snapper.

1.2 Who is Proposing the Actions?

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

South Atlantic Fishery Management Council

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

1.3 Why is the South Atlantic Council Considering Action?/Purpose & Need

Stock assessment updates for vermilion snapper and red porgy were recently completed. The vermilion snapper update indicated the stock is no longer undergoing overfishing and is not overfished. The stock assessment update for red porgy indicated the species is not undergoing overfishing but is still overfished. Furthermore, the red porgy assessment update determined the stock could not rebuild on schedule even if $F_{rebuild}$ were set to zero for the remainder of the rebuilding period.

The South Atlantic Council's Scientific and Statistical Committee (SSC) has reviewed the stock assessment updates, applied the approved ABC control rule, and recommended updated acceptable biological catch levels (ABC) for both species. Based on the new ABC recommendations, the South Atlantic Council is updating the ACLs for vermilion snapper and red porgy accordingly. Additionally, the South Atlantic Council is updating the ACT for red porgy.

The SSC recommended a larger ABC for vermilion snapper than is currently in place, which allows for an increase in the commercial and recreational ACLs. Due to the potential for increased harvest, the South Atlantic Council considered modifying the current commercial trip limit, the commercial split fishing season dates, and the recreational closed season for vermilion snapper.

Purpose for Action

The purpose of Regulatory Amendment 18 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 18) is to revise the vermilion snapper and red porgy ACLs, and the red porgy ACT based on the results of stock assessment updates completed in October 2012. Additionally, Regulatory Amendment 18 would modify commercial and recreational management measures for vermilion snapper to optimize utilization of the resource.

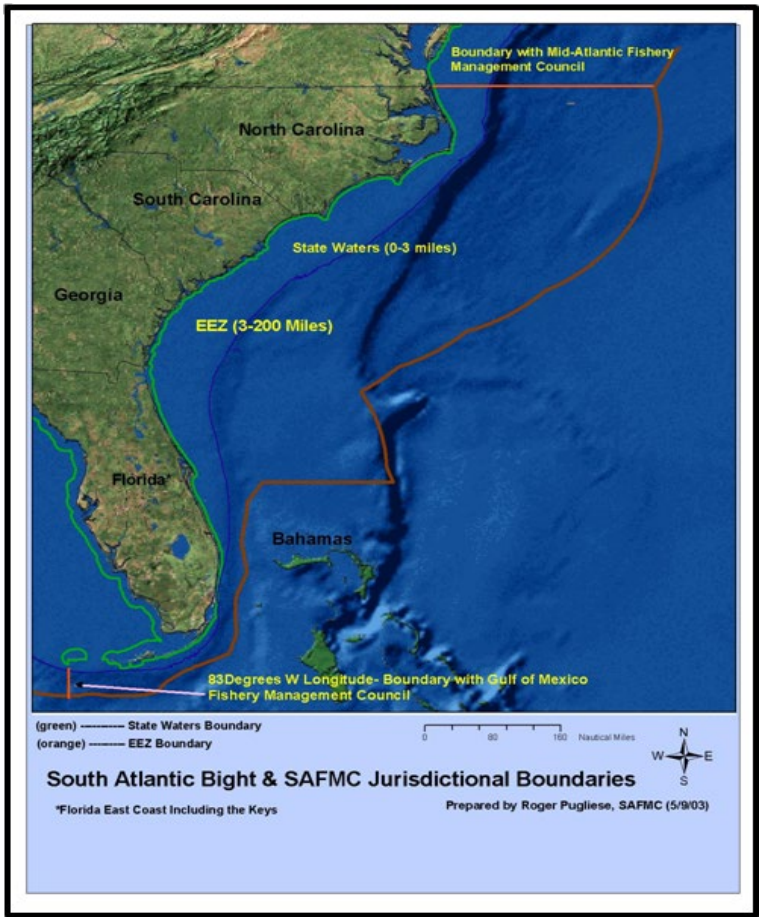
Need for Action

The need for this action is to update ACLs for vermilion snapper and red porgy based on results from recent stock assessment updates, ensure overfishing does not occur, prevent unnecessary negative socio-economic impacts that may otherwise be realized in the snapper grouper fishery and fishing community, and to ensure the use of best available science.

1.4 Which species are affected by this action?

The species affected by the actions in Regulatory Amendment 18 are vermilion snapper and red porgy in waters of the South Atlantic. Both are assessed species that were assigned ABCs, ACLs, and accountability measures through Amendment 17B (SAFMC 2010b) and the Comprehensive ACL Amendment (SAFMC 2011b). Recent stock assessment updates have been completed for both species and this amendment would implement modifications to harvest parameters and management measures based on the results of those updates.

Figure 1.1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.



1.5 Stock Assessment Information Considered in This Amendment

The actions and alternatives in Regulatory Amendment 18 are based on the results of stock assessment updates for vermilion snapper and red porgy completed through the Southeast Data, Assessment, and Review (SEDAR) process in October 2012. The South Atlantic Council's SSC met to review the stock assessment in October 2012 and determined both were adequate and suitable to inform management decisions.

Vermilion snapper was last assessed through SEDAR 17 (SEDAR 17 2008), a benchmark assessment, which included landings information through 2007. The 2008 benchmark assessment indicated the stock was experiencing overfishing but was not overfished. The terminal year for the 2012 assessment update was 2011; therefore, SEDAR 17 was updated with four additional years of data using the same methods in the benchmark assessment completed in 2008. For recreational harvest of vermilion snapper, the 2012 assessment update used new estimates from the Marine Recreational Information Program (MRIP) for 2004-2011 replacing the previous Marine Recreational Fishing Statistics Survey (MRFSS) estimates from 2004-2007. The 2012 assessment update indicated vermilion snapper is neither overfished, nor experiencing overfishing (SEDAR 17 Update 2012).

The last benchmark assessment for red porgy was SEDAR 1 (2002), and included data from 1972-2001. This 2002 benchmark assessment indicated red porgy was experiencing overfishing and was overfished. SEDAR 1 (2002) was subsequently updated in 2006 and included data through 2004. The 2006 assessment update (SEDAR 1 Update 2012) indicated red porgy was no longer undergoing overfishing, remained overfished, and was rebuilding.

Much of the data used in the 2006 SEDAR 1 updates were unchanged; therefore, most data sets were simply updated by adding the seven additional years (2005-2011) of information at the end of the time series for the 2012 assessment update. New recreational MRIP harvest estimates for red porgy were available for 2004-2011; therefore, for the 2012 assessment update, the new MRIP estimates were used in place of the previous MRFSS estimates for 2004. Additionally, discard data from 2001-2004 were updated for the commercial handline and headboat sectors based on updated information in the logbook databases. The new assessment update for red porgy also updated the Marine Resources Monitoring, Assessment, and Prediction (MARMAP) index for chevron traps through 2011, and the age and length composition data from MARMAP were updated. The 2012 assessment update determined that red porgy is not experiencing overfishing but is overfished. The 2012 assessment update indicated rebuilding is not occurring as expected due to poor recruitment and the stock will not rebuild by the end of the rebuilding period. Red porgy is in an 18-year rebuilding plan that was established in 1999 through Amendment 12 to the Snapper Grouper FMP (SAFMC 2000).

The SSC recommended a new benchmark assessment be completed for red porgy in 2014, and the new assessment is on the SEDAR calendar for that time.

Chapter 2. Proposed Actions and Alternatives

Whole Weight vs. Gutted Weight

Vermilion snapper are landed whole, and landings are recorded in whole weight (ww). The quota is specified in gutted weight (gw). Because all fish landed and sold were at one time whole and landings are recorded in whole weight, whole weight will be used as the unit of weight measurement for vermilion snapper throughout this document. Where appropriate, gutted weight (gw) and whole weight (ww) values will be given. The conversion factor to convert vermilion snapper poundage from ww to gw or vice versa is 1.11 (ww = gw *1.11 and gw = ww/1.11).

2.1 Action 1: Revise the Annual Catch Limit (ACL, including sector ACLs) and Optimum Yield (OY) for Vermilion Snapper.

Alternative 1 (No action). For vermilion snapper, retain the current ACLs and OY:

Current ACL = 1,066,000 lbs ww (yield at 75%F_{MSY}) = 960,361 lbs gw
Commercial ACL = 653,045 lbs gw (724,880 lbs ww)
(divided into 315,523 lbs gw from Jan-June and 302,523 lb gw July-Dec)
Recreational ACL = 307,316 lbs gw (341,121 lbs whole weight)
Current OY = 1,635,000 lbs ww (1,472,973 lbs gw) (at equilibrium)

Note: These values are based upon the results of SEDAR 17 (SEDAR 17 2008); current acceptable biological catch (ABC) = 1,109,000 lbs ww total kill = 1,078,000 lbs ww landed catch (P*=0.275); allocation of 68% commercial and 32% recreational. The current maximum sustainable yield (MSY) = 1,665,000 lbs ww (at equilibrium).

The South Atlantic Fishery Management Council (South Atlantic Council) included an action in Amendment 16 to the Snapper Grouper FMP (Amendment 16)(SAFMC 2009a) to allow the Regional Administrator to make adjustments to management measures for vermilion snapper based on the outcome of SEDAR 17 (SEDAR 17 2008). These adjustments were made in the final rule for Amendment 16 (SAFMC 2009a).

The 2012 and current 2013 commercial ACL for January-June is reduced by 11,000 lbs gw for post quota bycatch mortality (PQBM) and July-December by 24,000 lbs gw PQBM. The PQBM adjustments were established in Amendment 16 (SAFMC 2009a) and were included in the adjustment made by the Regional Administrator.

Preferred Alternative 2. Revise ACL (including sector ACLs) for vermilion snapper for 2013 through 2016 as shown below and set ACL=ABC=OY. The acceptable biological catch (ABC) and ACL values for 2013 onwards are based on landed catch only; discards are accounted for in specifying the ABC in terms of landed catch and not total kill. The values for 2016 would remain until modified.

Note: The values for **Preferred Alternative 2** are shown in **Table 2.1.1**. The commercial allocation is 68% and the recreational allocation is 32%. The ABC declines over time because the stock is currently above the biomass at maximum sustainable yield (B_{MSY}), and the stock biomass will eventually decrease to the level that produces B_{MSY}.

Table 2.1.1 ABC/ACLs for 2013-2016 from the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Rec ACL ww
2013	1,372,000	1,372,000	932,960	439,040
2014	1,312,000	1,312,000	892,160	419,840
2015	1,289,000	1,289,000	876,520	412,480
2016	1,269,000	1,269,000	862,920	406,080

Summary of the Effects of Alternatives

Biological

Amendment 16 (SAFMC 2009a) specified a formula for MSY for vermilion snapper, which is the yield at F_{MSY} and is defined by the most recent Southeast Data, Assessment, and Review (SEDAR) stock assessment. Because an assessment update was recently completed for vermilion snapper (SEDAR 17 Update 2012), a new scientific value for MSY is specified in this amendment using the established MSY formula from Amendment 16; this does not require any South Atlantic Council action. Based on the stock assessment update, the new values for MSY and F_{MSY} appear in **Table 2.1.2**.

Table 2.1.2 Current and proposed values for MSY and F_{MSY} for vermilion snapper.

Management Reference Point	Current Value (Alternative 1 (No Action)) (SEDAR 17 2008)	Proposed New Value (SEDAR 17 Update 2012)
MSY	1,665,000 lbs ww	1,563,000 lbs ww
F_{MSY}	0.386	0.75

Alternative 1 (No Action) would maintain the current harvest limit (the total ACL), which would cap total harvest at 1,066,000 lbs ww until modified. **Preferred Alternative 2** would result in the total ACL increasing to 1,372,000 lbs ww in 2013 and then decreasing slightly each year through 2016 when the total ACL would be 1,269,000 lbs ww. Because **Alternative 1 (No Action)** would constrain harvest to a lower level than **Preferred Alternative 2**, the biological

benefits under **Alternative 1 (No Action)** would be expected to be greater than **Preferred Alternative 2**. However, the 2012 stock assessment update indicated vermilion snapper is no longer undergoing overfishing, and the South Atlantic Council's Scientific and Statistical Committee (SSC) has increased the ABC; therefore, there is no biological need to constrain harvest to a level lower than that determined to be appropriate by the SSC.

Economic

Preferred Alternative 2, which provides for a higher commercial ACL, would be expected to impose the least amount of constraint on fishing activities. In principle, **Preferred Alternative 2** would allow the commercial fishing sector to generate the largest short-term economic benefits from the use of the resource.

Relative to **Alternative 1 (No Action)**, **Preferred Alternative 2** would provide higher recreational ACLs in 2013 and subsequent years. In principle, higher ACLs would be expected to result in consumer surplus (CS) and net operating revenue (NOR) increases. As long as harvest increases, CS would also increase, and given the 2007-2011 landings of vermilion snapper by the recreational sector, it is very likely that recreational landings would increase with higher ACLs. Increases in NOR due to ACL increases would depend on whether management regulations are modified to allow more angler trips under the higher ACLs.

Social

Because the ACL would not be adjusted to reflect new information and outcomes from the recent stock assessment update, **Alternative 1 (No Action)** would not result in any social benefits expected from incorporating more accurate and up-to-date information into setting catch limits. **Preferred Alternative 2** would be expected to be more beneficial to the fleet, private anglers, and other resource users because the new information better reflects current conditions with the vermilion stock. Additionally, an increase in the ACL under **Preferred Alternative 2** may help reduce the derby conditions for the commercial sector if a higher quota contributes to a longer season.

2.2 Action 2: Modify the commercial trip limit for vermilion snapper.

Alternative 1 (No Action). The current commercial trip limit is 1,500 lbs gw (1,665 lbs ww).

Alternative 2. Reduce the commercial trip limit for vermilion snapper to 1,000 lbs gw (1,110 lbs ww).

Preferred Alternative 3. Reduce the commercial trip limit for vermilion snapper to 1,000 lbs gw (1,110 lbs ww). When 75% of the commercial ACL has been met or projected to be met, reduce the commercial trip limit to 500 lbs gw (555 lbs ww).

Summary of the Effects of Alternatives

Under **Alternative 1 (No Action)** it is reasonable to assume that future commercial fishing opportunities for vermilion snapper in the South Atlantic would be similar to those in 2011 and 2012. With an increase in the commercial ACL (Action 1), it is possible the January-June and July-December fishing seasons could be extended somewhat from 2012. Maintaining the current trip limit would have little biological benefit since accountability measures (AMs) would be implemented when the ACL is met or projected to be met. A 1,000 lbs gw (1,110 lbs ww) trip limit (**Alternative 2)** and a 1,000 lbs gw (1,110 lbs ww) trip limit that is reduced to 500 lbs gw when 75% of the ACL is met (**Preferred Alternative 3)** may slow the rate of vermilion snapper harvest, extend the fishing seasons, allow the quota to be more easily monitored, and help to prevent ACL overages.

The goal of **Alternatives 2** and **3 (Preferred)** is to extend the season, keep trips that land vermilion snapper profitable, and reduce dead discards. In 2012, the commercial trip limit was 1,500 lbs gw. **Tables 4.2.1** and **4.2.2** show the two commercial seasons, the ending dates, the number of days for each of the three alternatives using actual data for **Alternative 1 (No Action)** and projections based on actual data for **Alternatives 2** and **3 (Preferred)**, assuming Alternative 2 is chosen for Action 1. Under **Alternative 1 (No Action)**, it is expected that the new ACL proposed in Action 1 would be met between March 5-6 in future years depending on how much fishing behavior changes (e.g., more frequent trips in anticipation of the ACL being met could end the season sooner) (**Appendix G**, Table 2). Thus, the trip limit proposed in **Alternative 2** would be expected to extend the fishing season by about two weeks. With the increased ACL proposed in Action 1, the second of the commercial fishing seasons (July – December) is estimated to close on our around October 2-4 under the 1,000 lbs gw (1,110 lbs ww) trip limit (NMFS 2013a). Under the trip limit in **Alternative 1 (No Action)**, it is expected the ACL would be met on September 21. Thus, the 1,000 lbs gw (1,110 lbs ww) trip limit proposed in **Alternative 2** would also be expected to extend the second fishing season by about two weeks (**Appendix G**).

The step down in the trip limit from 1,000 lbs gw (1,110 lbs ww) to 500 lbs gw (555 lbs ww) when 75% of the ACL is met or projected to be met proposed in **Preferred Alternative 3** would

be expected to extend the first fishing season by about 3.5 weeks. During the second split season (July – December), it is predicted that 75% of the ACL will have been harvested by approximately September 18 when the trip limit reduction to 500 lbs gw (555 lbs ww) would take effect. With the 500 lbs gw (555 lbs ww) trip limit in place, the vermilion snapper is likely to reach the increased split season ACL proposed in Action 1 between October 14 and October 20 (**Table 4.2.2**). This is 3 weeks to a month longer than the when the increased ACL would be met with the 1,500 lb gw trip limit currently in place (**Alternative 1, No Action**).

Biological

The biological effects of **Alternatives 1 (No Action)** and **2** could be very similar. **Preferred Alternative 3** could be the most likely of all the alternatives to prevent the ACL from being exceeded while still allowing fishery participants to harvest vermilion snapper. Because **Preferred Alternative 3** would theoretically result in the greatest amount of control over the speed at which the vermilion snapper commercial ACL is harvested and thus would be the most likely alternative to prevent ACL overages, it is also considered the most biologically beneficial alternative under consideration. However, with improvements to the quota monitoring system, and future implementation of a Generic Dealer Reporting Amendment, the biological effects of the three alternatives could be very similar.

Economic

From an economic perspective, trip limits do not necessarily return increased economic benefit. Trip limits have the tendency to increase trip costs per pound of fish. Only if the ex-vessel price per pound received by the fishermen is significantly higher under trip limits would trip limits be economically advantageous, compared to no trip limits. Additionally, trip costs are higher for those fishermen who have to travel greater distances to reach suitable fishing grounds. A trip limit set too low for these fishermen would make it economically unprofitable for them to target vermilion snapper. The distribution of pounds per trip is shown in **Figure 4.2.1**. A 1,000 lb gw (1,110 lb ww) trip limit would impact more than 10% of the trips.

Social

In general, commercial trip limits 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. **Alternative 2** and **Preferred Alternative 3** would be expected to reduce the derby effects and associated reductions in social benefits discussed in **Section 4.1.3**. Social benefits are reduced when derby fishing results in a shortened open season and an extended closed season. Projections of the expected season lengths under the alternative trip limits considered, assuming Alternative 2 is chosen for Action 1, are provided in **Section 4.2.1**. If the longest expected season results in the greatest social benefits, **Preferred Alternative 3** would be the most beneficial option to the commercial fleet among **Alternatives 1- Preferred Alternative 3**. However, while trip limits may extend the length of the fishing season, this management measure would be expected to alter the profitability of some trips, jeopardizing normal fishing behavior, revenues, and social benefits. The potential economic effects of the proposed vermilion snapper trip limits are described in **Section 4.2.2**, noting that these estimates do not incorporate potential compensating effort or

harvest behavior (more trips or altered species composition of harvests). In general, it is assumed for the purposes of this discussion that the greater the economic losses, the greater the social losses. As can be seen in **Section 4.2.2**, **Alternative 2** without the step-down in **Preferred Alternative 3** would be expected to result in a smaller reduction in revenues. Social benefits would likely be maximized as a result of some trade-off between season length and economic changes.

2.3 Action 3: Modify the commercial fishing seasons for vermilion snapper.

Preferred Alternative 1 (No Action). The commercial fishing year for vermilion snapper is split into two seasons of equal duration, each with its own ACL. The first season begins on January 1 and ends on June 30 (6 months). The second season begins on July 1 and ends on December 31 (6 months). The commercial ACL is split equally between the two seasons.

Note: The new commercial ACLs established in Preferred Alternative 2 of Action 1, split by the current seasons **(Alternative 1, No Action)** are shown in **Table 2.3.1**.

Table 2.3.1. ABC/ACLs and commercial split season ACLs using the current fishing season for 2013-2016 based on the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Comm ACL Jan-June ww	Comm ACL July-Dec ww
2013	1,372,000	1,372,000	932,960	466,480	466,480
2014	1,312,000	1,312,000	892,160	446,080	446,080
2015	1,289,000	1,289,000	876,520	438,260	438,260
2016	1,269,000	1,269,000	862,920	431,460	431,460

Alternative 2. Modify the commercial fishing seasons for vermilion snapper.

> **Sub-alternative 2a.** Modify the commercial fishing seasons for vermilion snapper so that the first season begins on January 1 and ends on May 31 (5 months) and the second season begins on June 1 and ends on December 31 (7 months). The commercial ACL would be split equally between the two seasons as is currently the case.

Note: The new commercial ACLs established in Preferred Alternative 2 of Action 1, split by the proposed seasons under **Sub-Alternative 2a** are shown in **Table 2.3.2**.

Table 2.3.2. ABC/ACLs and commercial split season ACLs using the fishing season proposed under **Alternative 2a** for 2013-2016 based on the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Comm ACL Jan-May ww	Comm ACL June-Dec ww
2013	1,372,000	1,372,000	932,960	466,480	466,480
2014	1,312,000	1,312,000	892,160	446,080	446,080
2015	1,289,000	1,289,000	876,520	438,260	438,260
2016	1,269,000	1,269,000	862,920	431,460	431,460

Sub-alternative 2b. Modify the commercial fishing seasons for vermilion snapper so that the first season begins on January 1 and ends on April 30 (4 months). The second season begins on May 1 and ends on December 31 (8 months). The commercial ACL would be split equally between the two seasons as is currently the case.

Note: The new commercial ACLs established in Preferred Alternative 2 of Action 1, split by the proposed seasons under **Sub-Alternative 2b** are shown in **Table 2.3.3**.

Table 2.3.3. ABC/ACLs and commercial split season ACLs using the fishing season proposed under **Alternative 2b** for 2013-2016 based on the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Comm ACL Jan-April ww	Comm ACL May-Dec ww
2013	1,372,000	1,372,000	932,960	466,480	466,480
2014	1,312,000	1,312,000	892,160	446,080	446,080
2015	1,289,000	1,289,000	876,520	438,260	438,260
2016	1,269,000	1,269,000	862,920	431,460	431,460

Summary of the Effects of Alternatives

Biological

The biological consequences under **Alternative 2** are likely to be neutral since overall harvest of vermillion snapper would be limited to the sector ACL and split-season ACLs. Additionally, quota-monitoring efforts have significantly improved over the past year and the South Atlantic and Gulf of Mexico Councils have approved an amendment that would require weekly electronic reporting by dealers, which would reduce the risk of exceeding the commercial ACL. As the fishing year for black sea bass is June through May, **Sub-Alternative 2a** would open harvest for vermilion snapper and black sea bass at the same time, which could have the effect of extending the fishing seasons for both species and reducing discards. The estimated discard mortality rate for vermilion snapper is 41% for the commercial sector; the longer the season remains closed, the higher the losses to discard mortality. Relative to **Sub-Alternative 2a**, bycatch of black sea bass would be greater under **Sub-Alternative 2b** since black sea bass would be incidentally caught when fishermen are targeting vermilion snapper. However, as the release mortality of black sea bass is very low, negative biological effects for black sea bass would be expected to be very small.

Economic

The annual commercial vermilion snapper seasons have ended early each year since the ACL has been in place. The current second season, July 1-December 31 starts on a date that simply divided the year in half. However, there are reasons to consider making the seasons of unequal length. Moving the beginning of the second season to June 1, **Alternative 2, Sub-alternative 2a**, would align the start of the second vermilion snapper fishing season with the start of the black sea bass fishing year. Moving the beginning of the second season to May 1, **Alternative 2,**

Sub-alternative 2b, would align the start of the second vermilion snapper fishing season with the beginning of the fishing season for shallow water groupers. Vermilion snapper co-occur with black sea bass and shallow water groupers. Since the first vermilion snapper commercial fishing season historically has closed prior to May 1 each year, all vermilion snapper caught after the shallow water groupers open must be released, dead or alive during May and June. The same is true for the vermilion snapper caught with black sea bass during June each year. Releasing vermilion snapper caught when targeting black sea bass and shallow water groupers represents lost revenue for commercial fishermen and results in more dead discards.

Assuming there is a greater amount of co-occurrence between vermilion snapper and shallow water groupers than between vermilion snapper and black sea bass, **Alternative 2, Sub-alternative 2b** could result in the least amount of vermilion snapper discards at the beginning of the shallow water grouper season and could therefore result in the greatest positive direct economic effect for commercial fishermen. **Alternative 2, Sub-alternative 2a** could result in the next greatest positive direct economic effect for commercial fishermen. It would reduce the black sea bass discards but would not prevent them when fishing for shallow water groupers during the month of May. **Preferred Alternative 1 (No Action)** would result in the least positive direct economic effects for the commercial sector as they would continue releasing vermilion snapper discards during the months of May and June.

Beginning the second vermilion snapper fishing season earlier in the year might lengthen the seasons for both black sea bass and vermilion snapper, but perhaps not lengthen the shallow water grouper season. Even with the shallow water grouper season opening on May 1 and the second vermilion snapper season opening on July 1, the vermilion snapper season has closed sooner than the shallow water grouper season each year (**Table 4.3.4**). **Alternative 2, Sub-alternative 2b** might have the effect of shifting discards of vermilion snapper from the beginning of the shallow water grouper season to the end of the season. Shifting the discards to later in the season may have economic benefits. **Section 3.4.1.2** indicates that historically from 2007 through 2011more trips occurred and more vessels fished for vermilion snapper (**Table 3.4.4**) in May and June than during other times of the year. However, commercial black sea bass closed about the same time each year as vermilion snapper except in 2011 when black sea bass closed 77 days sooner than vermilion snapper. Lengthening the season for vermilion snapper and black sea bass can reduce the likelihood of a derby fishery and result in higher ex-vessel values, a positive direct economic benefit for those fishery participants.

Social

The short-term direct social effects of adjusting the start date of the split seasons are associated with the economic impacts and benefits, and more long-term broad social effects are associated with the biological impacts of the action. As discussed in **Section 4.3.2**, adjusting the start date for the second vermilion snapper season under **Alternative 2** would likely reduce waste from incidental catch when fishermen are targeting black sea bass, which could help offset economic costs of reduced trip limits proposed in Action 2. In general, the start date of the second season is not expected to impact the level of harvest because the total commercial ACL should not be exceeded in any case, although the level of bycatch discards during black sea bass harvest could

negatively impact the vermilion snapper stock in the future. By adjusting the start date under **Sub-alternatives 2a** and **2b**, any long-term social benefits from reducing vermilion snapper discards would be greater than under **Preferred Alternative 1 (No Action).**

2.4 Action 4: Modify the recreational closed season for vermilion snapper.

Alternative 1 (No Action). Recreational harvest of vermilion snapper is prohibited annually from November 1 to March 31 (5 months).

Preferred Alternative 2. Remove the recreational season closure for vermilion snapper.

Summary of the Effects of Alternatives

Biological

Alternative 1 (No Action) would maintain the current five-month recreational closure for vermilion snapper put into effect through Amendment 16 (SAFMC 2009a). The biological impacts of prohibiting recreational harvest of vermilion snapper from November to March each year are positive for the species since reduced effort during that time could help ensure overfishing does not occur. However, vermilion snapper is often caught on trips targeting other snapper grouper species such as gray triggerfish, gag, black sea bass, and red snapper. The estimated discard mortality rate for vermilion snapper is 38% for the recreational sector; therefore, large numbers of vermilion snapper that are discarded during the recreational closed season do not survive. The biological impact of mortality from regulatory discards may counteract, to some degree, the biological benefits that were expected from the recreational closure. Removing the annual recreational closure for vermilion snapper would not be expected to have negative biological impacts on the stock since a recreational ACL and AM for vermilion snapper have been in place since the implementation of Amendment 16. The AM provides that if vermilion snapper are overfished and the recreational ACL is reached, the recreational harvest and possession of vermilion snapper will be prohibited. Without regard to overfished status, if vermilion snapper recreational landings exceed the ACL, the ACL for the next fishing year will be reduced by the amount of the overage. The South Atlantic Council is taking action in a future amendment to enhance the effectiveness of the recreational AM for vermilion snapper.

An analysis conducted by NMFS (2013b) indicated that under the South Atlantic Council's **Preferred Alternative 2**, the recreational sector would harvest between 64% and 75% of the 2013 ACL. The ACL would decrease slightly each year for the next several years, however it is not likely that the recreational vermilion snapper ACL would be met or exceeded in any given year in the near future under **Preferred Alternative 2**.

Economic

The changes in landings, target trips, consumer surplus (CS), and net operating revenue (NOR) due to the elimination of the seasonal closure (**Preferred Alternative 2**) are presented in **Table 4.4.2**. Landings under Scenario 1 are higher than those in Scenario 2, thus CS effects under Scenario 1 are larger than those under Scenario 2. There is no difference in target trips between the two scenarios because of the method employed in estimating target trips, thus the resulting NOR effects are the same for both scenarios. Due to the elimination of the seasonal closure, CS

would increase by about $7.8 million (2011 dollars) under Scenario 1, or by about $3.8 million under Scenario 2. Total NOR would increase by about $204,000 (2011 dollars) with the elimination of the seasonal closure. The headboat sector would share most of the CS and NOR increases.

Under the two scenarios, total recreational landings of vermilion snapper would fall below the recreational ACLs set forth in Alternative 2 of Action 1. Given this condition, more economic benefits could be derived from the vermilion snapper segment of the snapper grouper fishery if the recreational sector is able to fully harvest its ACL. Estimates of these additional benefits are presented in **Table 4.4.3**.

To generate the numbers in **Table 4.4.3**, predicted landings under Scenario 1 or Scenario 2 are subtracted from each year's ACL, and the associated CS is subsequently estimated. NOR values are assumed to be proportional to CS, with the proportion assumed to be the same for each year. This proportion is calculated using the CS and NOR numbers in **Table 4.4.2**.

Assuming the ACLs are fully taken each year, the net present value of additional CS and NOR over 2013-2016 under Scenario 1 would be about $14.5 million (2011 dollars) and $511,000 (2011 dollars), respectively, with a 7% discount rate. The corresponding CS and NOR values under Scenario 2 would be about $28.1 million (2011 dollars) and $988,000 (2011 dollars), respectively, with a 7% discount rate. For comparison purposes, results using a 5% discount rate are also presented.

Social

Unused recreational ACL allocation that would continue under **Alternative 1 (No Action)** results in utilization of the resource that is not optimal, and reduces economic and social benefits of recreational fishing. Although an increase in recreational harvest would be expected under **Preferred Alternative 2**, the ACL is not expected to be exceeded and there should not be any negative impacts on the recreational sector that could occur due to harvesting beyond the recreational quota. The biological impacts of bycatch mortality in November and December, when shallow water grouper is still open, would continue to occur under **Alternative 1 (No Action)**, which allows waste and could negatively impact the vermilion snapper stock. Overall, **Preferred Alternative 2** is expected to generate more social benefits than **Alternative 1 (No Action)** by increasing recreational fishing opportunities to catch vermilion snapper and reducing incidental catch.

2.5 Action 5: Revise the Annual Catch Limit (ACL, including sector ACLs), Optimum Yield (OY), and Annual Catch Target (ACT) for Red Porgy.

Alternative 1. No action. For red porgy, retain the current ACLs, OY, and recreational ACT:

Current ACL = 395,304 lbs ww = 380,100 lbs gw
Commercial ACL = 197,652 lbs ww = 190,050 lbs gw
Recreational ACL = 197,652 lbs ww = 190,050 lbs gw
Recreational ACT = 160,098 lbs ww = 153,940 lbs gw
OY = 395,304 lbs ww (OY=ACL=ABC)

Note: These values are based upon the results of SEDAR 1 (SEDAR 1 2002); Current ABC = 395,304 lbs ww landed catch; allocation of 50% commercial and 50% recreational. Maximum sustainable yield (MSY) = the yield produced by F_{MSY}. MSY and F_{MSY} are defined by the most recent stock assessment. MSY = 625,699 lbs ww.

Alternative 2. Revise the ACL (including sector ACLs) for red porgy for 2013 through 2018 as shown below using the OY=ACL=ABC formula established in the Comprehensive ACL Amendment (SAFMC 2011b). The values for 2018 would remain until modified.

Note: The new ABC, ACLs, and recreational ACT under **Alternative 2** are shown in **Table 2.5.1**.

Preferred Alternative 3. Revise the ACL (including sector ACLs) for red porgy for 2013 through 2015 as shown below using the OY=ACL=ABC formula established in the Comprehensive ACL Amendment (SAFMC 2011b). The values for 2015 would remain until modified.

Note: The new ABC, ACLs, and recreational ACT under **Preferred Alternative 3** are shown in **Table 2.5.1**.

Table 2.5.1. New ABC and ACLs based on scenario 6 projection results from Table 24 of the red porgy assessment. Gutted weight determined with conversion factor of 1.04 from commercial logbooks.

Year	ABC ww	Total ACL ww	Comm ACL ww	Rec ACL ww	Rec ACT ww
2013	306,000	306,000	153,000	153,000	109,670
2014	309,000	309,000	154,500	154,500	110,746
2015	328,000	328,000	164,000	164,000	117,555
2016	354,000	354,000	177,000	177,000	126,874
2017	379,000	379,000	189,500	189,500	135,834
2018	401,000	401,000	200,500	200,500	143,718

Summary of the Effects of Alternatives

Amendment 15A (SAFMC 2008a) established a definition of MSY for red porgy. MSY equals the yield produced by F_{MSY}; MSY and F_{MSY} are defined by the most recent SEDAR Update. The new values for MSY and F_{MSY} from the most recent assessment update appear in **Table 2.5.2**.

Table 2.5.2. Current and proposed values of MSY and F_{MSY} for red porgy.

Management Reference Point	Current Value (Alternative 1 (No Action)) (SEDAR 1 Update 2006)	Proposed New Value (SEDAR 1 Update 2012)
MSY	625,699 lbs ww	834,000 lbs ww
F_{MSY}	0.20	0.17

Biological

The current red porgy harvest limits and targets would remain in effect under **Alternative 1 (No Action)**, and they would not be updated according to the SSC's new ABC recommendation based on the 2012 stock assessment update and the approved ABC control rule. The status quo ABC and sector ACLs (**Alternative 1 (No Action)**) are greater than the ABC recommend by the SSC in October 2012 (**Alternative 2** and **Preferred Alternative 3**). Therefore, **Alternative 1 (No Action)** would be expected to have a greater level of negative biological impacts on the stock than **Alternative 2** and **Preferred Alternative 3**. Because the 2012 stock assessment update indicated the red porgy stock cannot be rebuilt by the end of the rebuilding period even in the absence of fishing mortality, the South Atlantic Council has requested a new SEDAR benchmark stock assessment in 2014. The results of that assessment would determine what actions the South Atlantic Council may take in the future to address the stock status of red porgy. **Preferred Alternative 3** provides more biological protection for red porgy by retaining the ABC/ACL of 328,000 lbs ww for 2015 until results from the new SEDAR benchmark are implemented. **Alternative 2** would allow the ABC/ACL to increase by 26,000 lbs ww in 2016 and continue to increase until 2018.

Economic

Alternative 1 (No Action) would have no direct economic effects on the red porgy component of the snapper grouper fishery, however it no longer represents the best available data. **Alternative 2** and **Preferred Alternative 3** would require a reduction in the total ACL of 89,304 lb ww in 2013. For the years 2013 through 2015, the economic effects of **Alternative 2** and **Preferred Alternative 3** would be identical. If the South Atlantic Council does not change the OY=ACL=ABC formula in **Preferred Alternative 3** from 2016 through 2018, **Preferred Alternative 3** would result in 75,000 lbs ww fewer red porgy available to the commercial sector over that three year period. **Preferred Alternative 3** represents a potential loss of $126,923 (2011 dollars) to fishermen from 2016 through 2018 compared to **Alternative 2**, averaging $668 lost ex-vessel revenue per vessel that landed red porgy (**Table 3.4.3**), but only if the entire commercial ACL for each year 2016 through 2018 under **Alternative 2** could have been landed otherwise. However, such potential losses only represent the worst case scenario because landings in recent years have not approached the ACLs proposed for 2013 through 2018 for either **Alternative 2** or **Preferred Alternative 3**. On the positive side, **Preferred Alternative 3**

provides for an increase in revenue of $258,570 (2011 dollars) in 2013 compared to 2012. The value of the increase in 2014 compared to 2012 is projected to be $261,105 (2011 dollars). From 2015 until the South Atlantic Council changes the OY=ACL=ABC for red porgy, the value of the increase is expected to be $277,160 (2011 dollars) higher than 2012.

In principle, for the recreational sector, **Alternative 2** and **Preferred Alternative 3** would result in CS and NOR reductions over time. However, recent recreational landings of red porgy have been well below the current ACL and any of the reduced ACLs set forth in **Alternative 2** and **Preferred Alternative 3**. Therefore, given that there are no changes in management measures directly affecting the recreational harvest of red porgy and the low landings of red porgy, **Alternative 2** and **Preferred Alternative 3** would not be expected to result in changes to the CS and NOR of the recreational sector in the short term and most likely through 2018.

Social

As discussed in **Section 4.1.3**, adjustments in ACLs may result in short-term negative or positive impacts on the commercial fleet, for-hire fleet, and recreational anglers, but social benefits would be expected if the ACL adjustment is based on updated information that more accurately reflected current conditions of the stock and the fleet. Because red porgy is under a rebuilding plan, accurate and updated catch limits (**Alternative 2** and **Preferred Alternative 3**) are crucial to staying on track with rebuilding the stock, and would be expected to generate greater long-term social benefits than **Alternative 1 (No Action)**.

In general, a decrease in the ACL could have negative social impacts if recent landings are higher, and greater reductions would likely have increased negative impacts on fishermen. The proposed ACLs for 2013-2018 under **Alternative 2** and the proposed ACLs for 2013-2015 under **Preferred Alternative 3** are about 25% lower than the 2012 ACL but the ACLs under **Alternative 1 (No Action)** would not reduce the allowable harvest for the red porgy component of the snapper grouper fishery. **Alternative 2** and **Preferred Alternative 3** would be expected to have more impact on the recreational and commercial sectors than **Alternative 1 (No Action).** However, **Preferred Alternative 3** would hold the ACL at the 2015 level and allow review in 2016 following the assessment update for red porgy and incorporate new and timely information into management when it becomes available, which would be most beneficial to all resource users.

The commercial fleet has been constrained by the commercial ACL since 2009 and, although harvest levels would be lower under the proposed ACLs in **Alternative 2** and **Preferred Alternative 3**, there may be less of a substantial impact on fishermen and on the primary commercial red porgy communities (shown in **Figure 3-9**) than would result if the harvest levels were higher than a new ACL. Because the recreational ACL is usually not met, the decrease under **Alternative 2** and **Preferred Alternative 3** is not expected to generate negative impacts on the recreational sector, although it may restrict future harvest opportunities if recreational catch increases over time.

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)
- **Human 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://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx.

3.1.2 Offshore Habitat

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

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

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

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

The distribution of coral and live hard bottom habitat as presented in the Southeast Marine Assessment and Prediction Program (SEAMAP) bottom mapping project is a proxy for the distribution of the species within the snapper grouper complex. The method used to determine hard bottom habitat relied on the identification of reef obligate species including members of the snapper grouper complex. The Florida Fish and Wildlife Research Institute (FWRI), using the

best available information on the distribution of hard bottom habitat in the South Atlantic region, prepared ArcView maps for the four-state project. These maps, which consolidate known distribution of coral, hard/live bottom, and artificial reefs as hard bottom, are available on the South Atlantic Fishery Management Council's (South Atlantic Council) online map services provided by the newly developed SAFMC Habitat and Ecosystem Atlas: http://ocean.floridamarine.org/safmc_atlas/. An introduction to the system is found at: http://www.safmc.net/EcosystemManagement/EcosystemBoundaries/MappingandGISData/tabid/632/Default.aspx .

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

3.1.3 Essential Fish Habitat

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

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

For specific life stages of estuarine- dependent and near shore snapper grouper species, EFH includes areas inshore of the 30 meter (100-ft) contour, such as attached macroalgae; submerged

rooted vascular plants (seagrasses); estuarine emergent vegetated wetlands (saltmarshes, brackish marsh); tidal creeks; estuarine scrub/shrub (mangrove fringe); oyster reefs and shell banks; unconsolidated bottom (soft sediments); artificial reefs; and coral reefs and live/hard bottom habitats.

3.1.4 Habitat Areas of Particular Concern

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

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

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

3.2 Biological and Ecological Environment

3.2.1 Fish Populations Affected by this Amendment

Red Porgy

An expanded discussion of life history traits, population characteristics, and stock status of red porgy can be found in **Sections 3.2.1** and **3.3** of the Comprehensive Annual Catch Limit (ACL) Amendment (SAFMC 2011b), which are hereby incorporated by reference and may be found at www.safmc.net/Library/SnapperGrouper/tabid/415/Default.aspx. Descriptions of other South Atlantic Council-managed species may be found in Volume II of the Fishery Ecosystem Plan (SAFMC 2009b) or at the following web address: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx.

Vermilion Snapper

Vermilion snapper occur in the Western Atlantic, from North Carolina to Rio de Janeiro. The species is most abundant off the southeastern United States and in the Gulf of Campeche (Hood and Johnson 1999). The vermilion snapper is demersal (bottom-dwelling), commonly found over rock, ledges, live-bottom, gravel, or sand bottoms near the edge of the continental and island shelves (Froese and Pauly 2003). It occurs at depths from 18 to 122 meters (59 to 400 feet), but is most abundant at depths less than 76 meters (250 feet). Individuals often form large schools. This fish is not believed to exhibit extensive long range or local movement (SEDAR 2-SAR 2 2003).

The maximum size of a male vermilion snapper, reported by Allen (1985), was 60.0 centimeters (23.8 inches) TL and 3.2 kilograms (7.1 pounds). Maximum reported age in the South Atlantic Bight was 14 years (Zhao et al. 1997; Potts et al. 1998). This species spawns in aggregations (Lindeman et al. 2000) from April through late September in the southeastern United States (Cuellar et al. 1996). Zhao et al. (1997) indicated that most spawning in the South Atlantic Bight occurs from June through August. Eggs and larvae are pelagic.

Vermilion snapper are gonochorists meaning that males and females do not change sex during their lifetime. All vermilion snapper are mature at 2 years of age and 20.0 centimeters (7.9 inches) (SEDAR 2 2003). Cuellar *et al.* (1996) collected vermilion snapper off the southeastern United States and found that all were mature. The smallest female was 16.5 centimeters (6.5 inches) FL and the smallest male was 17.9 centimeters (7.1 inches) FL (Cuellar *et al.* 1996). Zhao and McGovern (1997) reported that 100% of males that were collected after 1982 along the southeastern United States were mature at 14.0 centimeters (5.6 inches) TL and age 1. All females collected after 1988 were mature at 18.0 centimeters (7.1 inches) TL and age 1.

This species preys on fishes, shrimp, crabs, polychaetes, and other benthic invertebrates, as well as cephalopods and planktonic organisms (Allen 1985). Sedberry and Cuellar (1993) reported that small crustaceans (especially copepods), sergestid decapods, barnacle larvae, stomatopods, and decapods dominated the diets of small (< 50 millimeters (2 inches) SL) vermilion snapper off the Southeastern United States. Larger decapods, fishes, and cephalopods are more important in the diet of larger vermilion snapper.

An expanded discussion of life history traits, population characteristics of vermilion snapper can be found in **Section 3.2.1.9** of Amendment 17B (SAFMC 2010b) http://www.safmc.net/LinkClick.aspx?fileticket=9BXhV2vGiyM%3d&tabid=415 and is hereby incorporated by reference.

3.2.2 Stock Status of Vermilion Snapper And Red Porgy

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

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

Following an assessment, the South Atlantic Council Scientific and Statistical Committee (SSC) reviews the stock assessment information and advises the South Atlantic Council on whether the stock assessment was performed utilizing the best available data and whether the outcome of the assessment is suitable for management purposes. The SSC specifies the overfishing limit (OFL) and applies the acceptable biological catch (ABC) control rule to determine the ABC.

Red Porgy

Stock assessment information for red porgy may be found in the most recent stock assessment update completed in 2012, which is available at: http://www.sefsc.noaa.gov/sedar/download/2012_SARPUpdate_Revised.pdf?id=DOCUMENT.

An update to the red porgy assessment was conducted in 2012 with data through 2011 (SEDAR 1 Update 2012). Most of the data were simply updated with the 7 additional years of observations available since the last update in 2006. Additional changes made in some sources,

such as recreational catch records and indices, are detailed below. In addition, changes were made in model configuration to address new information, management actions, and improvements in the estimation of assessment uncertainty. A suite of sensitivity runs was performed to explore the model's sensitivity to the differences between this update and the previous 2006 update.

Substantial changes are underway in recreational harvest surveys with implementation of the Marine Recreational Information Program (MRIP) in place of the prior Marine Recreational Statistics Survey (MRFSS). Although the MRIP program promises improved data for the future, assessments must also consider the past and will continue to include the earlier data from the MRFSS program. At the time this update was prepared, recreational landings based upon MRIP methods were only available for 2004-2011. Further, since final adjustment factors required to convert MRFSS scaled values to MRIP scaled values were not available at that time, this assessment update includes MRFSS-based data from 1982-2003 and MRIP-based data from 2004-2011. Because recreational landings are just a fraction of the total landings of red porgy and changes between the MRFSS and MRIP estimates are scant, inclusion of both MRIP and MRFSS data are not considered to bias assessment results.

In the previous assessments, the headboat index of abundance was not used as an index of abundance after 1998 due to the moratorium on red porgy and the subsequent 1 fish bag limit. Under the new bag limit, a higher percentage of people were catching their bag limit, at which point they were expected to stop keeping red porgy. This means the catch is being limited by the bag limit instead of the amount of effort and the availability of fish. When this happens, catch per unit effort (CPUE) becomes uninformative as a measure of population abundance and may provide a biased estimate of abundance. An attempt was made to use this index from 2006 onward after the bag limit was increased to 3 fish in 2006. However, a significant percentage of anglers were still reaching the bag limit during this time, making the headboat index uninformative as an index of abundance even after the bag limit was increased. Therefore, the headboat index was only used through 1998.

The South Carolina Department of Natural Resources (SCDNR) and the NMFS Beaufort Lab both provided age determinations of red porgy samples used in SEDAR 1. However, methods used to evaluate the age structures differed between the two groups. These ageing differences were addressed in the 2006 update, when it was decided that determinations based on sectioned otoliths were most reliable and a conversion was developed to adjust ages based on whole otolith examinations to be more similar to ages expected from sectioned otolith examinations. This conversion was used in the 2012 update as well.

The MARMAP chevron trap index also had some issues that needed to be addressed, leading to an update of the MARMAP index for the entire time series. Additionally, uncertainty characterization was more thorough in the update than in the SEDAR 1 benchmark. This update used an improved technique called a "mixed Monte Carlo Bootstrap" which enables estimates of model uncertainty to better reflect the true underlying uncertainty in model estimates.

This update to SEDAR 1 shows that red porgy are currently overfished, but overfishing is not occurring. The stock is well below B_{MSY} (47.4% of B_{MSY}) and the SSB is also well below SSB_{MSY} (47.1% of SSB_{MSY}) and the minimum stock size threshold (MSST) (60.8% of MSST). Current fishing mortality (F) is well below F_{MSY} (64.7% of F_{MSY}). The trend in F shows a rapid increase from the early to mid-1980s until 1991, when the biomass steadily decreased to an overfished level (**Figure 3.2.1 in blue**). The South Atlantic Council implemented a minimum size limit of 12 inches total length (TL) in 1992 and a further increase in the minimum size limit to 14 inches TL in 1997. The South Atlantic Council also implemented a 5 fish bag limit and a closed season for commercial harvest in March and April in 1997. Fishing mortality decreased steadily after 1992, reaching its lowest point during the moratorium of 1999. Fishing mortality rose a bit in 2000 as the South Atlantic Council again allowed limited harvest, but it has stayed below the F_{MSY} level since. Stock biomass has shown recovery since the moratorium, but it has been slower than expected (**Figure 3.2.1 in red**). Landings of red porgy have been well below MSY since the first minimum size limit was implemented in 1992 (**Figure 3.2.2**) but recruitment has been below R_{MSY} (recruitment when the population is at B_{MSY}) since the early 1990s (**Figure 3.2.3).** This lack of recruitment explains why recovery has been slow.

Projection results are shown in **Table 3.2.1**.

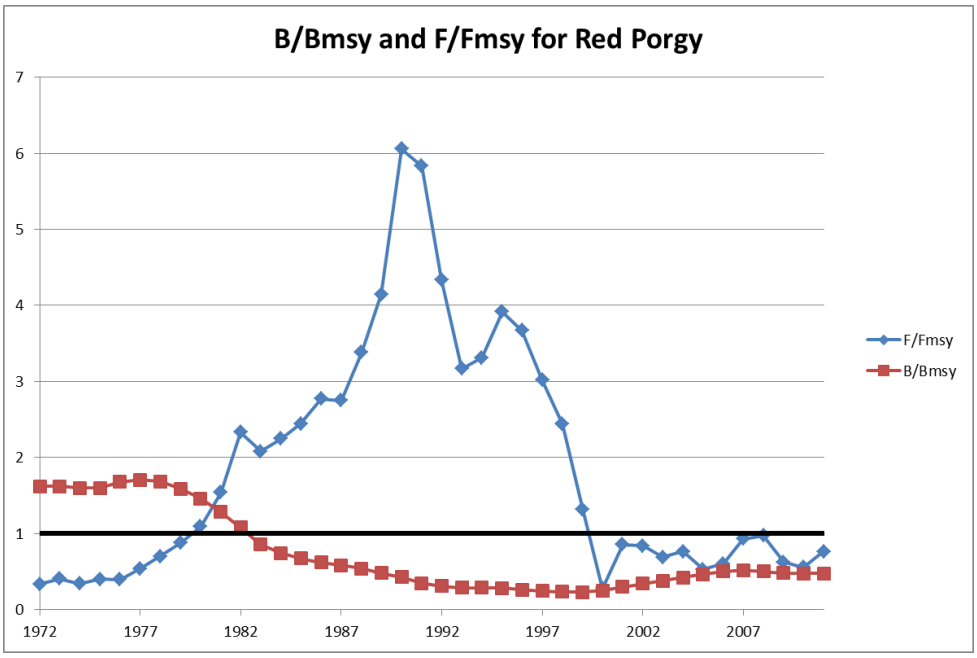


Figure 3.2.1. Biomass (B) and exploitation (F) levels relative to expected conditions of the red porgy stock at MSY. Relative biomass is depicted by B/BMSY and exploitation by F/FMSY. The index line at 1 represents MSY conditions. Data are from the 2012 assessment update report for red porgy.

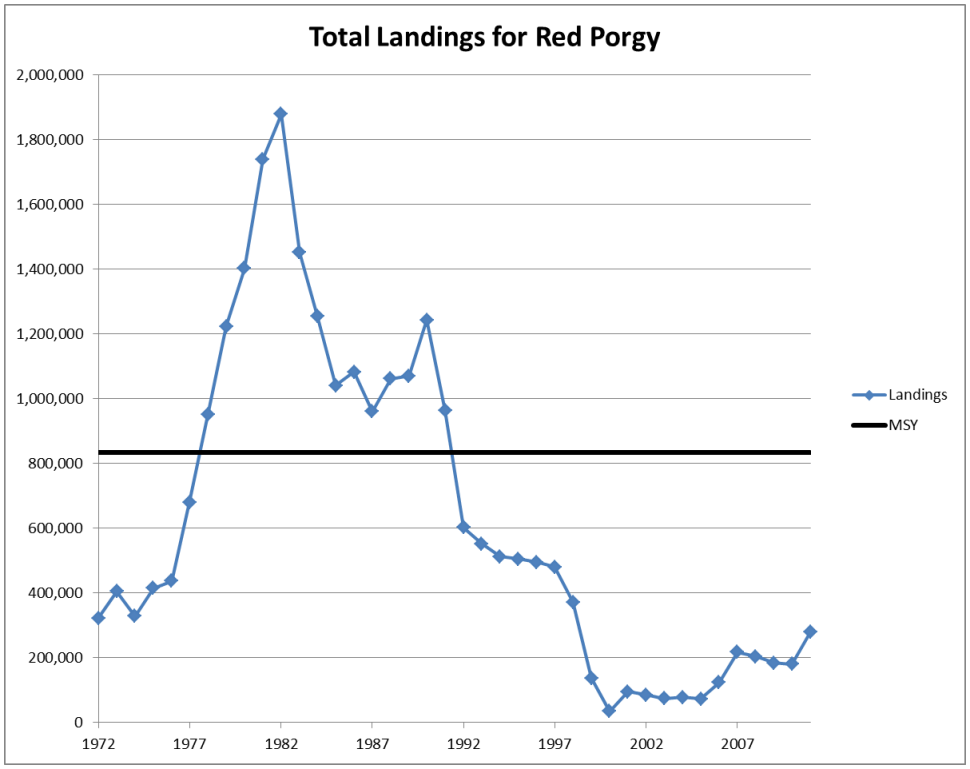


Figure 3.2.2. Landings in pounds whole weight of red porgy and the estimate of MSY. Data are from the 2012 assessment update report for red porgy.

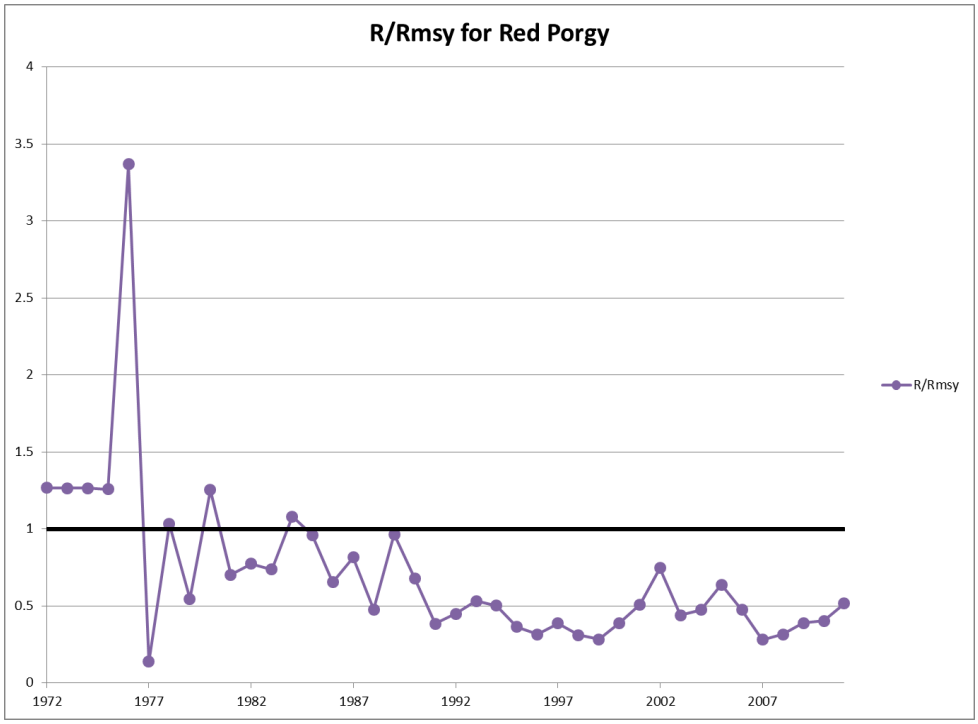


Figure 3.2.3. Annual recruitment relative to expected recruitment at MSY conditions for red porgy. The index line at 1 indicates expected MSY conditions. Data are from the 2012 assessment update report for red porgy.

Table 3.2.1 Scenario 6 projection results (projection years=15) with fishing mortality rate fixed at 75%F_{MSY} (F = 0.13) and 2012 landings based on the average landings in 2010 and 2011.

Year	F(per yr)	Pr(SSB > SSBmsy)	SSB (mt)	R (1000)	D (1000)	D (klb)	L (1000)	L (klb)	Sum L (klb)
2012	0.12	0.00	1854	1400	12	24	133	300	300
2013	0.13	0.00	1915	1391	13	25	138	306	606
2014	0.13	0.00	2019	1423	15	26	144	309	914
2015	0.13	0.00	2147	1476	16	28	159	328	1242
2016	0.13	0.01	2281	1540	17	30	175	354	1596
2017	0.13	0.02	2412	1603	18	31	187	379	1975
2018	0.13	0.03	2542	1663	19	33	198	401	2376
2019	0.13	0.05	2671	1721	20	35	208	423	2799
2020	0.13	0.07	2797	1775	21	37	218	445	3244
2021	0.13	0.10	2920	1827	22	38	227	466	3710
2022	0.13	0.12	3040	1875	23	40	237	487	4197
2023	0.13	0.15	3157	1921	24	42	246	508	4705
2024	0.13	0.19	3269	1965	24	43	255	527	5232
2025	0.13	0.22	3377	2005	25	45	263	546	5778
2026	0.13	0.25	3479	2043	26	46	272	565	6343

Source: Red porgy 2012 assessment update.

Vermilion Snapper

Stock assessment information for vermilion snapper may be found in the most recent stock assessment updated completed in 2012, which is available at: http://www.sefsc.noaa.gov/sedar/download/2012_SAVSUpdate_Revised.pdf?id=DOCUMENT.

An update to the vermilion snapper assessment was conducted in 2012 with data through 2011 (SEDAR 17 Update 2012). Most of the data sources were simply updated with the 4 additional years of observations available since the SEDAR 17 (SEDAR 17 2008) benchmark. Additional changes made in some sources such as recreational catch records, indices, and discards are detailed below. In addition, changes were made in model configuration to address new information, management actions, and improvements in the estimation of assessment uncertainty. A suite of sensitivity runs was performed to explore the model's sensitivity to the differences between this update and SEDAR 17 benchmark.

Substantial changes are underway in recreational harvest surveys with implementation of the Marine Recreational Information Program (MRIP) in place of the prior Marine Recreational Statistics Survey (MRFSS). Although the MRIP program promises improved data for the future, assessments must also consider the past and will continue to include the earlier data from the MRFSS program. At the time this update was prepared, recreational landings based upon MRIP methods were only available for 2004-2011. Since final adjustment factors required to convert MRFSS scaled values to MRIP scaled values were not available at that time, this assessment update included MRFSS-based data from 1982-2003 and MRIP-based data from 2004-2011. Because recreational landings are just a fraction of the total landings of vermilion snapper and changes between the MRFSS and MRIP estimates are scant, inclusion of both MRIP and MRFSS data are not considered to bias assessment results.

Several indices used in the model are standardized, meaning that the CPUE is adjusted through a statistical model to account for factors, other than changes in the population, which may affect the observed CPUE. Examples of such factors that are commonly addressed include yearly variation, environmental factors, depth, and sampling characteristics. While this approach improves the information obtained from the index, estimates of the parameters included in the standardization model change each time additional years of data are added, therefore changing the CPUE index for the entire time series.

Fishery-dependent indices were modified to account for changes in management regulations, such as seasonal closures and the split-season commercial ACL. For example, the recreational index was only used through 2008 due to the bag limit reduction from 10 to 5 fish. A higher percentage of anglers reached the lower bag limit, at which point they were expected to stop keeping vermilion snapper even though more fish were available to them. Since the regulation forces anglers to stop retaining fish even if fish are available, the CPUE from this segment of the fishery will be lower than it otherwise would. When this happens, CPUE becomes unreliable as a measure of population abundance and could lead to biased estimate of abundance in the assessment results. Recreational discard estimates from SEDAR 17 were adjusted in the update to address the bag limit and closed season (November through March) implemented in 2009. In

SEDAR 17, discards were assumed to include only fish below the minimum size, based on the lack of any seasonal closure and few trips reaching the 10-fish bag limit. However, following the change in regulations, it became likely that fish of any size would be discarded, either due to the season or anglers reaching the bag limit. To address this management change, the size composition of discarded fish included fish of all sizes after 2009.

Another important change in the update to SEDAR 17 was that steepness, a measure of overall stock productivity, was estimated instead of being provided as an input value. Steepness estimates from SEDAR 17 were not considered reliable, due to the structure of the data and the model performance. Therefore, steepness was treated as an input value and derived from comparison to other species. Including additional years of data and improved estimation techniques allowed the update assessment to provide a reliable steepness estimate. Additionally, uncertainty characterization was more thorough in the update than in the SEDAR 17 benchmark. The update used an improved technique called a "mixed Monte Carlo Bootstrap" which enables estimates of model uncertainty to better reflect the true underlying uncertainty in model estimates. This improvement reduces the penalty for uncertainty required in the ABC Control Rule, and is one of several changes that resulted in allowing a higher probability of overfishing when deriving the ABC. The probability of overfishing is reflected in the "P-Star" (P*) recommended by the SSC. Higher values of P* result in higher ABCs, since they indicate less scientific uncertainty.

This update to SEDAR 17 showed that vermilion snapper are not overfished and overfishing is not occurring. The stock is very close to B_{MSY} (94.3% of B_{MSY}) and the SSB is also very close to SSB_{MSY} (98.1% of SSB_{MSY}). Current fishing mortality (F) is well below F_{MSY} (76.9% of F_{MSY}). The trend in F shows a rapid increase from the mid-1980s until 1991, when it surpassed F_{MSY} by a significant amount (**Figure 3.2.4** in blue). However, the South Atlantic Council implemented a size limit in 1992 causing F to decrease below F_{MSY}, where it has remained ever since. Stock biomass shows a significant decrease over the assessment period (**Figure 3.2.4** in red). This trend is expected in a fishery being harvested at exploitation rates approaching the MSY-level. Further, it is expected that the stock will decrease to around B_{MSY}, if exploitation stays at the desired level, slightly below F_{MSY}, at which point it will stabilize and hover around that value as long as overfishing is not occurring. Evidence in some model outputs suggests that the stock is reaching such equilibrium. For instance, landings have varied around MSY much of the recent past (**Figure 3.2.5**) and recruitment is hovering around R_{MSY} (recruitment when the population is at B_{MSY}; **Figure 3.2.6**). These diagnostics suggest that the stock is being sustainably harvested and that the stock is approaching an equilibrium condition.

Projection results are shown in **Table 3.2.2**.

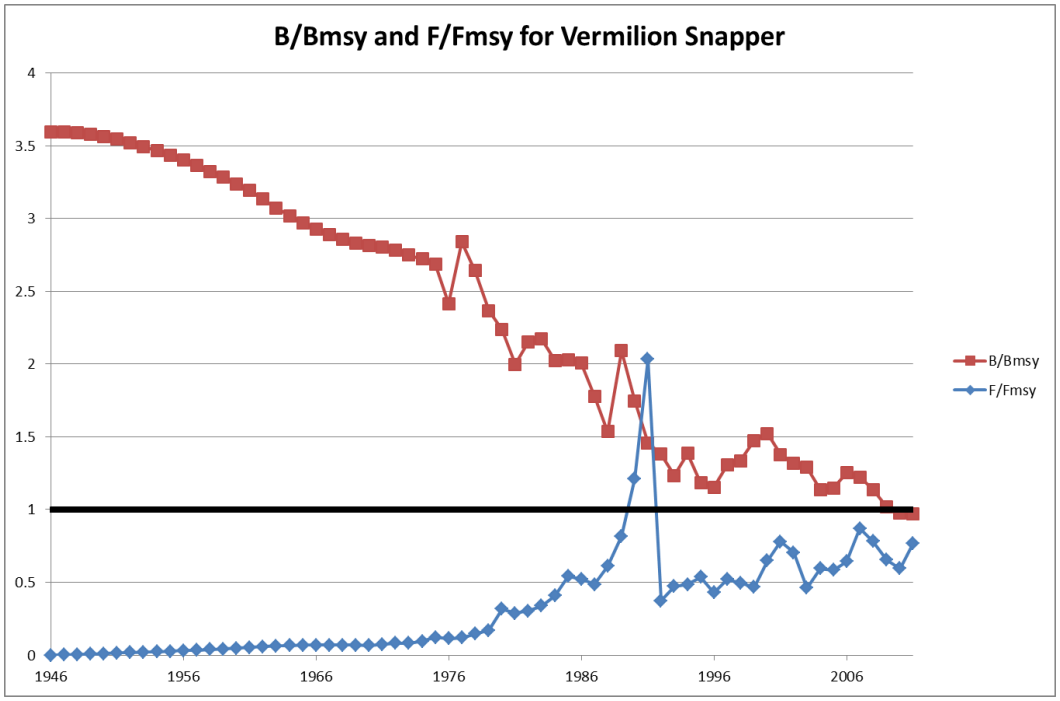


Figure 3.2.4. Biomass (B) and exploitation (F) levels relative to expected conditions of the vermilion snapper stock at MSY. Relative biomass is depicted by B/BMSY and exploitation by F/FMSY. The index line at 1 represents MSY conditions. Data are from the 2012 assessment update report for vermilion snapper.

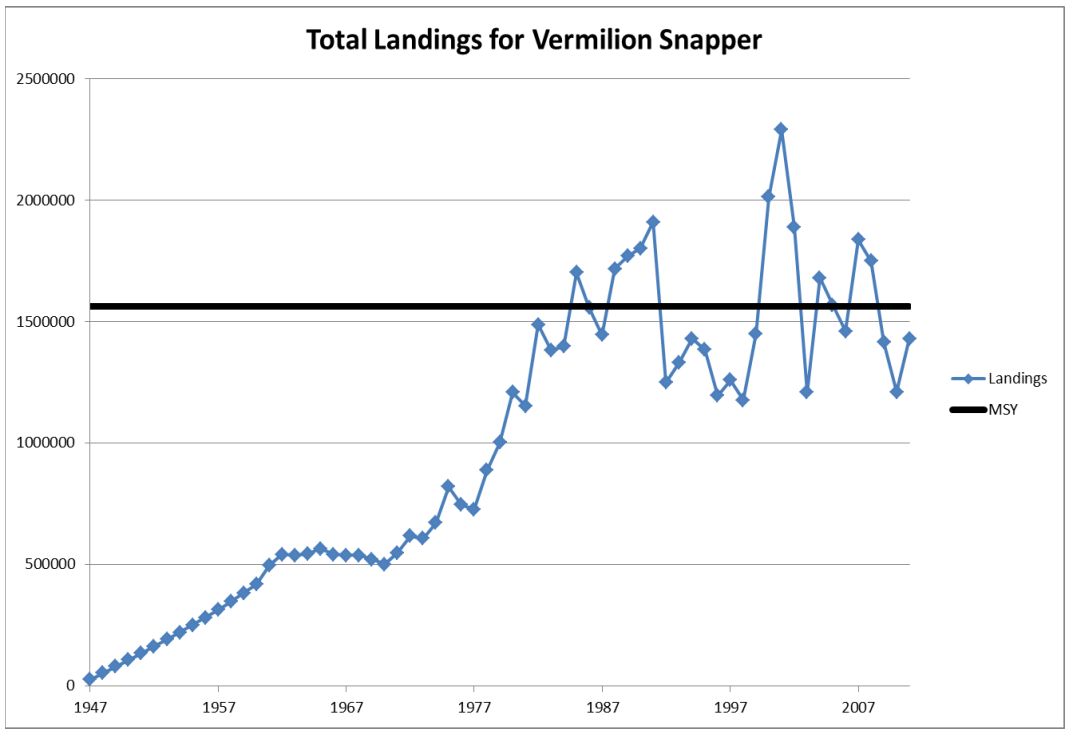


Figure 3.2.5. Landings in pounds whole weight of vermilion snapper and the estimate of MSY. Data are from the 2012 assessment update report for vermilion snapper.

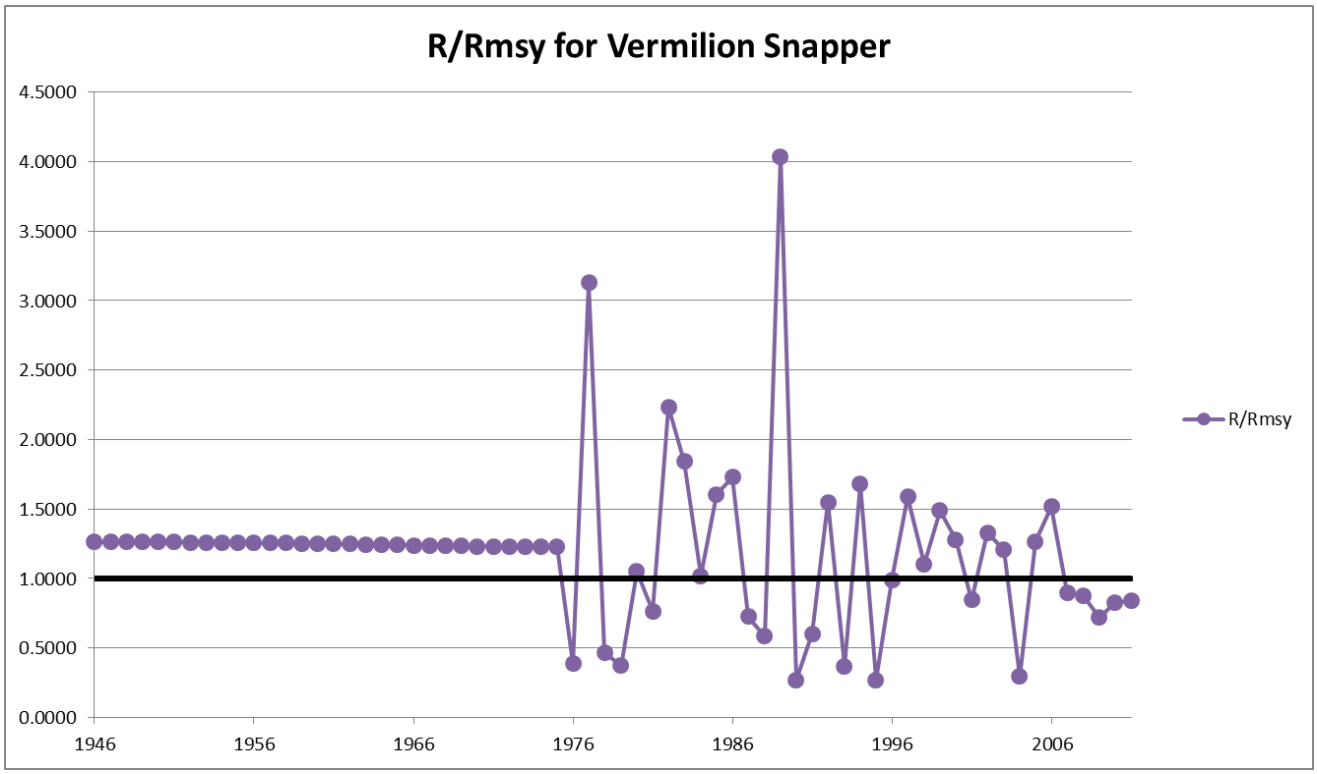


Figure 3.2.6 Annual recruitment relative to expected recruitment at MSY conditions for vermilion snapper. The index line at 1 indicates expected MSY conditions. Data are from the 2012 assessment update report for vermilion snapper.

Table 3.2.2 Acceptable biological catch (ABC) in units of 1000 lb whole weight, based on the annual probability of overfishing P* = 0.4. Fishing mortality rate (per yr), SSB = mid-year spawning stock (1E12 eggs), Pr(SSB < MSST) = proportion of replicates overfished (i.e., SSB below the base-run point estimate of MSST), R = recruits (1000 age-1 fish), D = discard mortalities (1000 lb whole weight), and L = landings (1000 lb whole weight). ABC (1000 lb whole weight) includes landings and discard mortalities. Annual ABCs are a single quantity among the 10,000 replicate projections; other values presented are medians.

Year	F	P*	SSB	Pr(SSB < MSST)	R	D (1000 lb)	L (1000 lb)	ABC (1000lb)
2012	0.544	0.355	6.12	0.25	2926	53	1321	-
2013	0.574	0.4	6.12	0.29	2890	56	1372	1429
2014	0.543	0.4	6.09	0.31	2836	55	1312	1367
2015	0.524	0.4	6.17	0.32	2800	53	1289	1343
2016	0.506	0.4	6.28	0.33	2740	51	1269	1322

Source: Vermilion snapper 2012 assessment update.

3.3 Protected Species

There are 40 species protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region and are under the purview of NMFS. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act. Six of these marine mammal species are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). In addition to those six marine mammals, five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; five distinct population segments of Atlantic sturgeon; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]) are also protected under the ESA. Portions of designated critical habitat for North Atlantic right whales and *Acropora* corals also occur within the South Atlantic Council's jurisdiction. **Section 3.5** in the Comprehensive ACL Amendment (SAFMC 2011b), and **Section 3.2.2** in Regulatory Amendment 13 to the Snapper Grouper FMP (SAFMC 2012b), describe the life history characteristics in detail for these species. **Section 3.5** of the Comprehensive ACL Amendment and **Section 3.2.2** of Regulatory Amendment 13 are hereby incorporated by reference and may be found at: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx and http://sero.nmfs.noaa.gov/sf/pdfs/Reg13_FINAL_Dec2012.pdf, respectively. The potential impacts from the continued authorization of the South Atlantic snapper grouper fishery on all ESA-listed species have been considered in previous ESA Section 7 consultations. Summaries of those consultations and their determination are in **Appendix F**. Those consultations indicate that of the species listed above, sea turtles and smalltooth sawfish are the most likely to interact with the snapper grouper fishery.

3.4 Human Environment

3.4.1 Economic Description of the Commercial Sector

Additional information on the commercial snapper grouper sector is contained in previous amendments [Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Regulatory Amendment 9 (SAFMC 2011a), and Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011b)] and are incorporated herein by reference. Presented below is selected information on the commercial sector of the snapper grouper fishery, with explicit consideration of vermilion snapper and red porgy.

The major source of data summarized in this description is the Federal Logbook System (FLS), supplemented by average prices calculated from the Accumulated Landings System (ALS) and price indices taken from the Bureau of Labor Statistics. Real (inflation adjusted) prices are reported in 2011 constant dollars. Landings are expressed in gutted weight (gw) to match with the method for collecting ex-vessel price information for most species; however, vermilion snapper is generally landed in whole weight (ww).

3.4.1.1 Annual Landings, Revenues, and Effort

The commercial reef fish fishing fleet in the South Atlantic is composed of vessels using different gear types and catching a variety of species. For 2007-2011, an average of 16,000 trips that landed at least one pound of snapper grouper were taken by 928 permitted vessels. These trips landed 6.8 million pounds gutted weight (gw) of snapper grouper valued at about $17 million in nominal prices (**Table 3.4.1**). Trips landing snapper grouper also landed other species; total revenues generated by these trips were about $20 million in nominal prices. On average, snapper grouper price per pound was $2.50, or $2.60 when adjusted for inflation.

An average of 1,996 trips landing at least one pound of vermilion snapper was taken by 249 vessels (**Table 3.4.2**). These trips landed an average of 924,000 pounds gw of vermilion snapper with an ex-vessel value of $2.9 million in nominal prices. These trips also landed other species, and total revenues from these trips were $7.1 million, indicating vermilion snapper was not the main source of revenues for many of these trips. The average price for vermilion snapper was $3.17 per pound, or $3.30 per pound when adjusted for inflation.

An average of 1,605 trips landing at least one pound of red porgy was taken by 190 vessels (**Table 3.4.3**). These trips landed an average of 133,000 pounds gw of red porgy with an ex-vessel value of $219,000 in nominal prices. These trips also landed other species, and total revenues from these trips were $6.0 million, indicating red porgy was not the main source of

revenues for many of these trips. The average price for red porgy was $1.62 per pound, or $1.69 per pound when adjusted for inflation.

Based on preliminary data, commercial vessels in the South Atlantic landed about 796,000 pounds gw of vermilion snapper and 114,000 pounds gw of red porgy in 2012. The average 2007-2011 landings as shown in the tables below were 924,000 pounds gw of vermilion snapper and 133,000 pounds gw of red porgy.

Table 3.4.1. Selected characteristics for trips landing at least one pound (gutted weight) of snapper grouper, 2007-2011.

Item	2007	2008	2009	2010	2011	Average
Number of trips	17,034	16,748	17,852	15,719	14,691	16,409
Number of boats	942	956	987	916	841	928
Number of days away from port	26,717	26,950	28,631	24,885	23,508	26,138
Pounds of snapper grouper (1,000 gutted)	6,520	6,811	7,101	6,808	6,636	6,775
Revenues from snapper grouper ($1,000)	$16,717	$17,390	$17,065	$16,350	$16,961	$16,897
Revenues from all species ($1,000)	$19,716	$20,527	$20,223	$19,390	$19,609	$19,893
Nominal price of snapper grouper	$2.56	$2.55	$2.40	$2.40	$2.56	$2.50
Real price ($2011) of snapper grouper	$2.78	$2.67	$2.52	$2.48	$2.56	$2.60

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

Table 3.4.2. Selected characteristics for trips landing at least one pound (gutted weight) of vermilion snapper, 2007-2011.

Item	2007	2008	2009	2010	2011	Average
Number of trips	2,555	2,863	2,055	1,208	1,300	1,996
Number of boats	273	317	261	205	187	249
Number of days away from port	9,489	10,266	7,773	4,695	4,824	7,409
Pounds of vermilion snap (1,000 gutted)	1,007	1,085	822	843	862	924
Revenues from vermilion snap ($1,000)	$3,060	$3,563	$2,502	$2,661	$2,874	$2,932
Revenues from all species ($1,000)	$9,379	$9,703	$6,779	$4,460	$5,389	$7,142
Nominal price of vermilion snap	$3.04	$3.28	$3.04	$3.16	$3.33	$3.17
Real price ($2011) of vermilion snap	$3.30	$3.43	$3.19	$3.26	$3.33	$3.30

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

Table 3.4.3. Selected characteristics for trips landing at least one pound (gutted weight) of red porgy, 2007-2011.

Item	2007	2008	2009	2010	2011	Average
Number of trips	1,758	1,745	1,533	1,424	1,565	1,605
Number of boats	210	202	195	170	172	190
Number of days away from port	6,534	6,572	6,327	5,976	6,066	6,295
Pounds of red porgy (1,000 gutted)	117	134	130	127	157	133
Revenues from red porgy ($1,000)	$155	$211	$195	$220	$312	$219
Revenues from all species ($1,000)	$6,764	$6,489	$5,194	$5,110	$6,206	$5,953
Nominal price of red porgy	$1.32	$1.58	$1.50	$1.74	$1.99	$1.62
Real price ($2011) of red porgy	$1.43	$1.65	$1.57	$1.79	$1.99	$1.69

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

3.4.1.2 Monthly Landings, Revenues, and Effort

Landings of snapper grouper were distributed fairly well throughout the year, although May and June may be considered as peak months (**Table 3.4.4**). Although November and December showed relatively low landings of snapper grouper, the lowest landing of snapper grouper occurred in April. The landings distribution for vermilion snapper was quite different from that of the entire snapper grouper species (**Table 3.4.5**). Peak landings occurred in August and September whereas the lowest landings occurred in December. There were very limited landings of red porgy in the first four months of the year (closed season), and landings in the remainder of the year ranged from about 10,000 pounds to 23,000 pounds (**Table 3.4.6**).

Based on preliminary data, the 2012 seasonal landings of vermilion snapper and red porgy did not differ much from the 2007-2011 seasonal distribution of these species. Peak landings for vermilion snapper occurred in September 2012, which is the same peak month for the 2007-2011 average landings. For red porgy, the 2012 peak landings occurred in July, but it happened in May for the 2007-2011 period although the difference is only a matter of 1,000 pounds.

Table 3.4.4. Selected monthly characteristics for trips landing at least one pound (gutted weight) of snapper grouper, 2007-2011 average.
Pounds are in thousands gutted weight and revenues are in thousand dollars.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Trips	1,229	1,167	1,129	1,245	1,818	1,904	1,686	1,654	1,176	1,104	1,173	1,126
Boats	395	377	360	394	512	501	465	459	381	372	401	392
Days	1,928	1,899	1,764	1,847	2,898	2,911	2,709	2,633	1,997	1,880	1,913	1,761
Lbs.	584	549	551	374	791	671	653	650	586	484	450	433
Nom. Rev.	$1,428	$1,262	$1,069	$1,009	$1,853	$1,659	$1,786	$1,741	$1,538	$1,266	$1,165	$1,120
Real Rev.	$1,478	$1,313	$1,119	$1,060	$1,932	$1,725	$1,849	$1,813	$1,601	$1,321	$1,219	$1,175

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

Table 3.4.5. Selected monthly characteristics for trips landing at least one pound (gutted weight) of vermilion snapper, 2007-2011 average.
Pounds are in thousands gutted weight and revenues are in thousand dollars.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Trips	171	151	117	121	184	190	261	283	231	102	92	93
Boats	97	92	75	71	94	89	124	129	121	58	51	53
Days	652	652	484	451	663	649	1,009	999	809	386	335	321
Lbs.	104	69	47	47	62	51	131	141	141	56	42	35
Nom. Rev.	$335	$235	$148	$157	$197	$159	$408	$449	$441	$171	$131	$102
Real Rev.	$342	$242	$156	$167	$207	$167	$421	$466	$458	$181	$140	$109

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

Table 3.4.6. Selected monthly characteristics for trips landing at least one pound (gutted weight) of red porgy, 2007-2011 average.
Pounds are in thousands gutted weight and revenues are in thousand dollars.
N = limited information for reporting purposes.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Trips	N	N	N	N	247	247	236	249	193	144	139	126
Boats	N	N	N	N	113	112	110	112	99	85	84	76
Days	N	N	N	N	952	914	947	922	747	622	609	517
Lbs.	N	N	N	N	23	20	22	21	17	10	10	10
Nom. Rev.	N	N	N	N	$37	$30	$39	$33	$28	$16	$18	$16
Real Rev.	N	N	N	N	$38	$32	$40	$35	$29	$17	$18	$17

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

3.4.1.3 Average Landings, Revenues, and Effort by Gear Type

Hook-and-line was the dominant gear in the harvest of snapper grouper as well as in the harvest of vermilion snapper and red porgy (**Table 3.4.7**, **Table 3.4.8**, and **Table 3.4.9**) for the period 2007-2011. This gear type accounted for about 74% of total snapper grouper landings (**Table 3.4.7**). Other than the combined category for all other gear, longline was the next major gear used in the harvest of snapper grouper, followed by traps and diving. Hook-and-line was also the dominant gear in the harvest of vermilion snapper and red porgy (**Table 3.4.8** and **Table 3.4.9**). In fact, this gear type accounted for close to 100% of vermilion snapper and red porgy landings.

Based on preliminary data, the 2012 landings of vermilion snapper and red porgy were predominantly caught by hook-and-line. A similar situation occurred for the 2007-2011 period.

Table 3.4.7. Selected monthly characteristics for trips landing at least one pound (gutted weight) of snapper grouper, by gear type, 2007-2011 average.
Pounds are in thousands gutted weight and revenues are in thousand dollars

	Hook & Line	Longline	Traps	Diving	Others
Trips	11,618	366	490	550	3,385
Boats	717	32	49	78	361
Days	20,193	744	741	695	3,766
Pounds	5,029	543	380	145	678
Nominal Rev.	$12,909	$1,349	$893	$591	$1,155
Real Rev.	$13,460	$1,398	$934	$611	$1,202

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

Table 3.4.8. Selected characteristics for trips landing at least one pound (gutted weight) of vermilion snapper, 2007-2011 average.
Pounds are in thousands gutted weight and revenues are in thousand dollars.

	Hook & Line	Longline	Traps	Diving	Others
Trips	1,868	1	48	22	58
Days	7,093	12	96	62	155
Pounds	915	0	1	2	5
Nom. Rev.	$2,903	$0	$5	$8	$16
Real Rev.	$3,027	$0	$5	$8	$17

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

Table 3.4.9. Selected characteristics for trips landing at least one pound (gutted weight) of red porgy, 2007-2011 average.
Pounds are in thousands gutted weight and revenues are in thousand dollars.

	Hook & Line	Longline	Traps	Diving	Others
Trips	1,516		43	18	28
Days	6,060		93	49	93
Pounds	130		1	0	2
Nom. Rev.	$213		$1	$1	$4
Real Rev.	$220		$1	$1	$4

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, personal communication, Larry Perruso (2012).

3.4.1.4 Permits

A commercial permit is required to harvest or possess commercial quantities of snapper grouper from the EEZ. There are two types of commercial snapper grouper permits: (1) an unlimited permit, which is a transferable (subject to restrictions) that allows unlimited harvest of snapper grouper species, subject to trip limits or seasonal restrictions and (2) a non-transferable trip-limited permit that limits the owner to 225 lbs of snapper grouper harvest per trip. Both permits are limited access permits. The number of commercial snapper grouper permits for 2005-2010 is provided in **Table 3.4.10**. According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 121 trip-limited snapper grouper permit holders and 551 unlimited snapper grouper permit holders as of January 22, 2013.

Every year from 2005 through 2010, the number of vessels landing at least one pound of snapper grouper was higher than the number of snapper grouper permits (**Table 3.4.1** and **Table 3.4.10**). This is not totally unexpected. While a permit is assigned to a vessel, permits and vessels need not have a one-to-one correspondence as a permit can be used on multiple vessels at different times during a year or across multiple years. On the other hand, the number of vessels landing vermilion snapper or red porgy was substantially less than the number of snapper grouper permits, indicating the relatively less importance of vermilion snapper or red porgy as a source of revenue for many vessels in the commercial snapper grouper fishery. It is naturally possible that some vessels rely more on vermilion snapper or red porgy as their major source of revenues.

Table 3.4.10. Number of commercial snapper grouper permits.

Year	Unlimited	Limited	Total
2005	748	198	946
2006	722	183	905
2007	695	165	860
2008	665	151	816
2009	640	144	784
2010	624	139	763
Average	682	163	846

Source: NMFS SERO Permits Data Base

3.4.2 Economic Description of the Recreational Sector

Additional information on the recreational sector of the snapper grouper fishery contained in previous or concurrent amendments is incorporated herein by reference [see Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Amendment 17A (SAFMC 2010a), Amendment 17B (SAFMC 2010b), Regulatory Amendment 9 (SAFMC 2011a), Regulatory Amendment 11 (SAFMC

2011c), Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011b), and Amendment 24 (SAFMC 2011d)]. These documents contain up-to-date descriptions of recreational economic value as well as the financial operations of headboats and charter boats and so are included here by specific reference.

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

3.4.2.1 Harvest

The trend of recreational harvest of snapper grouper in the South Atlantic was not uniform across fishing modes (**Table 3.4.11**). Charter boat harvests linearly declined during 2007-2011; headboat harvests also declined over the years but increased in 2009; private/rental mode harvests rose in 2008 before declining in the next three years; and shore mode harvests decreased from 2007 through 2011. The private/rental mode was the dominant sector in the harvest of snapper grouper.

Harvest trend for vermilion snapper also differed across fishing modes (**Table 3.4.11**). Charter boat harvests almost followed a seesaw pattern, except that they fell in 2010 and 2011; headboat harvests declined throughout the period; private/rental mode harvests increased in the first three years and decreased every year thereafter. The shore mode did not show any harvest of vermilion snapper.

The harvests of red porgy also differed across fishing modes, and appeared to follow no discernible pattern (**Table 3.4.11**). Charter boat harvests decreased in the first three years, increased in 2010 and fell in 2011; headboat harvests declined in the first three years, increased in 2010 and increased again in 2011; private/rental mode harvests increased in 2008, fell in 2009 and 2010, but increased in 2011. As with vermilion snapper, there were no recorded harvests of red porgy by the shore mode.

Florida dominated all other states in the harvest of snapper grouper, followed by North Carolina, South Carolina, and Georgia (**Table 3.4.12**). South Carolina dominated in the harvest of vermilion snapper, followed by Florida, North Carolina, and Georgia. It is worth noting that the average harvest of vermilion in South Carolina topped that in Florida mainly by the relatively large harvests in 2007. In each of the other years, Florida recorded higher harvests of vermilion snapper than South Carolina.

The 2012 data are very preliminary showing recreational harvest of vermilion snapper of about 62,000 pounds, whole weight (lbs ww), and red porgy of about 52,000 lbs ww. These are well below the 2007-2011 average or 2011 harvest of these species.

Table 3.4.11. Harvest (pounds whole weight) of snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by mode, 2007-2011.

	2007	2008	2009	2010	2011	Average
Snapper Grouper						
Charter	2,409,626	2,178,592	1,883,010	1,610,506	1,061,675	1,828,682
Headboat	2,160,464	1,328,420	1,411,619	1,296,351	1,165,197	1,472,410
Private/Rental	9,988,678	10,271,058	7,550,879	7,369,932	6,379,008	8,311,911
Shore	3,807,023	3,364,388	3,143,910	2,888,938	2,604,346	3,161,721
Vermilion Snapper						
Charter	107,096	76,672	150,941	51,950	22,214	81,775
Headboat	613,765	301,175	261,107	169,859	151,075	299,396
Private/Rental	122,041	149,673	149,980	64,897	46,106	106,539
Shore						
Red Porgy						
Charter	42,452	34,806	12,720	16,848	11,685	23,702
Headboat	117,254	52,598	33,752	37,413	39,191	56,042
Private/Rental	16,473	54,961	49,300	11,291	21,421	30,689
Shore						

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab and MRFSS database, NOAA Fisheries, NMFS, SERO.

Table 3.4.12. Harvest (pounds whole weight) of snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by state, 2007-2011.

	2007	2008	2009	2010	2011	Average
Snapper Grouper						
Florida	10,734,175	9,803,628	8,709,114	7,206,762	6,794,227	8,649,581
Georgia	519,460	764,817	419,964	699,356	602,970	601,313
N Carolina	4,637,039	4,230,966	3,254,743	3,269,735	2,196,122	3,517,721
S Carolina	2,475,118	2,343,047	1,605,598	1,989,873	1,616,907	2,006,109
Vermilion Snapper						
Florida	171,567	188,852	243,452	99,577	78,246	156,339
Georgia	20,735	25,952	22,718	3,948	10,195	16,710
N Carolina	170,427	134,044	132,499	91,991	62,031	118,199
S Carolina	481,046	178,671	163,358	91,189	68,922	196,637
Red Porgy						
Florida	9,986	7,657	2,979	12,138	10,342	8,620
Georgia	4,814	890	1,597	514	1,088	1,781
N Carolina	59,613	76,835	68,429	35,032	32,160	54,414
S Carolina	101,767	56,983	22,767	17,868	28,707	45,618

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab and MRFSS database, NOAA Fisheries, NMFS, SERO.

The seasonal distributions, by mode, of the harvest of snapper grouper, vermilion snapper, and red porgy are shown in **Table 3.4.13**. For snapper grouper, peak harvest occurred in Wave 4 (July-August) for the charter mode, Wave 3 (May-June) for headboats, Wave 3 (May-June) for the private/rental mode, and Wave 5 (September-October) for the shore mode. On the other hand, the troughs occurred in Wave 6 (November-December) for charter mode and Wave 1 (January-February) for the other fishing modes.

The seasonal distributions, by state, of the harvest of snapper grouper, vermilion snapper, and red porgy is shown in **Table 3.4.14**. For snapper grouper, peak harvests occurred in Wave 5 (September-October) for Georgia and Wave 3 (May-June) for the other states. Troughs occurred in Wave 6 (November-December) for Florida and in Wave 1 (January-February) for the other states. Peaks in the harvest of vermilion snapper occurred in Wave 4 (July-August) for North Carolina and in Wave 3 (May-June) for the other states. Troughs occurred in Wave 6 (November-December) for Florida and in Wave 1 (January-February) for the other states. For red porgy, harvests peaked in Wave 5 (September-October) for Florida and in Wave 3 (May-June) for the other states; troughs occurred in Wave 2 (March-April) for Florida, in Wave 6 (November-December) for North Carolina, and in Wave 1 (January-February) for Georgia and South Carolina.

Table 3.4.13. Average harvest (pounds whole weight) of snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by mode and wave, 2007-2011.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Snapper Grouper						
Charter	201,686	288,827	499,756	543,921	190,917	103,576
Headboat	100,810	199,986	474,166	379,899	210,677	106,873
Private/Rental	927,098	1,049,238	2,001,141	1,667,763	1,334,638	1,332,033
Shore	219,276	451,795	603,719	546,875	866,258	473,799
Vermilion Snapper						
Charter	16,185	5,093	23,856	24,738	9,460	2,441
Headboat	5,699	33,969	118,728	87,102	47,168	6,731
Private/Rental	11,924	19,952	25,018	22,480	12,584	14,581
Shore						
Red Porgy						
Charter	1,506	685	11,127	8,053	1,971	361
Headboat	367	5,976	20,592	18,463	9,435	1,208
Private/Rental	2,120	9,342	5,384	6,816	3,418	3,609
Shore						

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

Table 3.4.14. Average harvest (pounds whole weight) of snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by state and wave, 2007-2011.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Snapper Grouper						
Florida	1,366,277	1,406,819	1,609,093	1,521,610	1,463,732	1,282,049
Georgia	180	99,096	138,138	79,492	148,100	136,307
North Carolina	78,023	268,341	1,269,454	1,048,170	624,547	229,187
South Carolina	4,390	215,591	562,096	489,185	366,109	368,738
Vermilion Snapper						
Florida	32,174	26,178	36,187	32,645	17,225	11,930
Georgia	20	3,163	5,761	5,121	1,553	1,092
North Carolina	1,028	10,164	40,398	40,750	23,598	2,260
South Carolina	586	19,509	85,256	55,979	26,835	8,471
Red Porgy						
Florida	1,837	436	1,914	1,502	2,120	812
Georgia	4	268	1,058	331	72	48
North Carolina	1,967	8,562	18,982	18,271	5,729	903
South Carolina	184	6,738	15,149	13,229	6,903	3,415

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

3.4.2.2 Effort

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

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

Estimates of catch effort are presented in **Tables 3.4.15** through **3.4.17** while those for target effort are shown in **Tables 3.4.18** through **3.4.20**. Apparent in these tables is the substantial difference between target and catch trips, with target trips being generally less than a third of catch trips for all snapper grouper and less than 10% for vermilion snapper. There have been virtually no target trips for red porgy.

For snapper grouper, the private/rental mode dominated all other fishing modes in catch trips, followed by the shore mode and charter boats (**Table 3.4.15**). For vermilion snapper, the private mode was the dominant sector followed by charter boats and the shore mode. Catch trips for red porgy were recorded only for charter boats and private/rental mode, with the private/rental mode being the dominant sector.

Florida was by far the dominant state in terms of catch trips for snapper grouper, followed by North Carolina, South Carolina, and Georgia (**Table 3.4.16**). Florida was also by far the dominant state for vermilion snapper catch trips; however, North Carolina was the dominant state for red porgy catch trips.

The seasonal distribution of catch trips closely, but not exactly, mimics that of harvests. Catch trips for snapper grouper peaked in Wave 4 (July-August) and troughed in Wave 1 (January-February) (**Table 3.4.17**). For vermilion snapper, catch trips peaked in Wave 3 (May-June) and troughed in Wave 6 (November-December). Catch trips for red porgy peaked in Wave 3 (May-June) and troughed in Wave 1 (January-February).

Table 3.4.15. Catch trips for snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by mode, 2007-2011.

	2007	2008	2009	2010	2011	Average
Snapper Grouper						
Shore	1,099,638	1,160,179	990,162	717,126	832,083	959,838
Charter	134,589	112,715	118,286	123,111	88,706	115,481
Private	2,748,584	2,617,229	2,079,541	1,785,123	1,671,727	2,180,441
Vermilion Snapper						
Shore	1,572	0	0	0	1,972	709
Charter	20,844	14,166	11,227	10,880	3,829	12,189
Private	60,854	76,652	60,694	18,777	17,208	46,837
Red Porgy						
Shore	0	0	0	0	0	0
Charter	6,000	6,147	1,858	2,923	1,843	3,754
Private	9,989	20,726	10,524	12,509	7,520	12,254

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

Table 3.4.16. Catch trips for snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by state, 2007-2011.

	2007	2008	2009	2010	2011	Average
Snapper Grouper						
Florida	3,143,441	2,946,266	2,497,913	1,997,370	1,949,529	2,506,904
Georgia	127,847	213,737	105,832	92,688	105,781	129,177
N Carolina	473,836	485,127	379,223	367,856	307,802	402,769
S Carolina	237,686	244,992	205,021	167,447	229,404	216,910
Vermilion Snapper						
Florida	55,694	64,870	53,575	13,495	16,489	40,825
Georgia	8,026	1,534	4,914	3,124	2,037	3,927
N Carolina	8,374	9,019	7,274	6,744	2,627	6,808
S Carolina	11,175	15,395	6,158	6,294	1,855	8,175
Red Porgy						
Florida	3,356	2,510	1,244	4,001	4,001	3,022
Georgia	1,637	47	46	71	71	374
N Carolina	9,694	14,943	10,392	2,469	2,469	7,993
S Carolina	1,302	9,373	700	2,821	2,821	3,403

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

Table 3.4.17. Average catch trips for snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by wave, 2007-2011.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Snapper Grouper	352,514	413,283	620,400	766,495	608,033	495,034
Vermilion Snapper	8,589	9,790	13,927	12,892	8,042	6,494
Red Porgy	1,119	3,157	4,805	3,695	1,783	1,450

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

Similar to catch trips, most target trips for snapper grouper came from the private/rental mode, followed by the shore and charter modes (**Table 3.4.18**). Target trips for vermilion snapper were at a fairly good level for the private/rental mode, were very low for charter boats, and none for the shore mode. Except for a very minimal level of target trips for red porgy in 2008, there are no reported target trips for this species by any of the fishing modes.

Target trips by state for snapper grouper follows the same pattern as catch trips, with Florida being the dominant state (**Table 3.4.19**). While there are reported catch trips for vermilion snapper in states other than Florida, these states reported relatively few target trips for this species. Georgia recorded target trips for vermilion snapper only in 2007 and North Carolina, only in 2007 and 2010. Only South Carolina reported some level of target trips for vermilion snapper on a consistent basis, albeit at low levels. Only Florida recorded target trips for red porgy but only in 2008.

The peak and trough of target trips for snapper grouper coincided with those of catch trips (**Table 3.4.17** and **Table 3.4.20**). The seasonal distribution of target trips for vermilion snapper slightly differs from that of catch trips. Vermilion snapper target trips peaked in Wave 2 (March-April) and troughed in Wave 6 (November-December).

Table 3.4.18. Target trips for snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by mode, 2007-2011.

	2007	2008	2009	2010	2011	Average
Snapper Grouper						
Shore	259,194	287,248	228,125	214,268	193,240	236,415
Charter	42,164	38,641	30,636	38,114	22,029	34,317
Private	620,512	747,349	623,703	609,126	575,821	635,302
Vermilion Snapper						
Shore	0	0	0	0	0	0
Charter	739	577	241	385	0	388
Private	5,108	1,406	5,582	2,235	9,209	4,708
Red Porgy						
Shore	0	250	0	0	0	50
Charter	0	0	0	0	0	0
Private	0	0	0	0	0	0

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

Table 3.4.19. Target trips for snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by state, 2007-2011.

	2007	2008	2009	2010	2011	Average
Snapper Grouper						
Florida	669,333	809,451	683,738	623,166	534,471	664,032
Georgia	27,019	40,893	29,665	30,351	40,417	33,669
N Carolina	112,849	88,310	92,499	121,103	88,867	100,726
S Carolina	112,668	134,585	76,561	86,889	127,334	107,607
Vermilion Snapper						
Florida	2,467	1,603	5,582	2,235	7,647	3,907
Georgia	63	0	0	0	0	13
N Carolina	139	0	0	100	0	48
S Carolina	3,178	380	241	284	1,562	1,129
Red Porgy						
Florida	0	250	0	0	0	50
Georgia	0	0	0	0	0	0
N Carolina	0	0	0	0	0	0
S Carolina	0	0	0	0	0	0

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

Table 3.4.20. Average target trips for snapper grouper, vermilion snapper, and red porgy in the South Atlantic, by wave, 2007-2011.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Snapper Grouper	101,671	143,242	182,124	221,560	116,146	141,291
Vermilion Snapper	811	2,663	1,176	537	269	47
Red Porgy	250	0	0	0	0	0

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

Similar analysis of recreational effort is not possible for the headboat sector because the headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. **Table 3.4.21** displays the annual angler days by state and **Table 3.4.22** displays their average monthly distribution. Confidentiality issues required combining Georgia estimates with those of Northeast Florida.

Headboat angler days varied from year to year but generally declined since 2007 (**Table 3.4.21**). Southeast Florida registered the highest number of angler trips, followed by Georgia/Northeast Florida, South Carolina, and North Carolina. Clearly, Florida dominated all other states in terms of headboat angler days.

On average, overall angler days peaked in July and troughed in November (**Table 3.4.22**). North Carolina and South Carolina had similar peaks as the overall average but the troughs were in December – February. Angler days in Georgia/Northeast Florida peaked in June and troughed in January while those in Southeast Florida peaked in July and troughed in October.

Table 3.4.21. South Atlantic headboat angler days, by state, 2007-2011.

	2007	2008	2009	2010	2011	AVERAGE
NC	29,002	16,982	19,468	21,071	18,457	20,996
SC	60,729	47,287	40,919	44,951	44,645	47,706
GA/NEFL	53,762	52,521	66,447	53,676	46,256	54,532
SEFL	103,388	71,598	69,973	69,986	77,785	78,546
TOTAL	246,881	188,388	196,807	189,684	187,143	201,781

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

Table 3.4.22. Average monthly distribution of headboat angler days in the South Atlantic, by state, 2007-2011.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NC	50	45	352	1,287	2,445	4,266	4,661	3,807	1,828	1,833	398	23
SC	67	200	1,295	3,463	4,376	10,023	12,617	8,879	3,190	2,597	836	163
GA/NEFL	2,165	2,959	4,936	5,918	5,458	8,497	8,470	5,551	2,797	2,627	2,179	2,976
SEFL	6,105	8,453	8,779	8,330	6,715	8,090	8,910	5,618	3,728	2,655	4,167	6,235
TOTAL	8,387	11,657	15,363	18,997	18,993	30,876	34,658	23,854	11,542	9,713	7,579	9,398

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

3.4.2.3 Permits

For-hire vessels are required to have a for-hire snapper grouper permit to fish for or possess snapper grouper species in the South Atlantic EEZ. The number of vessels with for-hire snapper grouper permits for the period 2008-2011 is provided in **Table 3.4.23**. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire permits issued for the South Atlantic snapper grouper fishery decreased from 1,805 permits in 2008 to 1,781 permits in 2011. The majority of snapper grouper for-hire permitted vessels were home-ported in Florida; a relatively high proportion of these permitted vessels were also home-ported in North Carolina and South Carolina. Many vessels with South Atlantic for-hire snapper-grouper permits were home-ported in states outside of the South Atlantic Council's area of jurisdiction, particularly in the Gulf of Mexico states of Alabama through Texas. The number of vessels with South Atlantic for-hire snapper-grouper permits home-ported in states outside of the South Atlantic Council's area of jurisdiction account for approximately 11% of the total number of permits.

Table 3.4.23. Number of South Atlantic for-hire snapper-grouper vessel permits, 2008-2011.

Home Port State	2008	2009	2010	2011	Avg.
North Carolina	338	349	331	330	337
South Carolina	139	146	145	132	141
Georgia	26	30	27	26	27
Florida	1,121	1,131	1,109	1,099	1,115
Gulf States (AL-TX)	76	83	86	91	84
Other States	105	113	114	103	109
Total	1,805	1,852	1,812	1,781	1,813

Source: NMFS SERO Permits Data Base.

For-hire permits do not distinguish charter boats from headboats. Based on a 1997 survey, Holland et al. (1999) estimated that a total of 1,080 charter vessels and 96 headboats supplied for-hire services in all South Atlantic fisheries during 1997. By 2010, the estimated number of headboats supplying for-hire services in all South Atlantic fisheries had fallen to 85, indicating a decrease in fleet size of approximately 11% between 1997 and 2010 (K. Brennan, Beaufort Laboratory, SEFSC, personal communication, Feb. 2011).

According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 1,462 current holders of South Atlantic for-hire snapper grouper permits as of January 22, 2013. There are no specific permitting requirements for recreational anglers to harvest snapper grouper. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions.

3.4.3 Social and Cultural Environment

Descriptions of the social and cultural environment of the snapper grouper fishery are contained in Amendment 17A (SAFMC 2010a) and the Comprehensive ACL Amendment (SAFMC 2011b) and are incorporated herein by reference.

Since 2005, snapper grouper unlimited and limited permits have shown a downward trend. This is in part due to a limited entry program in place since 1998 and a 2-for-1 permit purchase criteria for entry with an unlimited permit. More in-depth descriptions of many of the communities included in the figures below can be found in Jepson et al. (2005) and Amendment 17A (SAFMC 2010a) to the snapper grouper fishery.

Over time, the limited entry system has reduced capacity in the commercial fishery as evidenced by the reduction in the number of permits over the eight-year period beginning in 2001 through 2007. There was a 34% decrease in the number of unlimited permits and a 54% decrease in the number of limited permits during that time. This downward trend in permits is reflected in other measures of effort that also show a decline, i.e. number of trips, landings, etc. (See Amendment 16; SAFMC 2009a).

While the limited entry program has contributed to the reduced capacity, other factors have also contributed to this downward trend. Economic factors like increased imports, decreasing prices for domestic product and rising prices for diesel fuel have had a widespread effect on commercial fishing throughout many regions of the U.S. In addition, the loss of working waterfronts has contributed to a growing loss of fishing infrastructure that may play a role in the decline in many fishing communities (Garrity-Blake and Nash 2012; Griffith 2011). For North Carolina, the losses have been substantial:

> We calculated a net loss of nine fish houses from 2006 to 2011, or a 9.78 percent reduction, compared to an almost 30 percent reduction from 2001 to 2006. Overall, we calculated a net loss of 47 facilities from 2001 to 2011, or a 36 percent decline in the last decade (Garrity-Blake and Nash 2012).

The factors that affect the loss of working waterfronts in fishing communities are coastal development, rising property taxes, decreasing access to waterfront due to increasing privatization of public resources, rising cost of dockage and fuel, lack of maintenance of waterways and ocean passages, competition with imported fish, and other less tangible (often political) factors. These along with increasingly strict regulations have combined to place a great deal of stress on many communities and their associated fishing sectors including commercial, charter/headboat and private recreational.

While some of the same social factors above have affected the for-hire fishery in terms of loss of working waterfronts, other issues such as a downturn in the economy and competition have affected growth of that sector. The recreational sector is also subjected to permit requirements in

the for-hire sector as vessels in the South Atlantic are required to have a snapper grouper for-hire permit to fish for or possess snapper grouper species in the EEZ.

The number of for-hire permits issued in the South Atlantic snapper grouper fishery increased over the period 2003-2007, from 1,477 permits in 2003 to 1,754 permits in 2007. Increases occurred for those vessels that were strictly for-hire businesses, since permits issued for vessels operating as for-hire and commercial entities were flat from 2005 to 2006 and fell in 2007. Today there are approximately 1,448 snapper grouper charter permits in effect (SERO Permits 2013). Most of these for-hire permitted vessels were home-ported in Florida, with vessels also home-ported in North Carolina and South Carolina.

While studies on the general identification of fishing communities have been undertaken in the past few years, little social or cultural investigation into the nature of the snapper grouper fishery itself has occurred. A socioeconomic study by Waters et al. (1997) covered the general characteristics of the fishery in the South Atlantic, but those data are now over 10 years old and do not capture more recent important changes in the fishery. Cheuvront and Neal (2004) conducted survey work with the North Carolina commercial snapper grouper fishery south of Cape Hatteras, but did not include ethnographic research on communities dependent upon fishing.

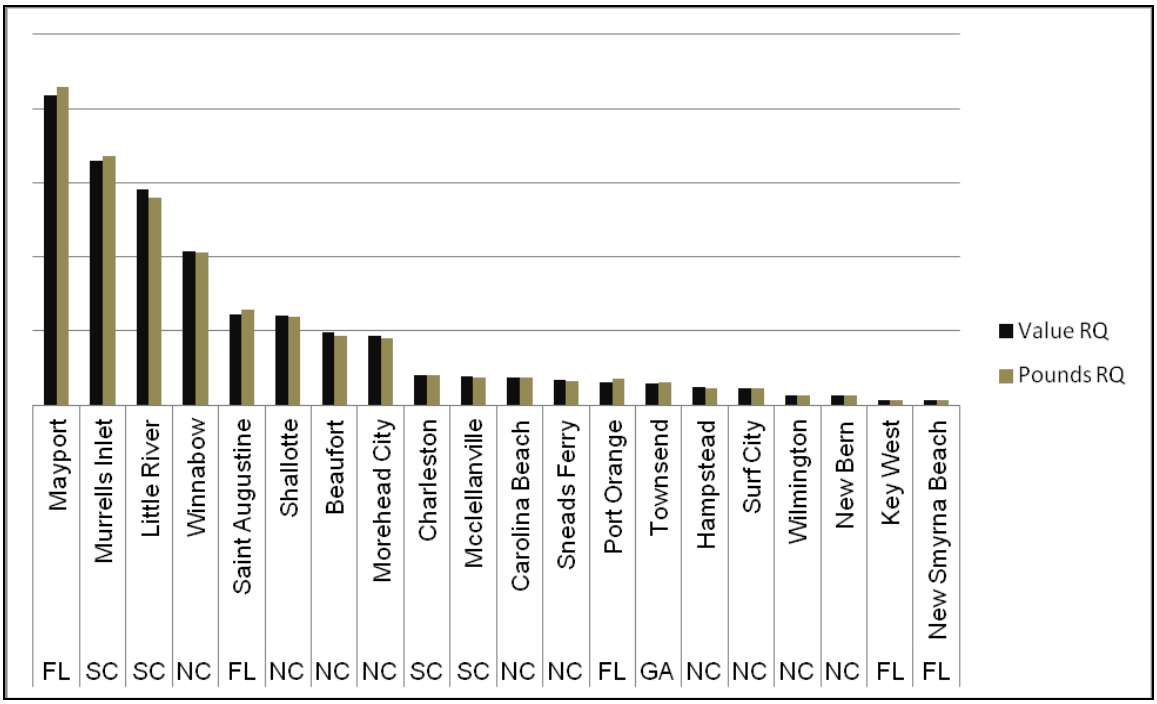


Figure 3.4.1. Vermilion Snapper Value and Pounds Regional Quotient for South Atlantic Fishing Communities. (Source: SERO).

Figure 3.4.1 provides a depiction of vermilion snapper regional quotient pounds and value of landings for the top twenty South Atlantic communities with vermilion landings. A regional quotient is the amount of local landings and/or value divided by the total landings and value for

the region. For this analysis, total landings for Florida Keys communities were included in the South Atlantic region as we are unable to disaggregate landings at the community level to Gulf of Mexico or Atlantic at this time. Values for regional quotient of pounds and value are not reported to address confidentiality concerns. However, **Figure 3.4.1** still provides an indication of the proportion of vermilion that is landed by the top twenty communities.

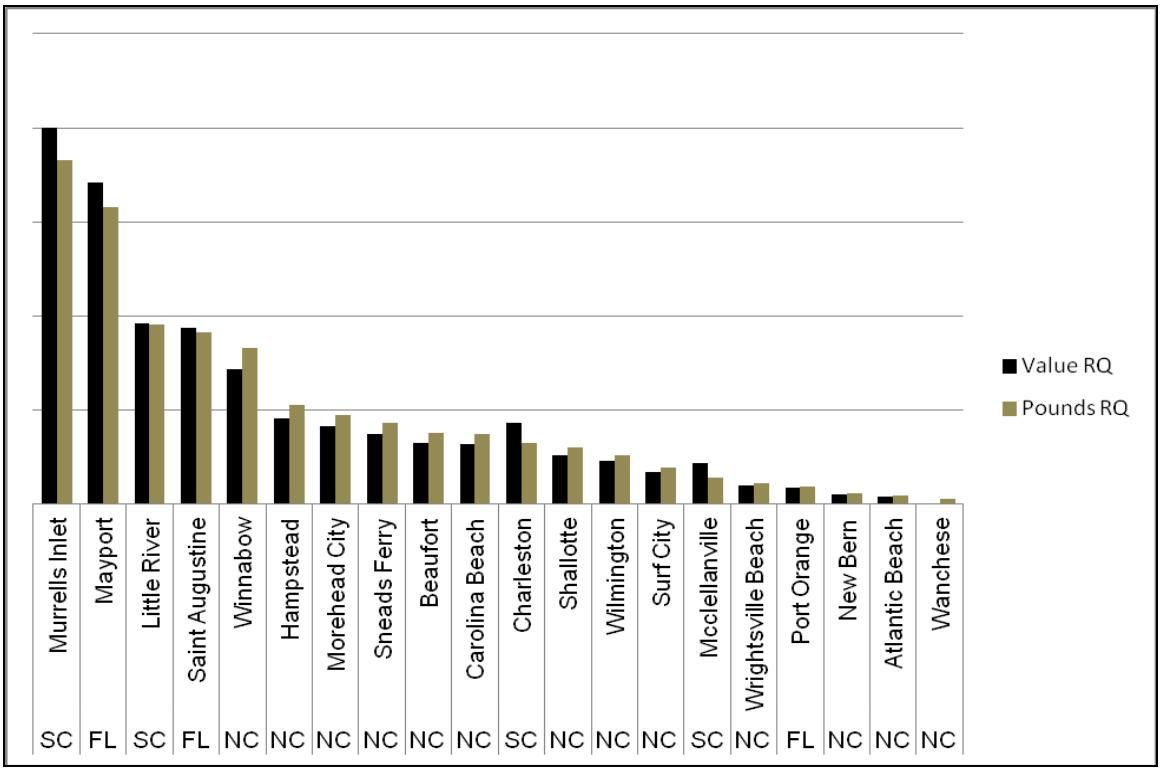


Figure 3.4.2. Red Porgy Value and Pounds Regional Quotient for South Atlantic Fishing Communities. (Source: SERO).

The regional quotient of landings and value for red porgy appear in **Figure 3.4.2**. The first five communities show a much higher regional quotient with Murrells Inlet, South Carolina and Mayport, Florida outpacing all other communities in terms of value and pounds.

Selecting the most comprehensive set of communities from figures for regional quotient for both vermilion snapper and red porgy, a comparison of two indices recently developed to understand dependence on both commercial and recreational fishing are presented below. To better understand how South Atlantic fishing communities are engaged and reliant on fishing, indices were created using secondary data from permit and landings information for the commercial and recreational sectors (Colburn and Jepson 2012; Jacob et al. 2012). Fishing engagement is primarily the absolute numbers of permits, landings, and value. Fishing reliance has many of the same variables as engagement divided by population to give an indication of the per capita impact of this activity.

Using a principal component and single solution factor analysis, each community receives a factor score for each index to compare to other communities. With the top eighteen communities from both component fisheries, factor scores of both engagement and reliance for both commercial and recreational fishing were plotted onto radar graphs. Each community's factor score is located on the axis radiating out from the center of the graph to its name. Factor scores are connected by colored lines and are standardized; therefore, the mean is zero. Two thresholds of one and ½ standard deviation above the mean are plotted onto the graphs to help determine a threshold for significance. Because the factor scores are standardized, a score above 1 is also above one standard deviation. If factor scores above ½ standard deviation are rounded they would also be equal to one standard deviation (Data were not available for Mayport, Florida; Townsend, Georgia; or Winnabow, North Carolina).

Using the thresholds of fishing dependence of ½ and one standard deviation, **Figure 3.4.3** suggests that several communities are substantially engaged in recreational fishing. The communities of St. Augustine, Florida; Atlantic Beach, Carolina Beach, and Morehead City, North Carolina; and Little River and Murrell's Inlet, South Carolina all exhibit recreational engagement index scores above the one standard deviation. Port Orange, Florida and Beaufort, North Carolina are above ½ standard deviation.

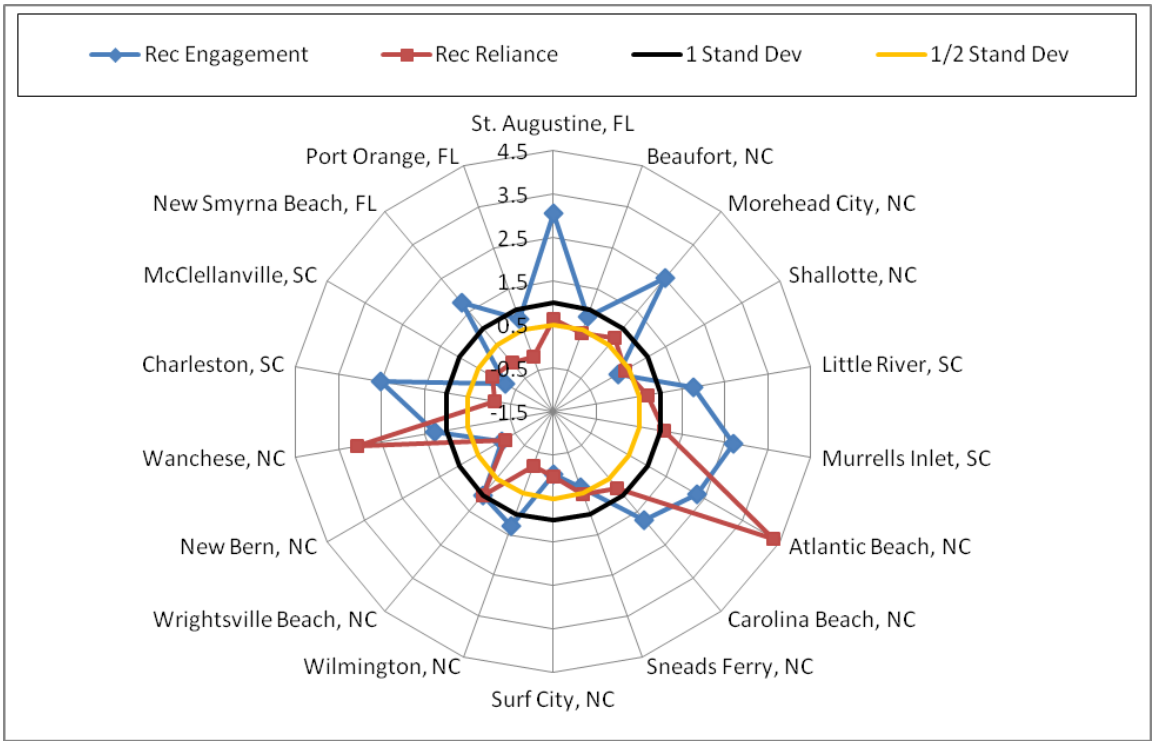


Figure 3.4.3. Recreational Fishing Engagement and Reliance for Vermilion Snapper and Red Porgy Fishing Communities. (Source: SERO).

With regard to recreational reliance, the communities of St. Augustine, Florida; Morehead City, Atlantic Beach, Sneads Ferry, Wrightsville Beach, and Wanchese, North Carolina; and Murrells Inlet, South Carolina have index scores above ½ standard deviation. Those communities that

exceed the engagement and reliance thresholds of 1 or ½ standard deviations would be likely more dependent upon recreational fishing among those communities evaluated.

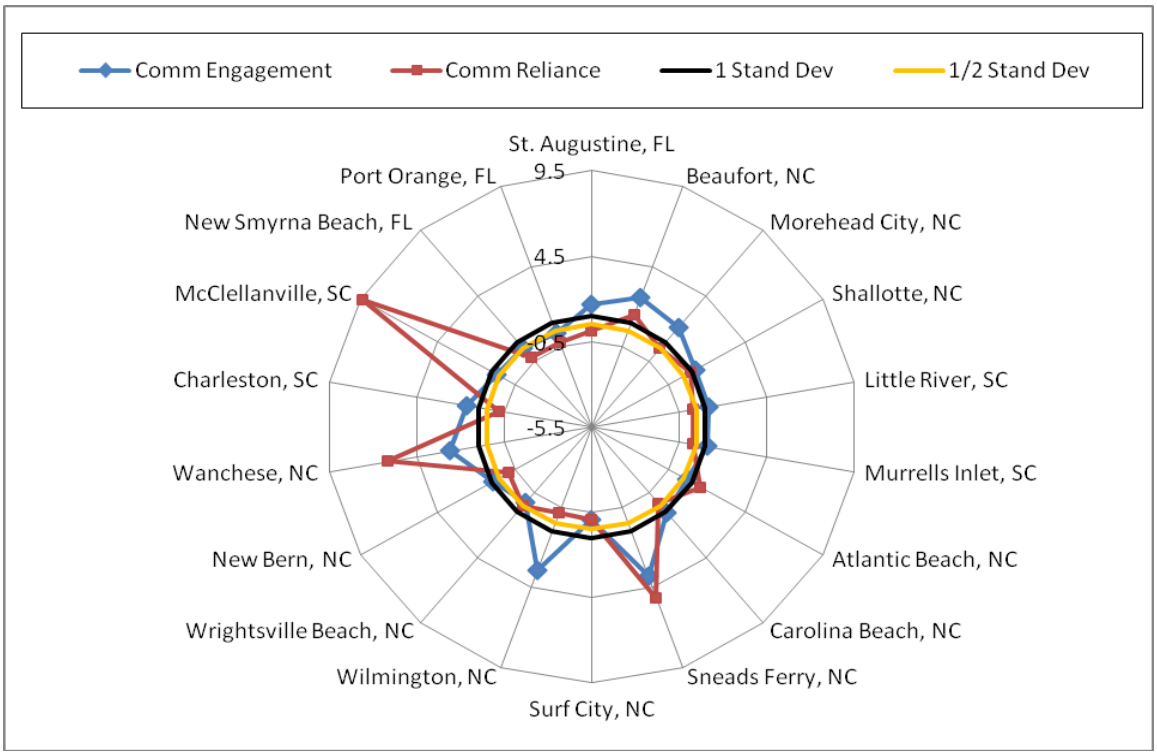


Figure 3.4.4. Commercial Fishing Engagement and Reliance for Vermilion Snapper and Red Porgy Fishing Communities. (Source: SERO).

With regard to commercial fishing, all communities with the exception of Surf City and Wrightsville Beach, North Carolina; and Port Orange, Florida exceed the threshold of ½ standard deviation for commercial fishing engagement (**Figure 3.4.4**). In terms of reliance, the communities of Beaufort, Morehead City, Shallotte, Atlantic Beach, Sneads Ferry, Wrightsville Beach, and Wanchese, North Carolina; and McClellanville, South Carolina are all above the ½ standard deviation threshold. Again, for those communities that are above the threshold for both commercial engagement and reliance, it may be assumed that they are more dependent upon commercial fishing.

The communities discussed here are those that have been identified as being engaged and reliant on commercial and recreational fishing and are those communities that have substantial landings of the species addressed in this amendment. While we lack the ability to specifically identify the impacts on businesses and vessels within these communities at this time, we have developed analyses that measure some of the social vulnerabilities these communities may be experiencing which are discussed below. The link between commercial and recreational fishing and these social vulnerabilities may not be direct, but we suggest that placing this fishing activity within a community and then recognizing the social vulnerabilities is the most comprehensive measure

we have at this time of how some communities may be more greatly affected by negative social effects than others.

3.4.4 Environmental Justice (EJ)

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

Commercial fishermen, recreational fishermen, and coastal communities would be expected to be impacted by the proposed action in the South Atlantic. However, information on the race and income status for many of these individuals involved in fishing is not available. Because the proposed action could be expected to impact fishermen and community members in several states within the South Atlantic, census data have been assessed to examine whether any coastal communities have poverty or minority rates that exceed thresholds for raising EJ concerns. The threshold for comparison used was 1.2 times the state average for the proportion of minorities and population living in poverty (EPA 1999). If the value for the community is greater than or equal to 1.2 times this average, then the community is considered an area of potential EJ concern. Census data from the American Community Survey for the year 2010 were used to calculate the percentages and thresholds.

Three communities exceed the poverty threshold (**Table 3.4.24**). There were no communities that exceeded the threshold for minorities.

Table 3.4.24. Communities Exceeding the Poverty and Minority Environmental Justice Thresholds for 2010.

Community	Percent in Poverty	State threshold	Percent Over threshold
St. Augustine, FL	21.1	16.56	4.54
New Bern, NC	24.1	18.6	5.5
Wilmington, NC	22.4	18.6	3.8

Source: SERO 2012.

Another suite of indices created to examine the social vulnerability of coastal communities is depicted in **Figure 3.4.5.** The three indices are poverty, population composition, and personal

disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of 5, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

As depicted in **Figure 3.4.5**, the communities of Beaufort, Morehead City, Carolina Beach, Surf City, Wilmington, New Bern, and Wanchese, North Carolina exceed the threshold of ½ standard deviation above the mean for at least one or more of the social vulnerability indices. It would be expected that these communities may exhibit vulnerabilities to social or economic disruption because of regulatory change. Those communities that exhibit several index scores exceeding the threshold would be the most vulnerable.

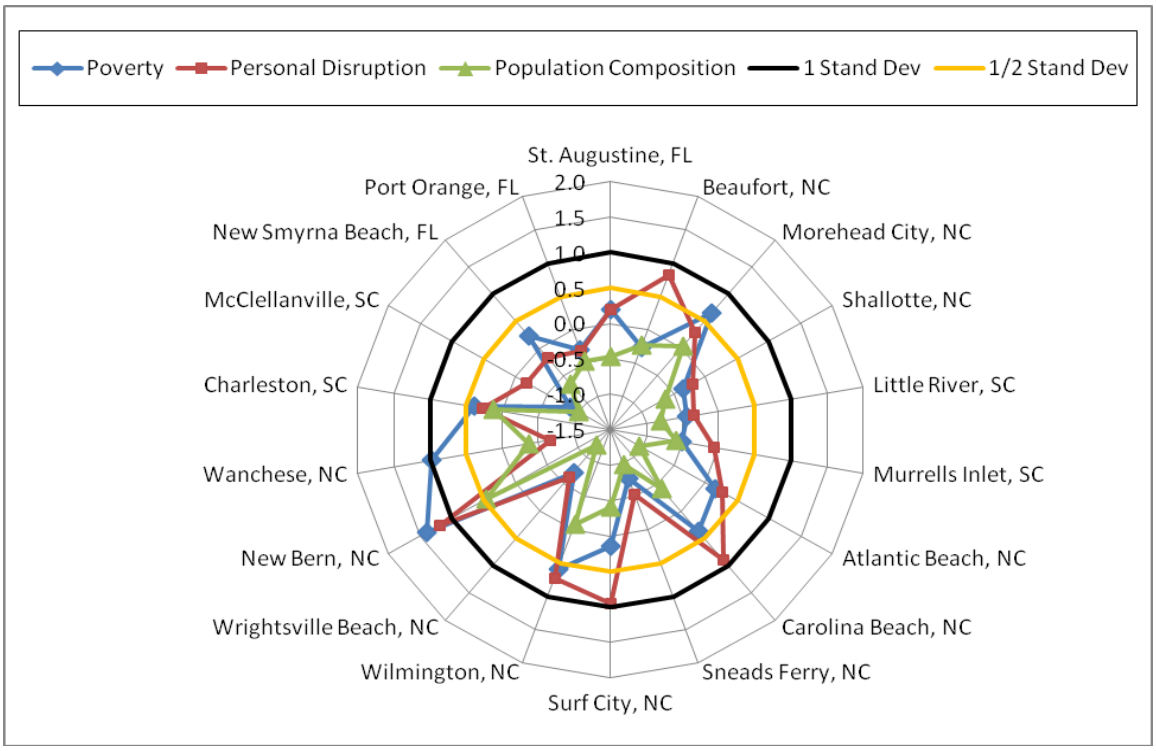


Figure 3.4.5. Social Vulnerability Indices for Vermilion Snapper Fishing Communities. (Source: SERO).

Although we have information concerning a community's overall status with regard to minority and poverty status, we do not have such information for individual fishermen. Therefore, we can only place our fishing activity within the community as a proxy for understanding the role that these types of vulnerability have on those affected by regulatory change. While subsistence fishing is also an activity affected by regulatory change, we have very little, if any, data on this activity at this time. We assume that the effects to other sectors will be similar to those that affect subsistence fishermen who may rely on vermilion snapper or red porgy. Because these are reef species, and likely would require a vessel to harvest, there may be few if any subsistence fishermen who rely on these species. However, crew on commercial vessels and some recreational fishermen may use vermilion snapper and red porgy as a source of food and subsistence.

3.5 Administrative Environment

3.5.1 The Fishery Management Process and Applicable Laws

3.5.1.1 Federal Fishery Management

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

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

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

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters, are open to the public. The South Atlantic Council uses its SSC to review the data and science being used in assessments and fishery management plans/amendments. In

addition, the regulatory process is in accordance with the Administrative Procedure Act, in the form of "notice and comment" rulemaking.

3.5.1.2 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environment and Natural Resources. The Marine Resources Division of the South Carolina Department of Natural Resources regulates South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Marine Fisheries Division of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida's marine fisheries. Each state fishery management agency has a designated seat on the 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 ASMFC in management of marine fisheries. This commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of consistent state regulations to conserve coastal species. The ASFMC is also represented at the South Atlantic Council level, but does not have voting authority at the South Atlantic Council level.

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

3.5.1.3 Enforcement

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

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

Administrative monetary penalties and permit sanctions are issued pursuant to the guidance found in the Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions for the NOAA Office of the General Counsel – Enforcement Section. This Policy is published at the Enforcement Section's website: http://www.gc.noaa.gov/enforce-office3.html .

Chapter 4. Environmental Consequences and Comparison of Alternatives

Whole Weight vs. Gutted Weight

Vermilion snapper are landed whole, and landings are recorded in whole weight (ww). The quota is specified in gutted weight (gw). Because all fish landed and sold were at one time whole and landings are recorded in whole weight, whole weight will be used as the unit of weight measurement for vermilion snapper throughout this document. Where appropriate, gutted weight (gw) and whole weight (ww) values will be given. The conversion factor to convert vermilion snapper poundage from ww to gw or vice versa is 1.11 (ww = gw *1.11 and gw = ww/1.11).

4.1 Action 1: Revise the Annual Catch Limit (ACL, including sector ACLs) and Optimum Yield (OY) for Vermilion Snapper.

Alternative 1 (No action). For vermilion snapper, retain the current ACLs and OY:

Current ACL = 1,066,000 lbs ww (yield at 75%F_{MSY}) = 960,361 lbs gw
Commercial ACL = 653,045 lbs gw (724,880 lbs ww)
(divided into 315,523 lbs gw from Jan-June and 302,523 lb gw July-Dec)
Recreational ACL = 307,316 lbs gw (341,121 lbs whole weight (ww))
Current OY = 1,635,000 lbs ww (1,472,973 lbs gw) (at equilibrium)

Note: These values are based upon the results of SEDAR 17 (SEDAR 17 2008); current acceptable biological catch (ABC) = 1,109,000 lbs ww total kill = 1,078,000 lbs ww landed catch (P*=0.275); allocation of 68% commercial and 32% recreational. The current maximum sustainable yield (MSY) = 1,665,000 lbs ww (at equilibrium).

The South Atlantic Fishery Management Council (South Atlantic Council) included an action in Amendment 16 to the Snapper Grouper FMP (Amendment 16)(SAFMC 2009a) to allow the Regional Administrator to make adjustments to vermilion snapper management measures based on the outcome of SEDAR 17 (SEDAR 17 2008). These adjustments were made in the final rule for Amendment 16.

The 2012 commercial ACL for January-June is reduced by 11,000 lbs gw for post quota bycatch mortality (PQBM) and July-December by 24,000 lbs gw PQBM. The PQBM adjustments were established in Amendment 16 (SAFMC 2009a) and were included in the adjustments made by the Regional Administrator.

Preferred Alternative 2. Revise ACL (including sector ACLs) for vermilion snapper for 2013 through 2016 as shown below and set ACL=ABC=OY. The acceptable biological catch (ABC) and ACL values for 2013 onwards are based on landed catch only; discards are accounted for in specifying the ABC in terms of landed catch and not total kill. The values for 2016 would remain until modified.

Note: The values for **Preferred Alternative 2** are shown in **Table 4.1.1**. The commercial allocation is 68% and the recreational allocation is 32%. The ABC declines over time because the stock is currently above the biomass at maximum sustainable yield (B_{MSY}), and the stock biomass will eventually decrease to the level that produces B_{MSY}.

Table 4.1.1. ABC/ACLs for 2013-2016 from the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule. Values are based on landed catch.

Year	ABC ww	Total ACL ww	Comm ACL ww	Rec ACL ww
2013	1,372,000	1,372,000	932,960	439,040
2014	1,312,000	1,312,000	892,160	419,840
2015	1,289,000	1,289,000	876,520	412,480
2016	1,269,000	1,269,000	862,920	406,080

Two Alternatives Considered

The National Marine Fisheries Service (NMFS) acknowledges there are two alternatives for this action. Section 1502.14(a) of the National Environmental Policy Act (NEPA) states that "agencies shall: rigorously explore and objectively evaluate all reasonable alternatives…" Two reasonable alternatives for this action, including the no action alternative, have been identified by NMFS and the South Atlantic Council. **Preferred Alternative 2** (ACL=ABC=OY) represents the accepted formula used for specifying ACLs for the majority of assessed species that are not overfished nor undergoing overfishing.

The Comprehensive ACL Amendment (SAFMC 2011b) established ACL=ABC=OY for the majority of species in the snapper grouper fishery management unit. This formula was also used for red grouper in Amendment 24 to the Snapper Grouper FMP (Amendment 24; SAFMC 2011d). These amendments considered alternatives that set ACL below the ABC; however, the South Atlantic Council chose as their preferred alternative ACL=ABC=OY. The South Atlantic Council and NMFS are not considering options beyond the two alternatives listed because: (1) setting ACL=ABC=OY was the preferred alternative in the Comprehensive ACL Amendment and Amendment 24; (2) monitoring efforts have improved significantly within the past year, which has reduced the likelihood that the commercial vermilion snapper ACL would be exceeded and overfishing would occur; (3) the South Atlantic Council has approved an amendment that, if implemented, would require dealers to report landings electronically once a week; and (4) recreational landings have remained well below the recreational vermilion snapper ACL since it was implemented through Amendment 17B to the Snapper Grouper FMP (Amendment 17B; SAFMC 2010b). Therefore, the South Atlantic Council and NMFS determined it is not reasonable to include additional alternatives that incorporate a buffer between the ABC and ACL.

Landings versus Quotas/ACLs

The landings of vermilion snapper are compared with quotas/ACLs in **Table 4.1.2**.

Table 4.1.2. Commercial and recreational landings (lbs gw) of vermilion snapper relative to quotas and ACLs for 2006-2013.

		Commercial	Commercial	Commercial	Commercial	Recreational	Recreational	Recreational	Recreational
Year	Months	Quota/ACL	Landings	Over/Under[1]	%Quota/ACL	ACL	Landings	Over/Under	%ACL
2006	Jan-Dec	1,100,000	765,537	334,463	70%	N/A	N/A	N/A	N/A
2007	Jan-Dec	1,100,000	972,528	127,472	88%	N/A	N/A	N/A	N/A
2008	Jan-Dec	1,100,000	1,102,204	-2,204	100%	N/A	N/A	N/A	N/A
2009	Jan-June	315,523	421,831	-106,308	134%	N/A	N/A	N/A	N/A
	July-Dec	302,523	406,166	-103,643	134%	N/A	N/A	N/A	N/A
2010	Jan-June	315,523	356,822	-41,299	113%	N/A	N/A	N/A	N/A
	July-Dec	302,523	520,060	-217,537	172%	N/A	N/A	N/A	N/A
2011	Jan-June	315,523	351,551	-36,028	111%	307,315	197,652	109,663	64%
	July-Dec	302,523	761,138	-458,615	252%				
2012	Jan-June	315,523	384,791	-69,268	122%	307,315	56,031	251,284	18%
	July-Dec	302,523	490,938	-188,415	162%				
2013	Jan-June	315,523	286,874	28,649	91%	307,315	0	307,315	0%
	July-Dec	302,523	N/A	N/A	N/A				

Source: Recreational data are from the Southeast Regional Office Website (2-5-13). Commercial landings are from the SEFSC accumulated landings system (2006-2011) and the commercial landings system (2012-2013)
Note 1: Overages are shown as negative numbers.
Note: Recreational landings are incomplete for 2012 and 2013. Commercial landings for 2013 are through March 26, 2013 and include landings received after the closure on February 13, 2013. Commercial harvest of vermilion snapper was closed on February 13, 2013. A November-March recreational season closure is in place for vermilion snapper. A conversion factor of 1.11 is used to convert whole weight to gutted weight.

4.1.1 Biological Effects

Amendment 16 (SAFMC 2009a) established formulas for defining MSY and OY for vermilion snapper. MSY equals the yield produced by F_{MSY} when the stock is at equilibrium. MSY and F_{MSY} are defined by the most recent Southeast Data, Assessment, and Review (SEDAR) assessment. OY is the average yield associated with fishing at 75% of F_{MSY} and the stock is at equilibrium.

If the current definition of OY is maintained under this action (**Alternative 1 (No Action**), the value for OY would be greater than the ABC recommended by the South Atlantic Council's Scientific and Statistical Committee (SSC). Since the catch level recommendation of a SSC cannot be exceeded, OY could not be achieved under **Alternative 1 (No Action)**, which is contrary to National Standard 1 guidance. Amendment 16 also established the current split season commercial quotas, a November-March recreational closure, and a reduction in the vermilion snapper bag limit to 5 fish per person per day. Amendment 17B (SAFMC 2010b) specified all harvest parameters required under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) National Standard 1 guidelines for vermilion snapper including an ABC, sector ACLs, and commercial and recreational accountability measures (AMs). The current values for vermilion snapper ABC, and sector ACLs are included under **Alternative 1 (No Action)**.

MSY for Vermilion Snapper

Amendment 16 (SAFMC 2009a) specified a formula for MSY for vermilion snapper, which is the yield at F_{MSY} and is defined by the most recent SEDAR stock assessment. Because an assessment update was recently completed for vermilion snapper (SEDAR 17 Update 2012), a new value for MSY is specified in this amendment using the established MSY formula from Amendment 16 and does not require any action by the South Atlantic Council. Based on the results of the stock assessment update, the new values for MSY and F_{MSY} appear in **Table 4.1.3**.

Table 4.1.3. Current and proposed values for MSY and FMSY for vermilion snapper.

Management Reference Point	Current Value (Alternative 1 (No Action)) (SEDAR 17 2008)	Proposed New Value (SEDAR 17 Update 2012)
MSY	1,665,000 lbs ww	1,563,000 lbs ww
F_{MSY}	0.386	0.75

As with updating the ACLs, updating the MSY value for vermilion snapper according to the outcome of the 2012 SDEAR 17 Update would result in a more accurate reference point that is based on data, which incorporates the most recent harvest information for the stock.

ABC Values for Vermilion Snapper

The Comprehensive ACL Amendment (SAFMC 2011b) established an ABC control rule for assessed snapper grouper species (See **Table 4.1.4**). In accordance with National Standard 1

guidelines, the control rule takes into account scientific and data uncertainty that may exist for certain species managed within the snapper grouper fishery management unit (FMU).

Table 4.1.4. The South Atlantic Council's SSC's ABC Control Rule.
Note: The ABC control rule provides a hierarchy of dimensions and tiers within dimensions used to characterize uncertainty associated with stock assessments in the South Atlantic. Parenthetical values indicate (1) the maximum adjustment value for a dimension; and (2) the adjustment values for each tier within a dimension (SAFMC 2011b).

Level 1 – Assessed Stocks	
Tier	**Tier Classification and Methodology to Compute ABC**
1. Assessment Information (10%)	1. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%) 2. Reliable measures of exploitation or biomass; no MSY benchmarks, proxy reference points. (2.5%) 3. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%) 4. Reliable catch history. (7.5%) 5. Scarce or unreliable catch records. (10%)
2. Uncertainty Characterization (10%)	1. Complete. Key Determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%) 2. High. Key Determinant – reflects more than just uncertainty in future recruitment. (2.5%) 3. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%) 4. Low. Distributions of F_{MSY} and MSY are lacking. (7.5%) 5. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%)
3. Stock Status (10%)	1. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%) 2. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%) 3. Stock is either overfished or overfishing. (5%) 4. Stock is both overfished and overfishing. (7.5%) 5. Either status criterion is unknown. (10%)
4. Productivity and Susceptibility – Risk Analysis (10%)	1. Low risk. High productivity, low vulnerability, low susceptibility. (0%) 2. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%) 3. High risk. Low productivity, high vulnerability, high susceptibility. (10%)
Level 2 - Unassessed Stocks. Reliable landings and life history information available	
	OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA). ABC derived from applying the assessed stocks rule to determine adjustment factor if possible, or from expert judgment if not possible.
Level 3 - Unassessed Stocks. Inadequate data to support DBSRA	
	ABC derived directly, from "Depletion-Corrected Average Catch" (DCAC). Done when only a limited number of years of catch data for a fishery are available. Requires a higher level of "informed expert judgment" than Level 2.
Level 4 - Unassessed Stocks. Inadequate data to support DCAC or DBSRA	
	OFL and ABC derived on a case-by-case basis. ORCS ad hoc group is currently working on what to do when not enough data exist to perform DCAC.

The South Atlantic Council's SSC reviewed the 2012 assessment update for vermilion snapper in October 2012. The SSC is the responsible entity for recommending an ABC for managed species. Section 600.310(b)(2)(v)(B) of the National Standard 1 guidelines state that "each SSC shall provide its Regional Fishery Management Council recommendations for ABC as well as other scientific advice, as described in Magnuson-Stevens Act section 302(g)(1)(B)." Therefore, after reviewing the stock assessment update, the SSC applied the control rule for assessed species (**Table 4.1.4**) and revised the P* recommendation to 40% (increased from P*=0.275), which resulted in the ABC values included in **Table 4.1.1**. Because the ABC is recommended by the SSC based on the approved ABC control rule and was accepted by the South Atlantic Council at their December 2012 meeting, no alternatives are presented for choosing an ABC. The ABC is an established value (or a series of annually adjusted values in this case) from which other management references points such as the ACL, and annual catch target (ACT) are based.

Assessment Update

Vermilion snapper is not overfished or undergoing overfishing according to the 2012 stock assessment update. The ABC, ACL, OY, and MSY levels currently in place (**Alternative 1 (No Action)**) are based on a time series of data used in SEDAR 17 (SEDAR 17 2008), which included information through 2007. Since the 2008 assessment was completed, several recently implemented management measures have significantly modified how the vermilion snapper component of the snapper grouper fishery is prosecuted. These management measures include a 1,500 lb gw (1,665 lb ww) trip limit, a split season quota for the commercial sector, a five-month recreational seasonal closure, and a prohibition on retention of the species by the captain and crew on a for-hire vessel. Therefore, the data added to the most recent stock assessment update provided information reflective of the way the vermilion snapper component of the snapper grouper fishery is currently prosecuted. The South Atlantic Council has determined that it is appropriate at this time to update management reference points and management measures for vermilion snapper through Regulatory Amendment 18.

For the 2012 stock assessment update, the SSC recommended using the estimated MSY value (i.e., not an MSY proxy) for the overfishing limit (OFL). The SSC's recommendation of ABC was based on their application of the approved ABC control rule, which accounts for dead discards, scientific and data uncertainty, and other characteristics of the stock such as vulnerability to overfishing. The SSC also recommended a 5-year projection at a P* = 40% for the ABC. P* is an uncertainty buffer, or difference between OFL and ABC, and is expressed in terms of a reduction in the probability of overfishing. The adjustment score for P* is provided by the tiers and dimensions in **Table 4.1.4**. It is important to note that the 2012 quota for vermilion snapper (**Alternative 1 (No Action)**) was adjusted for PQBM because more restrictive management measures were implemented through Amendment 16 that would increase bycatch above what was taken into consideration by the SEDAR 17 assessment. That is not the case for the new ACLs being proposed in Regulatory Amendment 18; therefore, no reduction of the split season ACLs for PQBM purposes is needed.

The new ABC recommendation and subsequent proposed annual ACLs are based on biologically sound principals and an ABC control rule accepted by the SSC and the South Atlantic Council. As the new ABC recommended by the SSC is larger than the ABC from SEDAR 17 (SEDAR 17 2008), a corresponding increase in the ACLs may be justified.

Biological Impacts of Action Alternatives

Alternative 1 (No Action) would maintain the current harvest limit (the total ACL), which would cap total harvest at 1,066,000 lbs ww until modified. **Preferred Alternative 2** would result in the total ACL increasing to 1,372,000 lbs ww in 2013 and then decreasing slightly each year through 2016 when the total ACL would be 1,269,000 lbs ww. Because **Alternative 1 (No Action)** would constrain harvest to a lower level than **Preferred Alternative 2**, the biological benefits under **Alternative 1 (No Action)** would be expected to be greater than **Preferred Alternative 2**. However, the 2012 stock assessment update indicated vermilion snapper is no longer undergoing overfishing, and the SSC has increased the ABC; therefore, there is no biological need to constrain harvest at a level lower than that determined to be appropriate by the SSC.

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

The long-term objective is to achieve OY through annual achievement of an ACL or ACT. **Alternative 1 (No Action)** set OY = to the yield at 75%F_{MSY} when the stock is at equilibrium. The yield at 75%F_{MSY} from the SEDAR 17 assessment update is 1,551,000 lbs ww, which is greater than the ABC recommended by the South Atlantic Council's SSC. The National Standard 1 guidelines do not allow the ACL to exceed the recommended ABC. Therefore, OY could not be achieved under **Alternative 1 (No Action)**, which is contrary to National Standard 1. Modifying the definition of OY to be equal to ABC and the ACL (**Preferred Alternative 2**) would provide greater assurance that OY is achieved, overfishing is prevented, and the long-term average biomass is near or above B_{MSY}.

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

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

If the ACL is exceeded more than once over the course of four years, the South Atlantic Council would reassess the system of ACLs and AMs for the species. Amendment 17B (SAFMC 2010b) updated the Framework Procedure for the Snapper Grouper FMP to allow OFL, ABC, ACLs, AMs, and ACTs to be modified via framework amendment, which requires less time to implement compared to an FMP amendment.

The current recreational AM provides that if vermilion snapper are overfished and the recreational ACL is reached, the recreational harvest and possession of vermilion snapper will be prohibited. Without regard to overfished status, if vermilion snapper recreational landings exceed the ACL, the ACL for the next fishing year will be reduced by the amount of the overage. The South Atlantic Council is taking action in a future amendment to enhance the effectiveness of the recreational AM for vermilion snapper.

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

Additionally, the Southeast Fisheries Science Center (SEFSC) worked with SERO, the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council), and South Atlantic Council to develop a Joint Dealer Reporting Amendment, which approved by both Councils and submitted for formal review in October 2012. The Joint Dealer Reporting Amendment would increase required reporting frequency for dealers to once per week, and require a single dealer permit for all finfish dealers in the Southeast Region. The CLM and the new dealer reporting requirements constitute major improvements to how commercial fisheries are monitored, and go far beyond monitoring efforts that were in place when the National Standard 1 guidelines were developed. The new CLM quota monitoring system and actions in the Joint Generic Dealer Reporting amendment are expected to provide more timely and accurate data reporting and would thus reduce the incidence of quota overages.

Since Amendment 17B (SAFMC 2011b) was implemented in 2011, recreational vermilion snapper landings have been far below the recreational ACL. Harvest monitoring efforts in the recreational sector are also in the process of being improved. In early 2013, a new headboat electronic reporting system came online and headboats may report their landings electronically rather than through paper logbooks. Additionally, the Gulf of Mexico and South Atlantic Councils are developing generic amendments that would require all headboats to report their

landings using the new electronic reporting system, and increase the reporting frequency. The SEFSC is also developing an electronic reporting system for charter boats operating the Southeast Region. Once the charterboat reporting system is close to being finalized, the Gulf of Mexico and South Atlantic Councils would develop a joint amendment that would require electronic reporting for charterboats with a set reporting frequency. These recreational harvest-monitoring efforts could substantially increase the accuracy and timeliness of in-season reporting and reduce the risk of recreational ACL overages, which would be biologically beneficial for the vermilion snapper stock. Therefore, there is a low risk of exceeding the increased ACL and **Preferred Alternative 2** can be used as part of a successful harvest management system for vermilion snapper with little risk of overfishing.

Alternative 1 (No Action) and **Preferred Alternative 2** are unlikely to result in any direct adverse impacts on protected species such as endangered or threatened whales, sea turtles, corals, or protected habitat areas of particular concern (HAPCs). Although **Preferred Alternative 2** would increase the ACL from the status quo, this option would not change current fishing practices for vermilion snapper. An increase the ACL would increase fishing opportunities for vermilion snapper during each of the commercial fishing seasons, and during the recreational fishing season without negatively impacting the vermilion snapper stock. Total harvest would be restrained by the commercial and recreational ACLs, and AMs would still be used to help prevent overfishing. It is unlikely either alternative would result in significantly increased fishing effort in the snapper grouper fishery; therefore, no adverse biological impacts on protected species or HAPCs is expected under this action.

4.1.2 Economic Effects

Commercial

Preferred Alternative 2, which provides for a higher ACL, would be expected to constrain fishing activities the least. In principle, **Preferred Alternative 2** would allow the commercial fishing sector to generate the largest short-term economic benefits from the use of the resource.

Compared to the 2012 commercial sector ACL **(**724,880 lb ww), the change to 932,960 lb ww in **Preferred Alternative 2** represents an increase of 29% for 2013. Between 2013 and 2016, the size of the increase over the 2012 commercial ACL gets smaller as the stock returns to SSB_{MSY} allowing a commercial sector ACL in 2016 of 862,920 lb ww (**Table 4.1.1**). Nonetheless, the commercial sector ACL in 2016 is 19% higher than in 2012. It is expected that the two commercial vermilion snapper half seasons would be extended by implementation of **Preferred Alternative 2**; however, during 2013 the entire commercial increase would be added to the second season. Because the commercial ACL has been met quickly each season, it is expected that the increased commercial ACL will be landed. The increase of 247,122 lb ww in the commercial ACL from 2012 to 2013 will result in an additional $817,974 in ex-vessel value based on the average price per pound of $3.31 (2011 dollars; **Table 3.4.8**). As the commercial ACL decreases to the 2016 level, the size of the increase will be reduced to 138,040 lb ww over 2012, resulting in an additional $456,912 annual ex-vessel value over 2012.

There exist certain issues which could affect the magnitude of economic benefits from higher ACLs to be gained from **Preferred Alternative 2** compared to **Alternative 1 (No Action)**, particularly in conjunction with other modifications to vermilion snapper management such as commercial trip limits (Action 2) and modification of fishing seasons (Action 3 and Action 4).

Recreational

The methodology employed to evaluate the economic effects of this amendment on the recreational sector follows the methodology used in assessing the economic effects of previous amendments, such as the Comprehensive ACL Amendment (SAFMC 2011b), Amendment 17A (SAFMC 2011d), and Regulatory Amendment 10 (SAFMC 2011e). Detailed discussion of the methodology is in those amendments and is incorporated herein by reference. A general description of this methodology is provided below.

The procedure for calculating the economic effects on the recreational sector involves estimating the expected changes in consumer surplus (CS) to anglers and net operating revenues (NOR) to for-hire vessels. Consumer surplus is the amount of money that an angler would be willing-to-pay for a fishing trip over and above the cost of the trip. For the current purpose, the CS value used is $76.98 (2011 dollars) per harvested fish (Carter and Liese 2012). Net operating revenue is total revenue less operating costs, such as fuel, ice, bait, and other supplies. For the current purpose, the NOR values used are $157.27 (2011 dollars) per angler trip for charter boats and $70.25 (2011 dollars) per angler trip for headboats (David Carter, NMFS SEFSC, personal communication, 2009).

There are some general key assumptions that need to be recognized at the outset. The CS used pertains to the net benefit an angler derives from an additional red snapper kept on a fishing trip. There is a good possibility that, on average, red snapper is valued higher than vermilion snapper based on the number of target trips for these species. Using this CS value would then tend to overestimate the economic effects of this amendment. Also, this CS value is assumed to be uniform across all fishing sectors, areas, and harvest levels. This may not necessarily be the case. Headboat anglers may value vermilion snapper differently, on average, than private and charter boat anglers. The direction and magnitude of such difference are unknown, though the higher cost of fishing to charter boat anglers suggests the CS to headboat anglers would be less than that to charter boat anglers. It is also possible that CS values vary across geographic areas. No adjustments for these possibilities were introduced in the current analysis. It should also be noted that using an average recreational value per fish would not take into account diminishing returns exhibited in most recreational activities when the volume of the activity increases. This could very well lead to overestimation of CS effects. The NOR values used in the current analysis are based on a study of the North Carolina recreational fishery (Dumas et al. 2009). Although North Carolina is a major participant in the recreational harvest of vermilion snapper, South Carolina and Northeast Florida showed higher recreational harvest of vermilion snapper for 2007-2011. It is possible that NOR values could vary by state, but no adjustments are made here in the absence of relevant information.

Compared to the 2012 recreational sector ACL **(**341,121 lb ww), the change to 439,040 lb ww in **Preferred Alternative 2** represents an increase of 29% for 2013. Between 2013 and 2016, the size of the increase over the 2012 recreational ACL gets smaller as the stock returns to SSB_{MSY}

allowing a recreational sector ACL in 2016 of 406,080 lb ww (**Table 4.1.1**) which is 19% higher than in 2012. The recreational sector has not been landing its ACL. Action 4, to modify or remove the recreational November through March seasonal closure, may help the recreational sector land more of its ACL in future years.

Relative to **Alternative 1** (**No Action**), **Preferred Alternative 2** would provide higher ACLs in 2013 and subsequent years. In principle, higher ACLs would be expected to result in CS and NOR increases. As long as harvest increases, CS would also increase, and given the 2007-2011 landings of vermilion snapper by the recreational sector, it is very likely that recreational landings would increase with higher ACLs. Even though recreational landings of vermilion snapper fell in more recent years (2009-2011) partly due to regulatory restrictions, the sector still averaged (2007-2011) about 488,000 lb ww of vermilion snapper landings. This is higher than any of the ACLs under **Preferred Alternative 2**. However, the average (2010-2011) landing of about 253,000 lb ww is markedly lower than any of the ACLs under **Preferred Alternative 2**. One strong reason for these very low landing in the last two years is the November-March recreational seasonal closure for vermilion snapper. Removing this seasonal closure, which the South Atlantic Council is proposing in Action 4, would open possibilities for the recreational sector to reach its 2007-2011 average landing of vermilion snapper. Although it is likely that landing of vermilion snapper, and thereby CS, under **Preferred Alternative 2** would increase, the amount of such an increase cannot be predicted. Certain assumptions are made here and in **Section 4.4.2** to arrive at some estimates of landings and CS increases over time.

The case with NOR increases due to increases in ACLs is slightly different from that with CS. Using the methodology described above, NOR would increase only if angler trips increased. Changes in management regulations affecting the recreational harvest of vermilion snapper, such as the elimination of the seasonal closure in the recreational harvest of vermilion snapper, would allow increases in for-hire angler trips and thus in NOR. It is possible that harvests of vermilion snapper from regulatory changes would not exceed the current ACL of **Alternative 1 (No Action)**. In that case, NOR increases from increased angler trips may be associated solely with the change in management regulations and not with the ACL increases. Only those angler trips that would push the recreational harvest of vermilion snapper above the ACL of **Alternative 1 (No Action)** may be considered to result in NOR increases attributable to ACL increases. NOR increases will be explored in Section 4.4.2. For this section, only potential changes in CS are estimated.

For this section's purpose, CS changes are estimated using the following key assumptions in addition to the ones mentioned above. First, the annual recreational ACLs for 2013-2016 would be fully taken without resulting in overages. Second, the ACLs in lbs ww are allocated to headboats, charter boats, and private/rental mode based on the 2007-2011 average proportional landings of these sectors. Although the CS per fish is assumed to be uniform across fishing modes, this allocation of the recreational ACLs among the three sectors is undertaken to provide some insights into the potential distribution of CS changes by mode. Third, the allocated ACLs in pounds are converted to number of fish using the 2007-2011 average weight of vermilion snapper in the headboat and other segments of the recreational sector. The average weights, based on SEDAR 17 assessment update, are 1.23 lb ww for headboats and 1.28 lb ww for the

charter boats and private/rental mode. For comparative purposes, 7%, 5%, and 3% discount rates are used.

The economic effects, in terms of CS changes, of **Preferred Alternative 2** relative to **Alternative 1 (No Action)** are summarized in **Table 4.1.5**. Note that the baseline is the recreational ACL under **Alternative 1 (No Action)**, which is 341,121 lb ww. Because of several restrictions imposed on the snapper grouper fishery and particularly the November-March seasonal closure in the recreational harvest of vermilion snapper implemented in 2009, recreational landings of vermilion snapper have been relatively low in the last few years. Relative to more recent recreational landings of vermilion snapper, the potential economic benefits from increasing the ACL would be larger than those shown in **Table 4.1.5**. Naturally, this conclusion relies on the validity of the assumptions noted above, foremost of which are the CS value per fish and the ability of the recreational sector to harvest the full ACL over time. The ability of the recreational sector to harvest the full ACL partly depends on the restrictions imposed on the sector. The impacts of eliminating the vermilion snapper November-March recreational closure are analyzed in **Section 4.4.2**.

Increasing the ACL would increase consumer surplus by about $16.5 million (2011 dollars) over the period 2013-2016using a 7% discount rate. The effects of using different discounting rates appear to be minimal. Most of these effects would go to headboat anglers because the shares of anglers in other fishing modes are substantially lower. In fact, the combined effects on charter and private/rental mode anglers are less than half of those for headboat anglers.

Table 4.1.5. Changes in landings (lb ww) and consumer surplus (CS) due to **Preferred Alternative 2** relative to **Alternative 1 (No Action)**. CS are in $1,000 (2011 dollars) using 7%, 5%, and 3% discount rates.

Fishing Mode	Change in Landings (lb ww)				Present Value of Changes in CS over 2013-2016 ($1,000 in 2011 dollars)		
	2013	2014	2015	2016	7%	5%	3%
Charter	16,418	13,199	11,965	10,892	$2,698	$2,815	$2,942
Headboat	60,111	48,324	43,806	39,877	$10,271	$10,718	$11,198
Priv./Rent.	21,390	17,196	15,588	14,190	$3,515	$3,668	$3,833
TOTAL	97,919	78,719	71,359	64,959	$16,484	$17,201	$17,972

4.1.3 Social Effects

Changes in the ACL for any stock will not directly affect resource users unless the ACL is met or exceeded, in which case AMs that restrict or close harvest could negatively impact the commercial fleet, for-hire fleet, and private anglers. In general, the higher the ACL, the greater the short-term social and economic benefits that would be expected to accrue, assuming long-term recovery and rebuilding goals are met. Adhering to stock recovery and rebuilding goals is assumed to result in net long-term positive social and economic benefits. Additionally, adjustments in an ACL based on updated information from a stock assessment would be the most beneficial in the long term to fishermen and communities because catch limits would be based on the current conditions.

Currently the vermilion snapper commercial sector exists under derby conditions, in which the split quota is met and sometimes exceeded in just a few weeks. In addition to concerns about safety at sea that arise from the race to fish, the derby periods result in a large amount of vermilion snapper on the market in a very short period. This may cause reduced market value and lower product quality, and the bust-and-boom nature of the commercial vermilion snapper component of the snapper grouper fishery may hinder business stability and steady job opportunities for captain and crew.

Figure 3.4.1 in **Section 3.4.3** shows the communities that would likely be affected by changes in the vermilion snapper ACL. The primary North Carolina communities that would likely most be affected on the commercial sector side include Winnabow and Shallotte in Brunswick County, and Beaufort and Morehead City in Carteret County. Murrell's Inlet (Georgetown County), Little River (Horry County), and Charleston and McClellanville in Charleston County would be most likely to experience any positive or negative impacts related to the vermilion ACL in South Carolina. In Florida, primary communities include Mayport (Duval County) and St. Augustine (St. Johns County).

Because the ACL would not be adjusted to reflect new information and outcomes from the recent stock assessment update, **Alternative 1 (No Action)** would not result in any social benefits expected from incorporating more accurate and up-to-date information into setting catch limits. **Preferred Alternative 2** would be expected to be more beneficial to the fleet, private anglers, and other resource users because the new information better reflects current conditions with the vermilion stock.

In general, a higher ACL would be more beneficial to commercial and recreational fishermen as long as it is set to prevent overfishing. The increase in the vermilion ACL under **Preferred Alternative 2** would be expected to improve harvest opportunities and extend the seasons for the commercial fleet in particular if the increased commercial ACL is combined with measures such as reduced trip limits in Action 2. Because the recreational sector has not recently met the recreational ACL, the increased ACL under **Preferred Alternative 2** is not expected to affect recreational anglers or for-hire businesses that catch vermilion snapper.

4.1.4 Administrative Effects

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

4.2 Action 2: Modify the commercial trip limit for vermilion snapper.

Alternative 1 (No Action). The current commercial trip limit is 1,500 lbs gw (1,665 lbs ww).

Alternative 2. Reduce the commercial trip limit for vermilion snapper to 1,000 lbs gw (1,110 lbs ww).

Preferred Alternative 3. Reduce the commercial trip limit for vermilion snapper to 1,000 lbs gw (1,110 lbs ww). When 75% of the commercial ACL has been met or projected to be met, reduce the commercial trip limit to 500 lbs gw (555 lbs ww).

4.2.1 Biological Effects

Regulatory Amendment 9 to the Snapper Grouper FMP (SAFMC 2011a) (Regulatory Amendment 9) implemented a 1,500 lb gw (1,665 lb ww) commercial trip limit for vermilion snapper. During development of Regulatory Amendment 9, the South Atlantic Council also considered a trip limit step-down provision, whereby the trip limit would decrease when a certain level of harvest was reached. The 1,665 lb ww trip limit implemented in 2011 resulted in the commercial sector for vermilion snapper being closed February 29, 2012, for the first split season, and September 28, 2012, for the second of the two split seasons. In 2011, the commercial sector was closed March 10, 2011, during the first split season, and on September 30, 2011, for the second split season. Therefore, fishing opportunities during both split seasons were not extended further into each of the two fishing season through the implementation of the 1,665 lb ww trip limit. In 2012, the fishing seasons actually ended slightly earlier than during 2011.

Under **Alternative 1 (No Action)** it is reasonable to assume that commercial fishing opportunities for vermilion snapper in the South Atlantic would be similar to 2011 and 2012. With an increase in the commercial ACL (Action 1), it is possible the fishing season could be extended somewhat from 2012.

Pounds of vermilion snapper caught per trip from 2010 through 2012 are shown in **Figure 4.2.1** (NMFS 2013a). In 2012, with a 1,500 lbs gw (1,665 lb ww) trip limit in place, 17 of the 1,248 trips reported landings in excess of the 1,500 lbs gw (1,665 lb ww) trip limit. These 17 trips ranged from 1,669 to 1,966 lbs ww (1,504 to 1,771 lbs gw). Therefore, even with an increased ACL under Action 1, maintaining the current trip limit would have little biological effect. To constrain harvest, AMs would be implemented when the ACL is met or expected to be met.

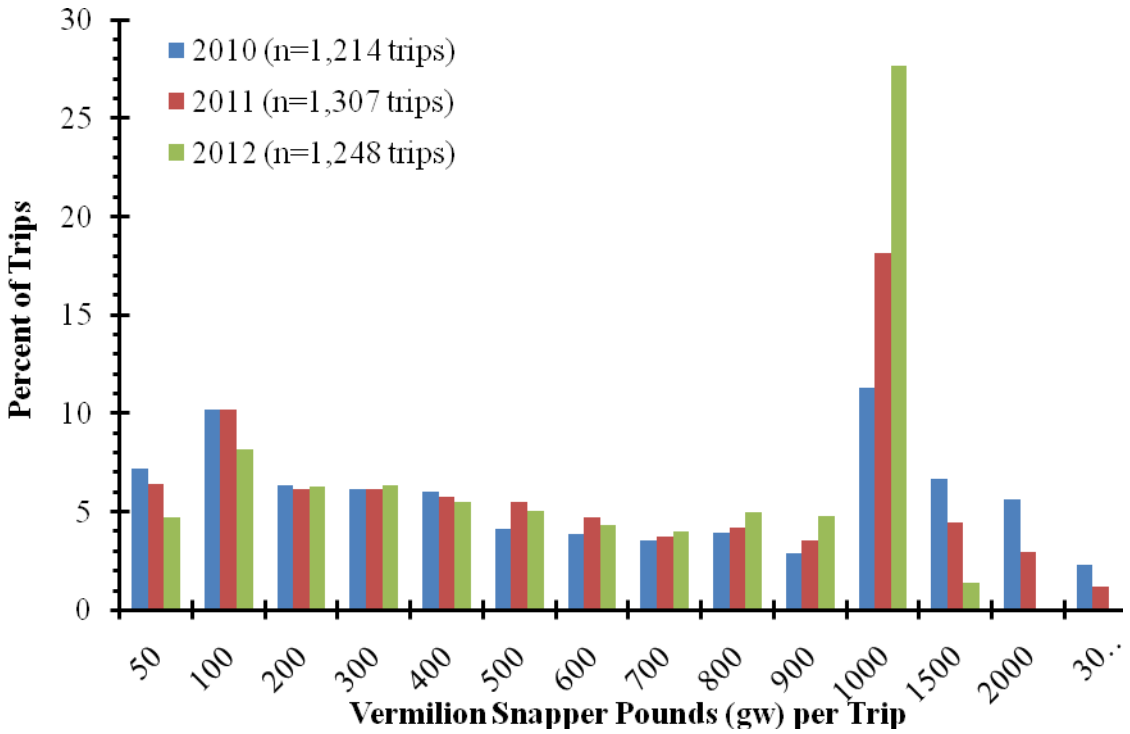


Figure 4.2.1. Distribution of South Atlantic vermilion snapper pounds per trip for the commercial landings in 2010, 2011, and 2012. Source: NMFS 2012.

National Standard 1 includes performance measures for ACLs. Section 600.310(g)(3) of the National Standard Guidelines states: "If catch exceeds the ACL for a given stock or stock complex more than once in the last four years, the system of ACLs and AMs should be re-evaluated, and modified if necessary, to improve its performance and effectiveness." Therefore, if the South Atlantic Council were to choose **Alternative 1 (No Action)**, and the split season ACLs are repeatedly exceeded, the entire system of ACLs and AMs for vermilion snapper would need to be reexamined and modified to prevent future ACL overages. Amendment 17B updated the Framework Procedure for the Snapper Grouper FMP to allow changes to ACLs, ACTs, and AMs via framework amendments, which require less time to implement than typical FMP amendments. If at any time, the South Atlantic Council deems it necessary to modify the system of ACLs and AMs, those changes can be executed expeditiously.

AMs for vermilion snapper will be re-examined in a future amendment to the FMP. Currently, the commercial AM for vermilion snapper is to prohibit commercial harvest of the species when the split season ACLs are met or projected to be met with no payback provision if the ACL is exceeded. It is the South Atlantic Council's intent to modify the commercial AM for vermilion snapper to reduce the risk of repeated ACL overages. At their December 2012 meeting, the South Atlantic Council voted to only consider vermilion snapper-related actions that would modify the ACL, trip limit, recreational seasonal closure, and commercial fishing seasons in Regulatory Amendment 18.

Alternative 2 would reduce the vermilion commercial trip limit to 1,000 lbs gw (1,110 lbs ww), which represents a 500 lb gw reduction from the current trip limit. A reduced trip limit could extend fishing opportunities for vermilion snapper farther into the commercial fishing seasons. If the commercial trip limit were reduced to 1,000 lbs gw (1,110 lbs ww), the estimated reduction in harvest during months of January and February would be 16.6% and 12.9%, respectively. The estimated reduction in harvest during July, August, and September are 12.4%, 11.8%, and 17.3%, respectively (NMFS 2013a).

To estimate when the first of the two split seasons (January-June) would close under a 1,000 lbs gw (1,110 lbs ww) trip limit, logbook and quota monitoring landings data for 2012 were used. However, because logbook landings for 2012 are incomplete, monthly logbook landings were scaled up to equal monthly quota monitoring landings. Only January and February had landings for the first part of the 2012 commercial season because commercial harvest of vermilion snapper closed on February 29, 2012. Because vermilion snapper commercial harvest was closed from March to June in 2012, two different scenarios were used to predict landings during closed months. The first scenario assumed landings per day in March-June were the same as January 2012 landings (7,062 pounds gw/day). The second scenario assumed landings per day in March-June were the same as February 2012 landings (5,636 pounds gw/day) (NMFS 2013a). The results of this analysis indicated the increased commercial ACL proposed in Preferred Alternative 2, Action 1 for the first split season would be met between March 17 and March 21 under the 1,000 lbs gw (1,110 lbs ww) trip limit (**Table 4.2.1**).

Under **Alternative 1 (No Action)**, it is expected that the new ACL proposed in Action 1 would be met between March 5-6 (**Table 4.2.1**). Thus, the trip limit proposed in **Alternative 2** would be expected to extend the first fishing season by about two weeks. With the increased ACL proposed in Action 1, Preferred Alternative 2, it is estimated the second commercial fishing season (July-December) would close around October 2-4 under the 1,000 lbs gw (1,110 lbs ww) trip limit (NMFS 2013a). Under the trip limit in **Alternative 1 (No Action)**, it is expected the ACL would be met on September 21. Thus, the 1,000 lbs gw (1,110 lbs ww) trip limit proposed in **Alternative 2** would also be expected to extend the second fishing season by about two weeks.

Table 4.2.1. Past and predicted closure dates for 2010, 2011, 2012, and under **Alternatives 1** and **2** with the increased ACL proposed in Action 1.

Year	Season 1 (January – June)	Season 2 (July – December)
2009	N/A*	September 4
2010	March 19	October 6
2011	March 10**	September 20
2012	February 29***	September 28***
Predicted Closure Dates Under **Alternative 1**	March 5-6	September 21
Predicted Closure Dates Under **Alternative 2**	March 17-21	October 2-4

*Amendment 16 was not implemented until July 2012. Therefore, there was no January – June split season in 2009.
**The first commercial fishing season was re-opened for one week (May 1 – May 8, 2011) because the commercial ACL had not been reached for the first split season of 2011.
***Regulatory Amendment 9 implemented a 1,500 lbs commercial trip limit for the 2012 fishing seasons (effective July 15, 2012).

Preferred Alternative 3 is the most likely of all the alternatives considered to extend commercial fishing opportunities for vermilion snapper further into the commercial fishing seasons. Not only would **Preferred Alternative 3** reduce the commercial trip limit to 1,000 lbs gw (1,110 lbs ww), but it would also implement a trip limit step-down to 500 lbs gw (555 lbs ww) after 75% of the commercial split season quota is harvested. The same two-scenario methodology used to analyze **Alternative 2** was utilized to estimate when the commercial sector would harvest 75% of the split season quotas and when the each of the split seasons would close under **Preferred Alternative 3**.

Logbook and quota monitoring landings data for 2012 were used to predict when the July-December ACLs would be met. Because logbook landings for 2012 are incomplete, monthly logbook landings were scaled up to equal monthly quota monitoring landings. Only July-September had landings for the first part of the second 2012 commercial season because the fishery closed on September 28, 2012. Because commercial harvest of vermilion snapper was closed from October to December, two different scenarios were used to predict landings during closed months. The first scenario assumed landings per day in October-December were the same as August 2012 landings (4,526 lbs gw/day). The second scenario assumed landings per day in October to December were the same as September 2012 landings (7,731 lbs gw/day).

Closure dates were predicted for the two scenarios for both ACLs with the implementation of two different trip limits (1,500 lbs gw (1,665 lbs ww) and 1,000 lbs gw (1,110 lbs ww). The current trip limit is 1,500 lbs gw (1,665 lbs ww) so no reduction was estimated. However, because of an overage in landings during July-September 2012, the closure date for the status quo trip limit was predicted to be earlier than September 28. The projected closure dates for a 1,000 lbs gw (1,110 lbs ww) trip limit came from landings data generated from applying a 1,000 lbs gw (1,110 lbs ww) trip limit to logbook data that was scaled to match the quota monitoring data in July, August, and September. If the quota was not met by the end of September then landings from either August (Scenario 1) or September (Scenario 2) were used as proxies for October-December landings. Landings for October-December were then reduced by applying

either the August (Scenario 1) or September (Scenario 2) trip limit reduction to the daily landings during October-December.

During the first split season (January-June), 75% of the new split season ACL proposed under Action 1 would be harvested on or around March 1. With the increased ACL proposed in Action 1, the trip limit reduction to 500 lbs gw (555 lbs ww) would cause the first split season to close between March 29 and April 2 (**Appendix G**, NMFS 2013a). Under **Alternative 1 (No Action)**, the increased ACL from Action 1, Preferred Alternative 2 would be expected to be met around March 5-6. Therefore, the 500 lbs gw (555 lbs ww) trip limit proposed in **Preferred Alternative 3** would be expected to extend the fishing season by about 3.5 weeks. During the second split season (July-December), it is predicted that 75% of the ACL would have been harvested by approximately September 18 when the trip limit reduction to 500 lbs gw (555 lbs ww) would take effect. With the 500 lbs gw (555 lbs ww) trip limit in place, vermilion snapper commercial landings are likely to reach the increased split season ACL proposed in Action 1 between October 14 and October 20 (**Table 4.2.2**). This is 3 weeks to a month longer than the when the increased ACL would be met with the current 1,500 lb gw trip limit currently in place (**Alternative 1 No Action**).

Biological Impacts of Action Alternatives

Regardless of whether or not vermilion snapper are able to be targeted longer each fishing season, overall harvest is capped by the split season ACLs. Therefore, the biological impacts of a longer fishing season would be neutral if commercial AMs are implemented effectively. The faster the ACL is met, the sooner either of the two split seasons would be closed, at which time any vermilion snapper caught in excess of the bag limit would need to be discarded. Discarded vermilion snapper may not survive because the release mortality is estimated to be 41% for the commercial sector (SEDAR 17 Assessment Update 2012). However, with a lower trip limit fishermen could target vermilion snapper longer during each of the split seasons, which may result in a decrease in the number of regulatory discards. Although fishermen may be able to target vermilion snapper for a longer duration, they would be restricted to a smaller trip limit, which may result in regulatory discards that could negate the bycatch reduction effects of lengthening the season.

With a slower rate of harvest, it may be easier to track commercial landings in-season to determine when the ACL might be reached. It is estimated that a 500 lb gw reduction in the trip limit under **Alternative 2** would extend each vermilion snapper fishing season by two weeks. With a lower trip limit, it is possible fishermen might make more fishing trips, and the rate of harvest could be similar to 2012 conditions. Regardless, the SEFSC's new CLM quota monitoring system allows for better in-season monitoring of commercial landings. Specifically, the CLM system includes five different methods for predicting in-season closures. Furthermore, improved dealer reporting requirements are likely to significantly increase the agencies' ability to accurately predict when the split season ACL is likely to be reached. In sum, **Alternative 2** may decrease the vermilion snapper rate of harvest, which would increase the effectiveness of recently improved harvest monitoring methods and prevent ACL overages; therefore, this option may have greater biological benefits compared to the status quo alternative. However, with the

improved CLM quota monitoring system and new dealer reporting requirements, the biological effects of **Alternatives 1** and **2** could be very similar.

Table 4.2.2. Past and predicted closure dates for 2010, 2011, 2012, and under **Alternatives 1** and **3** with the increased ACL proposed in Action 1, Alternative 2**.**

Year	Season 1 (January – June) Closure Date	Season 2 (July – December) Closure Date
2009	N/A*	September 4
2010	March 19	October 6
2011	March 10**	September 20
2012	February 29***	September 28***
Predicted Dates When 75% of the ACL Will be Harvested Under **Alternative 3**	March 1	September 18
Predicted Closure Dates Under **Alternative 1**	March 5-6	September 21
Predicted Closure Dates Under **Preferred Alternative 3**	March 29 – April 2	October 14-20

*Amendment 16 was not implemented until July 2012. Therefore, there was no January – June split season in 2009.
**The first commercial fishing season was re-opened for one week (May 1 – May 8, 2011) because the commercial ACL had not been reached for the first split season of 2011.
***Regulatory Amendment 9 implemented a 1,500 lbs commercial trip limit for the 2012 fishing seasons (effective July 15, 2012).

Preferred Alternative 3 could extend the first split season by two weeks longer than **Alternative 2** for a total of three and a half months of directed fishing during the winter. **Preferred Alternative 3** is only likely to increase the length of the second split season by an extra week over **Alternative 2**. Both alternatives accomplish somewhat longer seasons; however, **Preferred Alternative 3** would slow the rate of harvest dramatically as the ACL gets closer to being met as the season progresses, which may be advantageous for in-season monitoring efforts. Since overall harvest of vermilion snapper is capped at the commercial ACL, changes to the length of the fishing seasons is not expected to result in direct biological impacts.

If the SEFSC's improved CLM quota monitoring is able to accurately predict when 75% of the split season ACL will be harvested, **Preferred Alternative 3** could be the most likely of all the alternatives to prevent the ACL from being exceeded while still allowing fishery participants to harvest vermilion snapper. Because **Preferred Alternative 3** would theoretically result in the greatest amount of control over the speed at which the vermilion snapper commercial ACL is harvested and thus would be the most likely alternative to prevent ACL overages, it is also considered the most biologically beneficial alternative under consideration. However, it is possible that with a lower trip limit fishermen would make more trips, and there would not be a large change in the rate of harvest. Large commercial overages of commercial ACLs are not expected in the future due to the new CLM quota monitoring system and expected implementation of a Joint Dealer Report Amendment that will require weekly electronic reporting. Furthermore, Regulatory Amendment 14 is being developed by the South Atlantic

Council, which could modify commercial AMs to incorporate a payback provision; whereby ACL overages are accounted for by reducing the ACL or the length of the next fishing season. Therefore, the biological effects of the three alternatives could be very similar, as harvest would be constrained by the ACL.

A smaller the trip limit could increase the potential for discarded fish because some fishermen may continue to fish for other co-occurring snapper grouper species after they have harvested the vermilion snapper trip limit. However, a smaller trip limit may also reduce bycatch by extending the length of the fishing season for vermilion snapper. Thus, the magnitude of discarded vermilion snapper might be less with a smaller trip limit than when all harvest of the species is prohibited and co-occurring species are targeted. In a study conducted by Rudershausen et al. (2007), delayed mortality for vermilion snapper caught from 25 – 75 meters was determined to be 38%. This was the average delayed mortality rate from two depth ranges, 25 – 50 meters and 50 – 75 meters. The SEDAR 17 update (SEDAR 17 Update 2012) used a release mortality rate of 41% for the commercial sector. This discard mortality rates is relatively high. If a change in the trip limit were to increase regulatory discards of vermilion snapper, the biological benefits of the trip limit could be negated by the adverse effects of discard mortality. However, if larger or smaller commercial trip limits reduce bycatch of vermilion snapper, they could have a greater biological benefit to the stock.

4.2.2 Economic Effects

The goal of **Alternatives 2** and **3 (Preferred)** is to extend the season, keep trips that land vermilion snapper profitable, and reduce dead discards. In 2012, the commercial trip limit was 1,500 lbs gw. **Tables 4.2.1** and **4.2.2** show the two commercial seasons, the ending dates, the number of days for each of the three alternatives using actual data for **Alternative 1 (No Action)** and projections based on actual data for **Alternatives 2** and **3 (Preferred)**. Under **Alternative 2** (**Table 4.2.1**), the first commercial season for vermilion snapper could be expected to be extended from approximately two and a half to three weeks beyond the 2012 closure date and two weeks beyond the projected closure date with the new ACL under **Alternative 1 (No Action)**. The second commercial season could be extended up to approximately one week beyond the 2012 closure date, and two weeks beyond the projected closure date under **Alternative 1 (No Action)**. Under **Preferred Alternative 3** (**Table 4.2.2**), the first commercial season for vermilion snapper could be expected to be extended to approximately 3.5 weeks beyond the projected closure date under **Alternative 1 (No Action)**. The second commercial season could be extended up to approximately three weeks beyond the 2012 closure date, and about a month beyond the projected closure date under **Alternative 1 (No Action)**.

However, from an economic perspective, trip limits do not necessarily return increased economic benefit. Trip limits have the tendency to increase trip costs per pound of fish. Only if the ex-vessel price per pound received by the fishermen is significantly higher under trip limits would trip limits be economically advantageous, compared to no trip limits. Additionally, trip costs are higher for those fishermen who have to travel greater distances to reach suitable fishing grounds. A trip limit set too low for these fishermen would make it economically unprofitable

for them to target vermilion snapper. The distribution of pounds per trip is shown in **Figure 4.2.1**. A 1,000 lb gw trip limit would impact more than 10% of the trips.

4.2.3 Social Effects

In general, commercial trip limits may help slow the rate of harvest, lengthen a fishing 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. **Alternatives 2** and **3 (Preferred)** would be expected to reduce the derby effects and associated reductions in social benefits discussed in **Section 4.1.3**. Projections of the expected season lengths under the alternative trip limits considered are provided in **Section 4.2.1**. If the longest expected season results in the greater the social benefits, **Preferred Alternative 3** would be the most beneficial to the commercial fleet. However, while trip limits may extend the length of the fishing season, this management measure would be expected to alter the profitability of some trips, jeopardizing normal fishing behavior, revenues, and social benefits. The potential economic effects of the proposed vermilion snapper trip limits are described in **Section 4.2.2**, noting that these estimates do not incorporate potential compensating effort or harvest behavior (more trips or altered species composition of harvests). In general, it is assumed for the purposes of this discussion that the greater the economic losses, the greater the social losses. As can be seen in **Section 4.2.2**, **Alternative 2** without the step-down in **Preferred Alternative 3** would be expected to result in a smaller reduction in revenues. Social benefits would likely be maximized as a result of some trade-off between season length and economic changes.

4.2.4 Administrative Effects

Because there is already a trip limit in place, there would be no difference in the administrative impacts of **Alternative 1 (No Action)** and **Alternative 2**. The administrative and law enforcement recourses currently used to implement and enforce the 1,500 lb gw (1,665 lb ww) commercial trip limit would be the same as those needed to implement and enforce the 1,000 lb gw (1,110 lb ww) trip limit under **Alternative 2**. Because **Preferred Alternative 3** includes a trip limit step down provision, the administrative impacts under that option would be slightly higher than under **Alternative 1 (No Action)** and **Alternative 2**. **Preferred Alternative 3** would require notifying the commercial snapper grouper fishery and law enforcement personnel of an impending trip limit reduction during each of the two commercial fishing seasons if the 75% harvest threshold is reached. This type of administrative burden is considered routine, and the overall administrative impact of **Preferred Alterative 3** would be minimal.

4.3 Action 3: Modify the commercial fishing seasons for vermilion snapper.

Preferred Alternative 1 (No Action). The commercial fishing year for vermilion snapper is split into two seasons of equal duration, each with its own ACL. The first season begins on January 1 and ends on June 30 (6 months). The second season begins on July 1 and ends on December 31 (6 months). The commercial ACL is split equally between the two seasons.

Note: The new commercial ACLs established in Preferred Alternative 2 of Action 1, split by the current seasons **(Alternative 1, No Action)** are shown in **Table 4.3.1**.

Table 4.3.1. ABC/ACLs and commercial split season ACLs for 2013-2016 based on the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Comm ACL Jan-June ww	Comm ACL July-Dec ww
2013	1,372,000	1,372,000	932,960	466,480	466,480
2014	1,312,000	1,312,000	892,160	446,080	446,080
2015	1,289,000	1,289,000	876,520	438,260	438,260
2016	1,269,000	1,269,000	862,920	431,460	431,460

Alternative 2. Modify the commercial fishing seasons for vermilion snapper.

Sub-alternative 2a. Modify the commercial fishing seasons for vermilion snapper so that the first season begins on January 1 and ends on May 31 (5 months) and the second season begins on June 1 and ends on December 31 (7 months). The commercial ACL would be split equally between the two seasons as is currently the case.

Note: The new commercial ACLs established in Preferred Alternative 2 of Action 1, split by the proposed seasons under **Sub-Alternative 2a** are shown in **Table 4.3.2**.

Table 4.3.2. ABC/ACLs and commercial split season ACLs for 2013-2016 based on the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Comm ACL Jan-May ww	Comm ACL June-Dec ww
2013	1,372,000	1,372,000	932,960	466,480	466,480
2014	1,312,000	1,312,000	892,160	446,080	446,080
2015	1,289,000	1,289,000	876,520	438,260	438,260
2016	1,269,000	1,269,000	862,920	431,460	431,460

Sub-alternative 2b. Modify the commercial fishing seasons for vermilion snapper so that the first season begins on January 1 and ends on April 30 (4 months). The second season begins on May 1 and ends on December 31 (8 months). The commercial ACL would be split equally between the two seasons as is currently the case.

Note: The new commercial ACLs established in Preferred Alternative 2 of Action 1, split by the proposed seasons under **Sub-Alternative 2b** are shown in **Table 4.3.3**.

Table 4.3.3. ABC/ACLs and commercial split season ACLs for 2013-2016 based on the recent SEDAR assessment and the Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Comm ACL Jan-April ww	Comm ACL May-Dec ww
2013	1,372,000	1,372,000	932,960	466,480	466,480
2014	1,312,000	1,312,000	892,160	446,080	446,080
2015	1,289,000	1,289,000	876,520	438,260	438,260
2016	1,269,000	1,269,000	862,920	431,460	431,460

4.3.1 Biological Effects

Background

The split season quotas were first implemented for vermilion snapper through Amendment 16 (SAFMC 2009a). The purpose of splitting the commercial season into two distinct time periods was to provide opportunities to fish for vermilion snapper throughout the South Atlantic and throughout the calendar year. Amendment 16 implemented a small commercial quota based on the outcome of SEDAR 17 (SEDAR 17 2008), which indicated vermilion snapper was undergoing overfishing at that time. NMFS anticipated the commercial sector would quickly reach the small annual quota and the fishing season would close very early in the year. By dividing the commercial quota into two six-month fishing seasons, vermilion snapper fishermen are given the opportunity to fish for the species at the beginning of the year and during the summer. The divided commercial quota provided fishermen in the northern and southern areas of the South Atlantic a chance to fish for vermilion snapper when weather conditions are favorable. **Preferred Alternative 1 (No Action)** would maintain the current six-month time periods and quota allocations to each season. The season dates under **Preferred Alternative 1 (No Action)** are based on splitting the calendar year in half.

Sub-Alternative 2a would divide the commercial fishing seasons into one five-month season (January-May) and one seven-month season (June-December). Under this scenario the objective is to have the second of the two seasons open at the same time as the commercial fishing season for black sea bass opens. Many fishermen who fish for black sea bass also fish for vermilion snapper, and opening the two species would increase harvest efficiency of each species, potentially extend the fishing seasons for two species, and reduce bycatch since the species co-occur.

In 2012, 32 South Atlantic Unlimited Snapper Grouper Permit holders received black sea bass pot endorsements through implementation of Amendment 18A to the Snapper Grouper FMP (SAFMC 2012a). The ACL for the second (and longer) split season would be shared by more fishermen targeting the same resource and could cause the second split season ACL to be met earlier in the year compared to the status quo. In 2011, the first fishing season closed March 10, and the second season closed on September 30. In 2012, the first fishing season closed February 29, and the second fishing season closed September 28. However, a start date of June 1 for the second vermilion snapper fishing season, which is the same as the start of the fishing year for black sea bass, could extend the fishing seasons for both vermilion snapper and black sea bass.

Sub-Alternative 2b would create a four-month and eight-month fishing season. The second of the two fishing seasons would begin on May 1, each year. Compared to **Sub-Alternative 2a**, **Sub-Alternative 2b** would allow fishing for vermilion snapper to begin one month earlier that would coincide with the beginning of the fishing season for shallow water grouper species. Because the quota allocation per split season would remain the same, an extra month of fishing during the second fishing season could result in the second split season ACL being met earlier in the year than **Sub-Alternative 2b**. Furthermore, some fishermen who would target black sea bass under **Sub-Alternative 2a** might target vermilion snapper under **Sub-Alternative 2b** further contributing to the rate at which the quota is met.

Biological Impacts of the Action Alternatives

The biological consequences for vermilion snapper of shifting fishing seasons under **Alternative 2** or maintaining the current season (**Preferred Alternative 1, No Action**) are likely to be neutral since overall harvest would be limited to the sector ACL and split-season ACLs, and AMs would be triggered if the ACLs were exceeded. If the second season for vermilion snapper were to start in June, vermilion snapper discards would be expected during May when the fishing began for shallow water grouper. If the second fishing season were to begin in May, then discards of vermilion snapper would be expected after the quota for the species is met, but while shallow water grouper and black sea bass remained open.

Quota-monitoring efforts have improved over the past year, which would reduce the risk that the commercial ACL would be exceeded. Relative to **Sub-Alternative 2a**, bycatch of black sea bass would be greater under **Sub-Alternative 2b** since black sea bass could be closed during May and would be incidentally caught when fishermen are targeting vermilion snapper. However, as the release mortality of black sea bass is low, negative biological effects for black sea bass would be expected to be small. Neither **Preferred Alternative 1 (No Action)** or **Alternative 2** and the sub-alternatives under consideration are likely to result in adverse impacts on protected species or HAPCs. Shifting the fishing seasons for vermilion snapper would not significantly alter the manner in which the fishery is prosecuted, nor would it cause overall effort to increase significantly. Therefore, no effects on protected whales, sea turtles, fish, or corals are anticipated because of this action.

4.3.2 Economic Effects

Each year since the ACL has been in place, both of the annual commercial vermilion snapper seasons has ended early. The current second season, July 1-December 31 starts on a date that simply divided the year in half. However, there are reasons to consider making the seasons of unequal length. Moving the beginning of the second season to June 1, **Alternative 2, Sub-alternative 2a**, would align the start of the second vermilion snapper fishing season with the start of the black sea bass fishing year. Moving the beginning of the second season to May 1, **Alternative 2, Sub-alternative 2b**, would align the start of the second vermilion snapper fishing season with the beginning of the fishing season for shallow water groupers. Vermilion snapper co-occur with black sea bass and shallow water groupers. Since the first vermilion snapper commercial fishing season historically has closed prior to May 1 each year, all vermilion snapper caught after the shallow water groupers open must be released, dead or alive during May and June. The same is true for the vermilion snapper caught with black sea bass during June each year. Releasing vermilion snapper caught when targeting black sea bass and shallow water groupers represents lost revenue for commercial fishermen and results in more discards.

Assuming there is a greater amount of co-occurrence between vermilion snapper and shallow water groupers than between vermilion snapper and black sea bass, **Alternative 2, Sub-alternative 2b** could result in the least amount of vermilion snapper discards at the beginning of the shallow water grouper season and could therefore result in the greatest positive direct economic effect for commercial fishermen. **Alternative 2, Sub-alternative 2a** could result in the next greatest positive direct economic effect for commercial fishermen. It would reduce the black sea bass discards but would not prevent them when fishing for shallow water groupers during the month of May. **Preferred Alternative 1 (No Action)** would result in the least positive direct economic effects for the commercial sector as they would continue releasing vermilion snapper discards during the months of May and June.

Beginning the second vermilion snapper fishing season earlier in the year might lengthen the seasons for both black sea bass and vermilion snapper, but perhaps not lengthen the shallow water grouper season. Even with the shallow water grouper season opening on May 1 and the second vermilion snapper season opening on July 1, the vermilion snapper season has closed sooner than the shallow water grouper season each year (**Table 4.3.4**). **Alternative 2, Sub-alternative 2b** might have the effect of shifting discards of vermilion snapper from the beginning of the shallow water grouper season to the end of the season. Shifting the discards to later in the season may have economic benefits. **Section 3.4.1.2** indicates that historically from 2007 through 2011more trips occurred and more vessels fished for vermilion snapper (**Table 3.4.4**) in May and June than during other times of the year. However, commercial black sea bass closed about the same time each year as vermilion snapper except in 2011 when black sea bass closed 77 days sooner than vermilion snapper. Lengthening the season for vermilion snapper and black sea bass can reduce the likelihood of a derby fishery and result in higher ex-vessel values, a positive direct economic benefit for those fishery participants.

Table 4.3.4. Commercial season closure date for vermilion snapper, black sea bass, and shallow water grouper fisheries, from 2009 through 2012.

Year	Vermilion Snapper 1	Vermilion Snapper 2	Black Sea Bass	Shallow Water Grouper
2009	6/30/2009	9/18/2009	12/20/2009	12/31/2009
2010	6/30/2010	10/6/2010	10/7/2010	12/31/2010
2011	3/10/2011	9/30/2011	7/15/2011	12/31/2011
2012	2/29/2012	9/28/2012	10/8/2012	10/20/2012

Source: NMFS (http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring); accessed on 1/14/13)

4.3.3 Social Effects

The short-term direct social effects of adjusting the start date of the split seasons are associated with the economic impacts and benefits, and more long-term broad social effects are associated with the biological impacts of the action. Discussed in **Section 4.3.2**, adjusting the start date for the second vermilion snapper commercial fishing season under **Alternative 2** would likely reduce waste from incidental catch when fishermen are targeting black sea bass, which could help offset economic costs of reduced trip limits proposed in Action 2. In general, the start date of the second season is not expected to impact the level of harvest because the total commercial ACL should not be exceeded in any case, although the level of vermilion snapper bycatch discards during black sea bass or shallow water grouper harvest could negatively impact the vermilion snapper stock in the future. By adjusting the start date under **Sub-alternatives 2a** and **2b**, any long-term social benefits from reducing vermilion discards would be greater than under **Preferred Alternative 1 (No Action).**

4.3.4 Administrative Effects

Neither of the sub-alternatives considered under this action would result in additional administrative burdens in the form of cost, time, or law enforcement efforts. Currently, split season commercial quotas are in place (**Preferred Alternative 1 (No Action)**), and ACL closures during both seasons have occurred. Even if the commercial ACLs continue to be met during each of the fishing seasons under **Sub-Alternatives 2a** or **2b**, the administrative resources required to implement in-season closures are minimal.

4.4 Action 4: Modify the recreational closed season for vermilion snapper.

Alternative 1 (No Action). Recreational harvest of vermilion snapper is prohibited annually from November 1 to March 31 (5 months).

Preferred Alternative 2. Remove the recreational season closure for vermilion snapper.

Two Alternatives Considered

As with Action 1 of this amendment, Action 4 also considers two reasonable alternatives. At their December 2012 meeting, the South Atlantic Council approved a motion to move this action from Regulatory Amendment 14 to Regulatory Amendment 18. The South Atlantic Council also approved a motion to remove alternatives from this action that would retain a recreational closed season but modify the closure dates. The South Atlantic Council and NMFS did not consider alternatives that modified the dates for a recreational closure to be reasonable and moved them to the considered but rejected Appendix A in Regulatory Amendment 14. After these motions were made and approved by the South Atlantic Council, Action 4 was left with two alternatives as they appear above. The rationale for moving the alternatives to Appendix A is that the original recreational season closure was implemented to help end overfishing. The 2012 stock assessment update (SEDAR 17 Update 2012) indicated the vermilion snapper stock is no longer undergoing overfishing. Furthermore, since the recreational closure was put into place through Amendment 16 (SAFMC 2009a); ACLs and AMs have been implemented to ensure overfishing does not occur. Recreational landings have been far below the recreational ACL since it was put into place, and Action 1 in Regulatory Amendment 18 would increase the recreational ACL. Therefore, the South Atlantic Council and NMFS determined there was no need to analyze an option that would explore further modification of the recreational closure.

4.4.1 Biological Effects

Alternative 1 (No Action) would maintain the current five-month recreational closure for vermilion snapper. The biological impacts of prohibiting recreational harvest of vermilion snapper from November through March each year are positive since reduced effort could help ensure overfishing does not occur. However, vermilion snapper is often caught on trips targeting other snapper grouper species such as gray triggerfish, gag, black sea bass, and red snapper (**Figure 4.4.1**) and incidental catch of vermilion snapper during the closed recreational season is likely occurring.

The estimated discard mortality rate for vermilion snapper is 38% in the recreational sector; therefore, a large portion of vermilion snapper that are discarded during the recreational closed season do not survive. The biological impact of mortality from regulatory discards may counteract, to some degree, the biological benefits that were expected from the recreational closure. Because the stock is no longer undergoing overfishing, allowing the recreational ACL to be increased (Action 1), and ACLs and AMs have been implemented through Amendment

17B (SAFMC 2010b) to ensure overfishing does not occur, the recreational closure is not biologically necessary to maintain a sustainable stock biomass.

Removing the annual recreational closure for vermilion snapper is not expected to have negative biological impacts on the stock because a new stock assessment suggested the recreational ACL can be increased (Action 1), and a recreational ACL and AM has been put into place since the implementation of Amendment 16 (SAFMC 2009a) to ensure overfishing does not occur. These AMs provide that if vermilion snapper are overfished and the recreational ACL is reached, the recreational harvest and possession of vermilion snapper is prohibited and that without regard to overfished status, if vermilion snapper recreational landings exceed the ACL, the ACL for the next fishing year will be reduced by the amount of the overage. The South Atlantic Council is developing an amendment to enhance the recreational AM. Because the vermilion snapper recreational closure overlapped with the shallow water grouper closure that is effective from January 1-May 1 each year, removing the vermilion snapper prohibition would allow recreational effort to shift to vermilion snapper (beyond the status quo) during the months of January through March in the southern portion of the South Atlantic region. This effort shift, in addition to the elimination of the closed season, may cause recreational landings to increase; however, as explained below the recreational ACL is not expected to be met (**Table 4.4.1**).

NMFS conducted an analysis to estimate when the recreational sector ACL would be met in the absence of the recreational closure. Data from the most recent year of complete landings (2011) were used as a proxy for future recreational landings for Waves 2 through 5 (March through October). Two Scenarios were used to predict landings in Waves 1 and 6. Scenario 1 assumed wave 1 landings were the same as Wave 2, and Wave 6 landings were the same as Wave 5. Scenario 2 used historical proportional relationships of headboat landings for Wave 1 to Wave 2, and Wave 6 to Wave 5 to estimate Wave 1 and Wave 6 landings.

This analysis attempted to bracket the possible range of future landings during months that are currently closed. Uncertainty exists in this projection, as economic conditions, weather events, changes in catch-per-unit effort, fisher response to management regulations, and a variety of other factors may cause departures from the predictions. A specific consideration is that South Atlantic vermilion snapper are commonly harvested with gray triggerfish, lane snapper, red porgy, and red snapper (SERO-LAPP-2010-06). All of these species are managed with ACLs and red snapper has been closed since early 2010 with the exception of short openings in Fall 2012. Management regulations on these other species, and in particular red snapper, may affect vermilion snapper landings. Based on the results of the NMFS analysis, the new recreational ACL of 439,040 lbs ww (395,532 lbs gw) would not be met by the recreational sector and no recreational AM would be triggered. NMFS estimates that between 254,960 lbs gw (283,006 lbs ww) and 314,709 lbs gw (349,327 lbs ww) of the new ACL would be harvested by the recreational sector under **Preferred Alternative 2** (NMFS 2013b). These projected recreational landings account for 64%-79% of the recreational ACL in 2013. Because the ACL would decrease only slightly over the next several years after increasing in 2013, it is unlikely the recreational sector would meet or exceed the ACLs in the near future (**Table 4.4.1**).

Table 4.4.1. Predicted annual recreational landings and closure dates for two vermilion snapper ACLs under two scenarios. The status quo is the ACL of 307,315 lbs gw. Scenario 1 assumed wave 1 landings were the same as wave 2, and wave 6 landings were the same as wave 5. Scenario 2 used the historical proportional relationship of wave 1 to wave 2, and wave 6 to wave 5 headboat landings to estimate wave 1 and wave 6 landings.

ACL	Scenario 1		Scenario 2	
	Predicted Annual Landings (lbs gw)	Closure Date	Predicted Annual Landings (lbs gw)	Closure Date
Status-quo ACL 307,316 lbs gw (341,121 lbs ww)	314,709	19-Dec	254,960	None
Proposed 2013 ACL 395,532 lbs gw (439,040 ww)	314,709	None	254,960	None

There are now strict harvest limits (which was not the case when vermilion snapper provisions were implemented through Amendment 16) and recreational AMs in place that are able to correct for ACL overages when they do occur by reducing the ACL for the next fishing year. The recreational AM for vermilion snapper includes a provision to close the recreational sector if the ACL is met or projected to be met only if vermilion snapper are overfished. Thus, currently, recreational harvest is limited only by the reduction of the recreational ACL for the fishing season following a previous year's overage. The South Atlantic Council will consider in a future amendment, the addition of an in-season AM to control recreational harvest of vermilion snapper and make the vermilion snapper recreational AM consistent with recreational AMs for other species in the snapper grouper FMU.

In early 2013, the SEFSC implemented a new electronic reporting system for headboats operating in the southeast, and the Gulf of Mexico Fishery Management Council and South Atlantic Council are developing generic amendments that would require all federally permitted headboats to report all landings electronically at an increased frequency. In the future, the SEFSC intends to implement a similar electronic reporting system for charterboats in the southeast region, and the Councils plan to develop a joint generic amendment that would make electronic reporting mandatory for charter vessels. These improvements to the recreational harvest monitoring regime are likely to increase the accuracy and timeliness of landings information, which in turn, would help prevent recreational ACLs from being exceeded without a recreational closure.

Maintaining the recreational closed season for vermilion snapper would not be likely to result in any biological impact to protected species such as whales, sea turtle, corals, fish, or habitats of particular concern since most recreational anglers would most likely still fish for other snapper grouper species while vermilion snapper is closed to recreational harvest. **Preferred Alternative 2** would also not be expected to incur biological impacts on protected species since fishermen targeting other snapper grouper species during a vermilion snapper closure would simply shift effort back to vermilion snapper when harvest is allowed. This action would not substantially modify the manner in which the snapper grouper fishery is prosecuted; and therefore, no adverse impacts on protected species are expected.

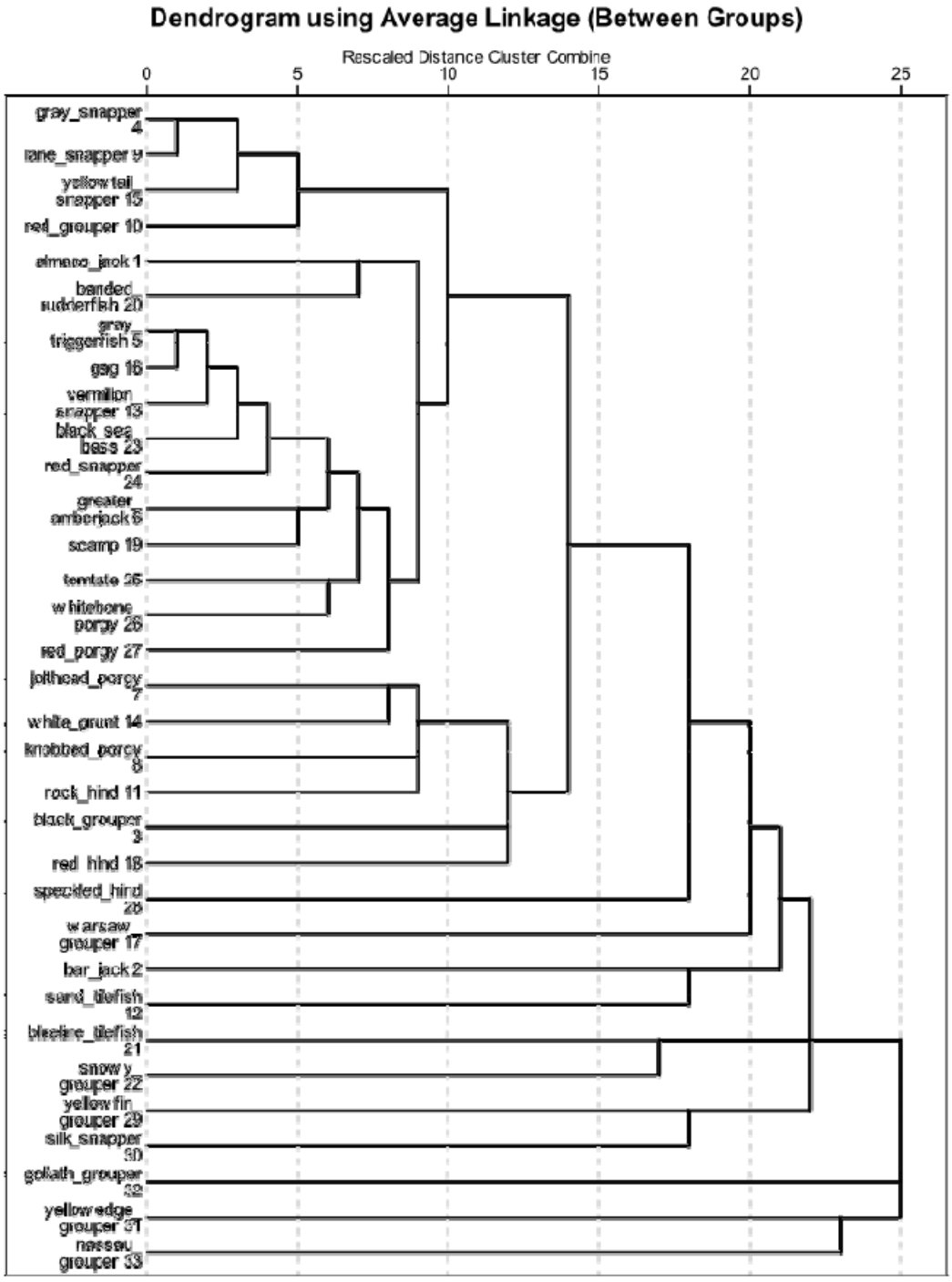


Figure 4.4.1. Hierarchical cluster analysis of species presence-absence in the snapper grouper recreational headboat landings aggregated by year, month, area, and depth. (Linkage Method: Between Groups, Dissimilarity Measure: Sørenson, Transformation: Binary). Numbers denote case numbers. Source: SERO-LAPP-2010-06.

4.4.2 Economic Effects

The same general methodology used and described in **Section 4.1.2** is employed to estimate the economic effects of **Preferred Alternative 2** relative to **Alternative 1**. Certain additional assumptions, however, are introduced, particularly with respect to the determination of the baseline numbers. **Preferred Alternative 2** would eliminate the existing November-March seasonal closure in the recreational harvest of vermilion snapper. This would increase recreational landings especially given the proposed ACL increases. In addition, the number of angler trips would increase with the elimination of the seasonal closure. Changes in landings would serve as a major input in evaluating changes in consumer surplus (CS) whereas changes in angler trips serve as a major input in evaluating changes in vessel net operating revenues (NOR).

The first key issue is to determine the change in recreational harvest with the elimination of the seasonal closure. For this purpose, SERO-LAPP (M. Larkin, pers. comm., 2013) developed two scenarios for predicting recreational landings of vermilion snapper. A brief description is provided here as a background for the current analysis.

Each scenario uses 2011 landings as the predicted landings for Waves 3 (May-June) through 5 (September-October). In 2011, Wave 2 (March-April) landings were only for April as March was closed to fishing. March landings were estimated as equal to the landings in Wave 2 (essentially April only), adjusted for the difference in the number of days between March and April. Wave 2 landings are then the sum of March and April landings. The two scenarios differ in the determination of landings for Waves 1 (January-February) and 6 (November-December). Scenario 1 assumes Wave 1 (January-February) landings as equal to Wave 2 (March-April) landings, after adjustments, and Wave 6 (November-December) landings as equal to Wave 5 (September-October) landings. Scenario 2 assumes Wave 1 (January-February) landings as some percent of Wave 2 (March-April) landings and Wave 6 (November-December) landings as some percent of Wave 5 (September-October) landings. The actual percentages are based on headboat landings for the pertinent months.

For the current analysis, reported recreational landings in 2011 serves as the baseline landings. Changes in landings due to **Preferred Alternative 2** are calculated as the difference between the baseline landings and predicted landings under Scenario 1 or Scenario 2.

The other key issue is estimating the change in angler trips due to the elimination of the seasonal closure, and for this purpose, target trips for vermilion snapper are estimated. Because Marine Recreational Information Program (MRIP) reported target trips for vermilion snapper, especially in more recent years, have been relatively sparse, the 2007-2011 average target trips are used for angler trips in charter boats. There are no corresponding target trips in the headboat sector, so target trips for this sector is assumed to be a percentage of all headboat angler days. This percentage is calculated as the proportion of total vermilion snapper landings to total snapper grouper landings in the headboat sector. Due to the relatively small recreational landings of vermilion snapper in the southern part of Florida, only landings and angler days from northeast

Florida through North Carolina are used in estimating target trips for vermilion snapper by headboat anglers.

The changes in landings, target trips, CS, and NOR due to the elimination of the seasonal closure (**Preferred Alternative 2**) are presented in **Table 4.4.2**. Landings under Scenario 1 are higher than those in Scenario 2, thus CS effects under Scenario 1 are larger than those under Scenario 2. There is no difference in target trips between the two scenarios because of the method employed in estimating target trips, thus the resulting NOR effects are the same for both scenarios. Due to the elimination of the seasonal closure, CS would increase by about $7.8 million (2011 dollars) under Scenario 1, or by about $3.8 million under Scenario 2. Total NOR would increase by about $204,000 (2011 dollars) with the elimination of the seasonal closure. The headboat sector would share most of the CS and NOR increases.

Under the two scenarios, total recreational landings of vermilion snapper would be below the recreational ACLs set forth in Preferred Alternative 2 of Action 1. Given this condition, more economic benefits could be derived from the vermilion snapper segment of the snapper grouper fishery if the recreational sector is able to fully harvest its ACL. Estimates of these additional benefits are presented in **Table 4.4.3**.

To generate the numbers in **Table 4.4.3**, predicted landings under Scenario 1 or Scenario 2 are subtracted from each year's ACL, and the associated CS are subsequently estimated. NOR values are assumed to be proportional to CS, with the proportion assumed to be the same for each year. This proportion is calculated using the CS and NOR numbers in **Table 4.4.2**.

Assuming the ACLs are fully taken each year, the net present value of additional CS and NOR over 2013-2016 under Scenario 1 would be about $14.5 million (2011 dollars) and $511,000 (2011 dollars), respectively, with a 7% discount rate. The corresponding CS and NOR values under Scenario 2 would be about $28.1 million (2011 dollars) and $988,000 (2011 dollars), respectively with a 7% discount rate. For comparison purposes, results using a 5% discount rate are also presented.

Table 4.4.2. Changes in landings (lb ww), consumer surplus (CS), and net operating revenues (NOR) due to **Preferred Alternative 2** relative to **Alternative 1**. CS and NOR are in 2011 dollars.

Scenario 1					
	Pounds (ww)	**Target Trips**	**CS**	**NOR**	**CS + NOR**
Charter	6,956	299	$409,229	$47,044	$456,273
Headboat	75,420	2,569	$4,620,107	$157,697	$4,777,804
Priv/Rent.	47,556		$2,797,873		$2,797,873
TOTAL	129,932	2,868	$7,827,208	$204,742	$8,031,950
Scenario 2					
	Pounds (ww)	**Target Trips**	**CS**	**NOR**	**CS + NOR**
Charter	3,077	299	$181,041	$47,044	$228,085
Headboat	37,188	2,569	$2,278,067	$157,697	$2,435,765
Priv/Rent.	23,319		$1,371,911		$1,371,911
TOTAL	63,584	2,868	$3,831,019	$204,742	$4,035,760

Table 4.4.3. Net present value of additional changes in consumer surplus (CS) and net operating revenues (NOR) due to **Preferred Alternative 2** relative to **Alternative 1** over 2013-2016 assuming each year's ACL is fully taken. CS and NOR are in 2011 thousand dollars.

Scenario 1						
	7% Discount Rate			5% Discount Rate		
	CS	NOR	CS + NOR	CS	NOR	CS + NOR
Charter	$1,431	$165	$1,596	$1,559	$179	$1,739
Headboat	$10,136	$346	$10,481	$11,043	$377	$11,419
Priv/Rent.	$2,971		$2,971	$3,237		$3,237
TOTAL	$14,538	$511	$15,048	$15,839	$556	$16,395
Scenario 2						
	7% Discount Rate			5% Discount Rate		
	CS	NOR	CS + NOR	CS	NOR	CS + NOR
Charter	$2,770	$318	$3,089	$3,029	$348	$3,377
Headboat	$19,615	$670	$20,285	$21,446	$732	$22,178
Priv/Rent.	$5,749		$5,749	$6,286		$6,286
TOTAL	$28,135	$988	$29,123	$30,760	$1,080	$31,840

4.4.3 Social Effects

Similar to Action 3, the short-term direct social effects of removing the recreational closed season are associated with the economic impacts and benefits, and more long-term broad social effects are associated with any biological impacts of the action. Unused quota in the recreational allocation that would continue under **Alternative 1 (No Action)** results in utilization of the resource that is not optimal, and reduces economic and social benefits of recreational fishing. Although an increase in recreational harvest would be expected under **Preferred Alternative 2**, the ACL is not expected to be exceeded and there should not be any negative impacts on the recreational sector that could occur due to harvesting beyond the recreational ACL. The biological impacts of bycatch mortality in November and December when shallow water grouper is still open would continue to occur under **Alternative 1 (No Action)**, which allows waste and could negatively impact the vermilion stock. Overall, **Preferred Alternative 2** is expected to generate more social benefits than **Alternative 1 (No Action)** by increasing recreational fishing opportunities to catch vermilion snapper and reducing incidental catch.

4.4.4 Administrative Effects

Maintaining the recreational closed season for vermilion snapper and eliminating the closure both have the potential to incur some level of administrative impact. When recreational harvest of vermilion snapper is prohibited for five months on an annual basis, as it is now, the prohibition requires enforcement to maintain its effectiveness. Law enforcement requires staff time and monetary resources. Under **Preferred Alternative 2**, there would not be a recreational closure to enforce; however, if eliminating the annual prohibition on recreational harvest of vermilion snapper causes the recreational ACL to be met early in the season, administrative resources may be required to implement AMs and subsequent enforcement of those AMs. Under **Alternative 1 (No Action)** and **Preferred Alternative 2**, the administrative costs and time burdens are expected to minimal.

4.5 Action 5: Revise the Annual Catch Limit (ACL, including sector ACLs), Optimum Yield (OY), and Annual Catch Target (ACT) for Red Porgy.

Alternative 1. No action. For red porgy, retain the current ACLs, OY, and recreational ACT:

Current ACL = 395,304 lbs ww = 380,100 lbs gw
Commercial ACL = 197,652 lbs ww = 190,050 lbs gw
Recreational ACL = 197,652 lbs ww = 190,050 lbs gw
Recreational ACT = 160,098 lbs ww = 153,940 lbs gw
OY = 395,304 lbs ww (OY=ACL=ABC)

Note: These values are based upon the results of SEDAR 1 (SEDAR 1 2002); Current ABC = 395,304 lb ww landed catch; allocation of 50% commercial and 50% recreational. Maximum sustainable yield (MSY) = the yield produced by F_{MSY}. MSY and F_{MSY} are defined by the most recent stock assessment. MSY = 625,699 lbs ww.

Alternative 2. Revise the ACL (including sector ACLs) for red porgy for 2013 through 2018 as shown below using the OY=ACL=ABC formula established in the Comprehensive ACL Amendment (SAFMC 2011b). The values for 2018 would remain until modified.

Preferred Alternative 3. Revise the ACL (including sector ACLs) for red porgy for 2013 through 2015 as shown below using the OY=ACL=ABC formula established in the Comprehensive ACL Amendment (SAFMC 2011b). The values for 2015 would remain until modified.

Note: The new ABC, ACLs, and recreational ACTs are show in **Table 4.5.1**. Revising the ACL results in a new recreational ACT (based on the existing formula for calculating the red porgy recreational ACT). There is no commercial ACT for red porgy.

Table 4.5.1. New ABC and ACLs based on scenario 6 projection results from Table 24 of the red porgy assessment. Gutted weight determined with conversion factor of 1.04 from commercial logbooks.

Year	ABC ww	Total ACL ww	Comm ACL ww	Rec ACL ww	Rec ACT ww
2013	306,000	306,000	153,000	153,000	109,670
2014	309,000	309,000	154,500	154,500	110,746
2015	328,000	328,000	164,000	164,000	117,555
2016	354,000	354,000	177,000	177,000	126,874
2017	379,000	379,000	189,500	189,500	135,834
2018	401,000	401,000	200,500	200,500	143,718

Landings versus Quotas/ACLs

The landings of red porgy are compared with quotas/ACLs in **Table 4.5.2**.

4.5.1 Biological Effects

Background

Red porgy were assessed through a benchmark assessment in 2002 (SEDAR 1 2002), with subsequent assessment updates performed in 2006 and 2012. Amendment 12 to the FMP (SAFMC 2012) established an 18-year rebuilding schedule beginning in 2000 for the stock after SEDAR 1 (2002) indicated red porgy was overfished and experiencing overfishing. The 2006 update (SEDAR 1 Update 2012) indicated red porgy was no longer undergoing overfishing and was rebuilding, but the stock remained overfished. In response to this determination, the South Atlantic Council developed, and NMFS implemented, Amendment 15A to the Snapper Grouper FMP (Amendment 15A; SAFMC 2008a), which defined a rebuilding strategy for red porgy. The rebuilding strategy for red porgy maintains a constant fishing mortality rate throughout the rebuilding timeframe. Amendment 15A indicated the total allowable catch (TAC) specified for 2010 would remain in effect beyond 2010 until modified. The TAC was specified to be 395,304 lbs ww for both 2009 and 2010. Amendment 15A indicated the TAC could change every three years according to the rebuilding plan but any change would need to be in response to a new stock assessment. The Comprehensive ACL Amendment (SAFMC 2011b) established an ABC, sector ACLs, a recreational ACT, and sector AMs for red porgy and the species is still being managed under a rebuilding plan that will end in 2018.

Table 4.5.2. Commercial and recreational landings (lbs gw) of red porgy relative to quotas and ACLs for 2006 - 2013.

Year	Commercial Quota/ACL	Commercial Landings	Commercial Over/Under[1]	Commercial %Over/Under	Recreational ACL	Recreational Landings	Recreational Over/Under	Recreational %Over/Under
2006	127,000	80,293	46,707	63%	N/A	N/A	N/A	N/A
2007	127,000	136,382	-9,382	107%	N/A	N/A	N/A	N/A
2008	127,000	165,461	-38,461	130%	N/A	N/A	N/A	N/A
2009	190,050	158,221	31,829	81%	N/A	N/A	N/A	N/A
2010	190,050	152,528	37,522	78%	N/A	N/A	N/A	N/A
2011	190,050	249,216	-59,166	128%	N/A	N/A	N/A	N/A
2012	190,050	129,432	60,618	66%	190,050	52,829	137,221	28%
2013	190,050	0	190,050	0%	190,050	0	190,050	0%

Source: Recreational data are from the Southeast Regional Office Website (2-5-13). Commercial landings are from the SEFSC accumulated landings system (2006-2011) and the commercial landings system (2012-2013).
Note 1: Overages are shown as a negative number.
Note: Recreational landings are incomplete for 2012 and 2013. Commercial landings for 2013 are through March 26, 2013. A January-April commercial spawning season closure is in place for red porgy. A conversion factor of 1.04 is used to convert whole weight to gutted weight.

Red Porgy Updated ABC

The most recent assessment update included data through 2011, adding an additional six years of landings information to the 2006 update. The South Atlantic Council's SSC reviewed the 2012 assessment update for red porgy in October 2012. The National Standard 1 Guidelines state that, for overfished stocks and stock complexes, a rebuilding ABC must be set to reflect the annual catch that is consistent with the schedule of fishing mortality rates in the rebuilding plan. None of the projection scenarios in the assessment update demonstrated that red porgy could be rebuilt by the end of the rebuilding schedule (2018) even in the absence of fishing mortality.

The SSC is the responsible entity for recommending an ABC for managed species. Section 600.310(b)(2)(v)(B) of the National Standard 1 Guidelines state that "each SSC shall provide its Regional Fishery Management Council recommendations for ABC as well as other scientific advice, as described in Magnuson-Stevens Act section 302(g)(1)(B)." After reviewing the stock assessment update, the SSC recommended an ABC based on the yield at 75%F_{MSY}, which resulted in the ABC values included in **Table 4.5.1**. Because the ABC is based on an established ABC control rule, recommended by the SSC, and was accepted by the South Atlantic Council at their December 2012 meeting, no alternatives are presented for choosing an ABC. The ABC is a value (or a series of annually adjusted values in this case) that may be used to establish other management references points such as the ACL and ACT.

The South Atlantic Council has requested a new benchmark stock assessment for red porgy in 2014. Based on the outcome of the that new benchmark assessment, the South Atlantic Council may revise the rebuilding strategy and implement management measures that would rebuild the red porgy stock.

Red Porgy MSY

Amendment 15A (SAFMC 2008a) established a definition of MSY for red porgy. MSY equals the yield produced by F_{MSY}; MSY and F_{MSY} are defined by the most recent SEDAR Update. Using this formula, the new values for MSY and F_{MSY} appear in **Table 4.5.3**.

Table 4.5.3. Current and proposed values of MSY and F_{MSY} for red porgy.

Management Reference Point	Current Value (Alternative 1 (No Action)) (SEDAR 1 Update 2006)	Proposed New Value (SEDAR 1 Update 2012)
MSY	625,699 lbs ww	834,000 lbs ww
F_{MSY}	0.20	0.17

The updated estimates of MSY and F_{MSY} are more precise management reference points because the assessment update incorporated several more years (most recent years) of harvest data for red porgy. Therefore, these estimates are the most accurate reflection of how the red porgy component of the snapper grouper fishery is being prosecuted now. The South Atlantic Council has requested a benchmark assessment in 2014 for red porgy, at which time the estimates for all management reference points will be updated again and the South Atlantic Council may determine the most prudent course of action to continue rebuilding the stock.

Biological Impacts of Action Alternatives

The Comprehensive ACL Amendment (SAFMC 2011b) established an ABC, sector ACLs, a recreational ACT, and AMs for red porgy that represent the status quo situation for management of the species. The Comprehensive ACL Amendment (SAFMC 2011b) specified an ABC of 395,304 lbs ww landed catch and a total ACL of 395,304 lbs ww, which is allocated equally between the commercial and recreational sectors. Red porgy was also assigned a recreational sector ACT of 160,098 lbs ww, and defined OY as being equal to the ACL and ABC. These harvest limits and targets would remain in effect under **Alternative 1 (No Action)**, and they would not be updated according to the SSC's new ABC recommendation based on the 2012 stock assessment update. The status quo ABC and sector ACLs are greater than the ABC recommend by the SSC in October 2012. Therefore, **Alternative 1 (No Action)** would be expected to have a greater level of negative biological impacts on the stock than **Alternatives 2** or **Preferred Alternative 3**. Because the 2012 stock assessment update indicated the red porgy stock could not rebuild to B_{MSY} by the end of the rebuilding timeframe, even in the absence of fishing mortality, the South Atlantic Council has requested a new SEDAR benchmark stock assessment for 2014. The results of that assessment will determine what actions the South Atlantic Council may take in the future to address the stock status of red porgy. Until then, the SSC and the South Atlantic Council have recommended harvest levels for red porgy be associated with the yield at $75\%F_{MSY}$. Setting harvest levels for red porgy at the yield at $75\%F_{MSY}$ for 2013 through 2015 would be in accordance with the National Standard 1 Guidelines if red porgy is not rebuilt by the end of the rebuilding time frame, and therefore would be a proactive approach for managing the species. Furthermore, capping catch levels at 2015 values for future years would allow fishing mortality to dip below F_{MSY} and provide greater opportunity for the stock to rebuild.

Preferred Alternative 3 provides more biological protection for red porgy by retaining the ABC/ACL of 328,000 lbs ww for 2015 until results from the new SEDAR benchmark are implemented. **Alternative 2** would allow the ABC/ACL to increase by 26,000 lbs ww in 2016 and more in 2017 and 2018, and **Alternative (No Action)** would have retained the current ABC/ACL of 395,304 lbs ww.

Alternatives 2 and **Preferred Alternative 3** would maintain the current definition of OY and ACL for red porgy established in the Comprehensive ACL Amendment (SAFMC 2011b). When the SSC recommends an ABC for a species, they systematically take into account uncertainty, which establishes a buffer between the ABC and OFL. With those factors built into the primary harvest limit from which the other limits are tiered, the risk of overfishing is reduced regardless of how close the ACL and OY are set to the ABC. In the case of red porgy, the Comprehensive ACL Amendment set the ACL equal to the ABC, with no buffer in between the two values because: (1) commercial and recreational harvest monitoring methods have vastly improved the accuracy and timeliness of landings information received by the SEFSC; and (2) sector AMs implemented through the Comprehensive ACL Amendment (SAFMC 2011b) are in place to correct for any ACL overages should they occur.

The CLM came online in June 2012 and is now being used to track commercial landings of federally-managed fish species. This system is able to track individual dealer reports, track

compliance with reporting requirements, project fishery closures using five different methods, and analyze why ACLs are exceeded. The CLM performs these tasks by taking into account: (1) spatial boundaries for each stock based on fishing area; (2) variable quota periods such as overlapping years or multiple quota periods in one year; and (3) overlapping species groups for single species as well as aggregated species. Data sources for the CLM system include the Standard Atlantic Fisheries Information System for Georgia and South Carolina, and the Bluefin Data file upload system for Florida and North Carolina. The CLM system is also able to track dealer reporting compliance with a direct link to the permits database in NMFS SERO.

Additionally, the Gulf of Mexico and South Atlantic Council approved a Joint Dealer Reporting Amendment and sent the amendment for formal review in October 2012. The Joint Dealer Reporting Amendment would increase reporting frequency for dealers to once per week, and require a single dealer permit for all finfish dealers the Southeast Region. The CLM and the new dealer reporting requirements constitute major improvements to commercial fisheries monitoring, and go far beyond monitoring efforts that were in place when the National Standard 1 Guidelines were developed. The new CLM quota monitoring system and the generic dealer reporting amendment are expected to provide more timely and accurate data reporting, and thus reduce the incidence of quota overages.

Recreational landings of red porgy are far below the sector ACL, and recreational AMs have not been triggered. Harvest monitoring efforts in the recreational sector are also in the process of being improved. In early 2013, a new headboat electronic reporting system was implemented and headboats may report their landings electronically rather than through paper logbooks. Additionally, the Gulf of Mexico and South Atlantic Councils have completed generic amendments that would require all headboats to report their landings using the new electronic reporting system, and increase the reporting frequency (under Secretarial review). The SEFSC is also developing an electronic reporting system for charter boats operating the Southeast Region. Once the charterboat reporting system is close to being finalized, the Gulf of Mexico and South Atlantic Councils will develop a joint amendment that would require electronic reporting for charterboats with a set reporting frequency. These recreational harvest-monitoring efforts could substantially increase the accuracy and timeliness of in-season reporting and reduce the risk of recreational ACL overages, which would be biologically beneficial for the vermilion snapper stock.

Sector AMs were implemented in the Comprehensive ACL Amendment (SAFMC 2011b). For the commercial sector, if the ACL is met or projected to be met, all purchase and sale is prohibited and harvest and/or possession is limited to the bag limit. If the commercial ACL is exceeded, the Regional Administrator shall publish a notice to reduce the commercial sector ACL in the following season by the amount of the overage if the species is overfished. For the recreational sector, if the ACL is exceeded, the following year's landings would be monitored in-season for persistence in increased landings. The Regional Administrator will publish a notice to reduce the length of the fishing season as necessary. It is the South Atlantic Council's intent to reexamine the system of AMs for red porgy in a future amendment to bring consistency to AMs. In that amendment, the South Atlantic Council may consider adding a payback provision for the recreational sector, to reduce the ACL in fishing seasons following an ACL overage. If the AMs

for red porgy were strengthened, the risk of overfishing may further decrease compared to the status quo.

Alternative 1 (No Action), Alternative 2, and **Preferred Alternative 3** are unlikely to result in any direct adverse impacts on protected species such as endangered or threatened whales, sea turtles, corals, or HAPCs. **Alternative 2** and **Preferred Alternative 3** would decrease the ACL from the status quo, but overall, this option would not change current fishing practices for red porgy. Total harvest would still be restrained by the commercial and recreational ACLs, and AMs would still be used to help prevent overfishing. It is unlikely either alternative would result in significantly increased or modified fishing effort in the snapper grouper fishery; therefore, no adverse biological impacts on protected species or HAPCs is expected under this action.

4.5.2 Economic Effects

Commercial

Alternative 1 (No Action) would have no direct economic effects on the red porgy component of the snapper grouper fishery, however it no longer represents the best available data. **Alternative 2** and **Preferred Alternative 3** would require a reduction in the total ACL of 89,304 lb ww in 2013. The difference between **Alternative 2** and **Preferred Alternative 3** is the terminal year of the OY=ACL=ABC formula applied to future years of landings until modified by the South Atlantic Council. **Alternative 2** would use rebuilding projections from the assessment update to specify the ACL through 2018. **Preferred Alternative 3** would use rebuilding projections to specify the ACL through 2015. For the years 2013 through 2015, the economic effects of **Alternative 2** and **Preferred Alternative 3** would be identical. If the South Atlantic Council does not change the OY=ACL=ABC formula in **Preferred Alternative 3** from 2016 through 2018, **Preferred Alternative 3** would result in 75,000 lbs ww fewer red porgy available to the commercial sector over that three year period. According to **Table 3.4.9**, the average price per pound of red porgy was $1.69 (2011 dollars). **Preferred Alternative 3** represents a potential loss of $126,750 (2011 dollars) to fishermen from 2016 through 2018 compared to **Alternative 2**, averaging $667 lost ex-vessel revenue per vessel that landed red porgy (**Table 3.4.3**), but only if the entire commercial ACL for each year 2016 through 2018 under **Alternative 2** could have been landed otherwise. However, such potential losses only represent the worst case scenario because landings in recent years have not approached the ACLs proposed for 2013 through 2018 for either **Alternative 2** or **Preferred Alternative 3**. On the positive side, **Preferred Alternative 3** provides for an increase in revenue up to $258,570 (2011 dollars) in 2013 compared to 2012. The value of the available harvest in 2014 compared to 2012 is projected to be up to $261,105 (2011 dollars). From 2015 until the South Atlantic Council changes the OY=ACL=ABC for red porgy, the value of the available harvest is expected to be up to $277,160 (2011 dollars) higher than 2012.

As ABC increases over time, the ACL would increase each year until 2018 (**Alternative 2**) when the commercial sector would be allowed to harvest 2,848 more lbs ww than in 2012. When comparing future commercial sector ACLs from **Alternative 2** for 2013 through 2018 with landings from 2007 through 2012 (**Table 4.5.4**), only 2011 landings were higher than a projected ACL from 2013 through 2015, but not 2016 – 2017. Using the running average of landings from

the previous six years (from 2007 through 2012) as a proxy for future landings, it would be expected that 131,751 lbs ww would be landed on average in the years 2013 through 2018. This running average is less than the ACL allowed in each year from 2013 through 2015 (**Preferred Alternative 3**) and from 2013 through 2018 (**Alternative 2**). Therefore, unless there is a dramatic increase in the availability of red porgy for harvest, or there are changes in commercial sector fishing behavior, it can be reasonably expected that there will be no direct negative economic effects from **Alternative 2** or **Preferred Alternative 3**, as the proposed ACLs would not be expected to be met in the years 2013 through 2018.

However, if commercial fishing behavior does change, such as shifting effort to species like red porgy (where the commercial ACL is not currently being met) from species where the commercial ACL is being met such as gag, the ACL then has an increased chance of being met in future years. The likelihood of this occurring is related to the degree to which the commercial sector puts additional pressure on the red porgy stock. The effect of increased pressure or effort shifting is somewhat moderated by the annually increasing ACL beginning in 2014 through 2018 (**Alternative 2**) or beginning in 2014 through 2015 (**Preferred Alternative 3**). Without knowing if, or the degree to which fishermen would change behavior, it is impossible to know what the potential economic effects would be.

Table 4.5.4. Commercial sector red porgy ACL from 2007 through 2018 in lbs gw and ww with landings from 2007 through 2012 in lbs gw and ww. (Gutted weight determined with conversion factor of 1.04 from commercial logbooks.)

Year	ACL lbs gw	ACL lbs ww	Total Landings gw	Total Landings ww	Running Average lbs ww
2007	127,000	132,080	119,794	124,586	124,586
2008	127,000	132,080	114,121	118,686	121,636
2009	190,050	197,652	113,158	117,684	115,691
2010	190,050	197,652	108,754	113,104	118,515
2011	190,050	197,652	172,926	179,843	130,781
2012	190,050	197,652	131,350	136,604	131,751
2013	147,115	153,000			
2014	148,558	154,500			
2015	157,692	164,000			
2016	170,192	177,000			
2017	182,212	189,500			
2018	192,788	200,500			

Source: NMFS (sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/; accessed on 1/17/13.)

Recreational

The same general methodology used and described in **Sections 4.1.2** and **4.4.2** is employed to estimate the economic effects of **Alternative 2** and **Preferred Alternative 3** relative to **Alternative 1 (No Action)**. **Alternative 2** would set increasing ACLs from 2013 through 2018 whereas **Preferred Alternative 3** would set the same ACLs as **Alternative 2** but only through 2015. Each year's ACL for the two alternatives would be below the status quo ACL of **Alternative 1 (No Action)** except for 2018.

In principle, **Alternative 2** and **Preferred Alternative 3** would result in CS and NOR reductions over time. However, recent recreational landings of red porgy have been well below the current ACL and any of the reduced ACLs set forth in **Alternative 2** and **Preferred Alternative 3**. Therefore, given that there are no changes in management measures directly affecting the recreational harvest of red porgy and the low landings of red porgy, **Alternative 2** and **Preferred Alternative 3** would not be expected to result in changes to the CS and NOR of the recreational sector in the short term and most likely through 2018.

To the extent that the ACLs of **Alternative 2** or **Preferred Alternative 3** would not likely be fully harvested, the recreational sector would tend to forgo some CS and NOR over time. To provide some insights on forgone benefits under **Alternative 2** and **Preferred Alternative 3**, CS changes over time are calculated. For this purpose, the 2007-2011 recreational landings of red porgy are assumed as the baseline landings. These estimates are reported in **Table 4.5.5**. It should be noted that these values are not losses due to **Alternative 2** or **Preferred Alternative 3**. They represent forgone landings and CS values if the ACLs under these two alternatives are not fully harvested. The very low target trips for red porgy reported by recreational anglers essentially preclude the estimation of NOR changes. It is simply noted here that the economic effects of **Alternative 2** and **Preferred Alternative 3** would be identical for 2013 through 2015. Since **Alternative 2** would set higher ACLs for 2016 through 2018 than **Preferred Alternative 3**, its economic effects would likely be higher for these three years than those of **Preferred Alternative 3**.

Table 4.5.5. Forgone landings and net present value of consumer surplus (CS) under **Alternative 2** and **Preferred Alternative 3** relative to average 2007-2011 recreational landings of red porgy.

Landings Short Fall Relative to ACLs (lb ww)						
	2013	**2014**	**2015**	**2016**	**2017**	**2018**
Charter	9,136	9,458	11,497	14,287	16,970	19,331
Headboat	21,601	22,363	27,184	33,781	40,124	45,706
Priv/Rent.	11,829	12,246	14,886	18,499	21,973	25,030
TOTAL	42,567	44,067	53,567	66,567	79,067	90,067
Present Value of Forgone CS Under a 7%, 5%, and 3% Discount Rate (Thousand 2011 Dollars)						
	Alternative 2			**Preferred Alternative 3**		
	7%	**5%**	**3%**	**7%**	**5%**	**3%**
Charter	$2,123	$ 2,282	$2,457	$896	$931	$968
Headboat	$5,021	$ 5,395	$5,811	$2,118	$2,201	$2,290
Priv/Rent.	$2,749	$ 2,954	$3,182	$1,160	$1,205	$1,254
TOTAL	$9,894	$ 10,630	$11,450	$4,174	$4,338	$4,512

4.5.3 Social Effects

As discussed in **Section 4.1.3**, adjustments in ACLs may result in short-term negative or positive impacts on the commercial fleet, for-hire fleet, and recreational anglers, but social benefits would be expected if the ACL adjustment is based on updated information that more accurately reflected current conditions of the stock and the fleet. Because red porgy is under a rebuilding plan, accurate and updated catch limits (**Alternative 2** and **Preferred Alternative 3**) are crucial to staying on track with rebuilding the stock, and would be expected to generate greater long-term social benefits than **Alternative 1 (No Action)**.

In general, a decrease in the ACL could have negative social impacts if recent landings are higher, and greater reductions would likely have increased negative impacts on fishermen. The proposed ACLs for 2013-2018 under **Alternative 2** and the proposed ACLs for 2013-2015 under **Preferred Alternative 3** are about 25% lower than the 2012 ACL but the ACLs under **Alternative 1 (No Action)** would not reduce the allowable harvest for the red porgy component of the snapper grouper fishery. **Alternative 2** and **Preferred Alternative 3** would be expected to have more impact on the recreational and commercial sectors than **Alternative 1 (No Action).** However, **Preferred Alternative 3** would maintain the 2015 ACL until after review in 2016 following the assessment update for red porgy. New and timely information would be incorporated into management when it becomes available, which would be most beneficial to all resource users.

The commercial fleet has been constrained by the commercial ACL since 2009 and although harvest levels would be lower under the proposed ACLs of **Alternative 2** and **Preferred Alternative 3**, there may be less of a substantial impact on fishermen and on the primary commercial red porgy communities (shown in **Figure 3-9**) than would result if the harvest levels were higher than a new ACL. Because the recreational ACL is usually not met, the decrease under **Alternative 2** and **Preferred Alternative 3** is not expected to generate negative impacts on the recreational sector, although it may restrict future harvest opportunities if recreational catch increases over time.

4.5.4 Administrative Effects

This action would have no direct impacts on the administrative environment, regardless of which alternative is chosen as the preferred. Changing the value of the ACLs and ACT for red porgy requires no significant time or cost burden to implement. The South Atlantic Council may wish to address red porgy rebuilding efforts and management measures in the future after the 2014 stock assessment is completed; however, this action alone would not result in administrative effects beyond the status quo.

Chapter 5. Council's Choice for the Preferred Alternative

5.1 Revise the Annual Catch Limit (ACL, including sector ACLs) and Optimum Yield (OY) for Vermilion Snapper

5.1.1 Snapper Grouper Advisory Panel Comments and Recommendations

The Snapper Grouper Advisory Panel (AP) met November 7-8, 2012 in Charleston, South Carolina. South Atlantic Fishery Management Council (South Atlantic Council) staff briefed the AP on discussions relevant to snapper grouper held during the October 23-25, 2012 meeting of the Scientific and Statistical Committee (SSC). The SSC provided input on the recently completed vermilion snapper and red porgy stock assessment updates and recommended an allowable biological catch (ABC) level for both species.

Vermilion snapper were found to be neither overfished nor experiencing overfishing. For the vermilion snapper stock, the SSC recommended setting ABC based on projections at P* = 40%. The AP did not provide any specific motion.

Regulatory Amendment 18 was available for the AP to review during the week of February 11, 2013, with a request for e-mail comments to be received by March 4, 2013. Advisory Panel members who submitted comments supported **Alternative 2** as the South Atlantic Council's preferred.

5.1.2 Law Enforcement Advisory Panel Comments and Recommendations

The Law Enforcement Advisory Panel (LEAP) met February 6-7, 2013 in North Charleston, South Carolina. South Atlantic Council staff provided an overview of the actions and alternatives for consideration in Regulatory Amendment 18 and informed the LEAP on the proposed timing. The LEAP did not express any concerns or provide recommendations. However, it was pointed out that the amendment did not contain the appropriate link to the updated penalty schedule. (Note: This section of the amendment document has been fixed.)

5.1.3 Scientific and Statistical Committee Comments and Recommendations

The SSC reviewed the vermilion snapper assessment update at their October 23-25, 2012, meeting in North Charleston, South Carolina. The SSC recommendations are as follows:

"The SSC found this update to be as good, if not better than the last benchmark assessment (SEDAR 17). The Committee considered it to represent the best scientific information available and recommended its use for setting ABC for vermilion snapper in the South Atlantic.

Results suggest that spawning stock has generally declined throughout the full assessment period (1946-2011). The terminal (2011) estimate of spawning stock is the lowest value of the time series, slightly below SSB_{MSY} (SSB_{2011}/SSB_{MSY}=0.98), but still above MSST (SSB_{2011}/MSST =1.26), using the Council's definition of MSST as (1-M)*SSB_{MSY}. The estimated fishing rate has exceeded the MFMT (represented by F_{MSY}) only rarely, and never since 1992. The terminal estimate is below F_{MSY} ($F_{2009-2011}/F_{MSY}$ = 0.67). Thus, this assessment indicates that the stock is not overfished, nor is it experiencing overfishing.

The SSC thought uncertainty was well addressed in this assessment. In SEDAR-17 uncertainty was examined in part through the use of multiple models and sensitivity runs, and for the base catch-age model, by bootstrapping recruitment residuals and refitting the spawner-recruit curve many times. However, SEDAR-17 reviewers noted that this bootstrapping method captured uncertainty only partially. Indeed, more recent SEDAR assessments have applied the more thorough method of a mixed Monte Carlo and bootstrap (MCB) approach. Because of reviewer's comments, and because of the increased emphasis on accounting for uncertainty in SEDAR assessments, this update applied the more complete MCB approach.

The Committee also noted that given the outcome of the assessment, there does not seem to be any red flags in regard to discards in this fishery.

Since this assessment falls under Tier 1 of our ABC control rule, ABC was obtained according to a P-star value. A summary of results from applying the ABC control rule is presented below:

Assessment Information:	Tier 1 (0%)
Uncertainty Characterization:	Tier 2 (2.5%)
Stock Status:	Tier 2 (2.5%)
Productivity and Susceptibility:	Tier 2 (5%)
Total score:	10%
P-star value:	40%

The SSC recommends using the estimated MSY value (i.e., not an MSY proxy) for OFL (OFL= 1.563 mp), then 5-year projections at a P-star = 40% for the ABC (see Table 19 below).

Appendix C Projections with P^*=0.4.

Table 19. Acceptable biological catch (ABC) in units of 1000 lb whole weight, based on the annual probability of overfishing $P^* = 0.4$. F = fishing mortality rate (per yr), SSB = mid-year spawning stock (1E12 eggs), Pr(SSB < MSST) = proportion of replicates overfished (i.e., SSB below the base-run point estimate of MSST), R = recruits (1000 age-1 fish), D = discard mortalities (1000 lb whole weight), and L = landings (1000 lb whole weight). ABC (1000 lb whole weight) includes landings and discard mortalities. Annual ABCs are a single quantity among the 10,000 replicate projections; other values presented are medians.

Year	F	P^*	SSB	Pr(SSB < MSST)	R	D(1000 lb)	L(1000 lb)	ABC(1000 lb)
2012	0.544	0.355	6.12	0.25	2926	53	1321	–
2013	0.574	0.4	6.12	0.29	2890	56	1372	1429
2014	0.543	0.4	6.09	0.31	2836	55	1312	1367
2015	0.524	0.4	6.17	0.32	2800	53	1289	1343
2016	0.506	0.4	6.28	0.33	2740	51	1269	1322

The SSC would prefer to see the next vermilion snapper update by 2015 (although an update no later than 2016 would also be acceptable)."

5.1.4 Public Comments and Recommendations

Regulatory Amendment 18 was distributed for public review and comment beginning on February 13, 2013, by posting to the South Atlantic Council's web site. Public notices were distributed making special note of this opportunity to comment. Regulatory Amendment 18 was included in the first briefing book and a revised document was included in the second briefing book.

The South Atlantic Council's March 2013 meeting agenda noticed an open informal public question and answer session with National Marine Fisheries Service (NMFS) Regional Administrator Dr. Roy Crabtree and South Atlantic Council Chairman David Cupka beginning at 5:30 p.m. on Wednesday, March 6, 2013 during the South Atlantic Council meeting. In addition, public comments were accepted beginning at 8:45 a.m. on Friday, March 7, 2013, during the South Atlantic Council meeting. The South Atlantic Council considered all comments as they made their final decisions on Friday, March 8, 2013.

South Atlantic Council staff presented a summary of written public comments to the Snapper Grouper Committee during their March 5-6, 2013, meeting (**Appendix I**).

5.1.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council selected **Alternative 2** as **Preferred** for Action 1. The alternative would specify the following for vermilion snapper in the South Atlantic until modified:

Preferred Alternative 2. Revise ACL (including sector ACLs) for vermilion snapper for 2013 through 2016 as shown below and set ACL=ABC=OY. The acceptable biological catch (ABC) and ACL values for 2013 onwards are based on landed catch only; discards are accounted for in specifying the ABC in terms of landed catch and not total kill. The values for 2016 would remain until modified.

Note: The values for **Preferred Alternative 2** are shown in **Table 4.1.1** (reproduced below). The commercial allocation is 68% and the recreational allocation is 32%. The ABC declines over time because the stock is currently above the biomass at maximum sustainable yield (B_{MSY}), and the stock biomass will eventually decrease to the level that produces B_{MSY}.

Table 4.1.1. ABC/ACLs for 2013-2016 from the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule. Values are based on landed catch.

Year	ABC ww	Total ACL ww	Comm ACL ww	Rec ACL ww
2013	1,372,000	1,372,000	932,960	439,040
2014	1,312,000	1,312,000	892,160	419,840
2015	1,289,000	1,289,000	876,520	412,480
2016	1,269,000	1,269,000	862,920	406,080

The Comprehensive ACL Amendment (SAFMC 2011b) established an ABC control rule for assessed snapper grouper species. In accordance with National Standard 1 guidelines, the control rule take into account scientific and data uncertainty that may exist for certain species managed within the snapper grouper fishery management unit (FMU). **Preferred Alternative 2** is consistent with the ABC control rule and how the South Atlantic Council has chosen to specify ACL and OY for other snapper grouper species.

The South Atlantic Council discussed setting the ACL at an average of the 2013-2016 values or at the 2016 value to be more conservative because the plot of biomass compared to the biomass that produces the maximum sustainable yield (MSY) (**Figure 3.2.4**) shows a decline trend over time. In addition, the commercial ACL has been exceeded and there are no payback requirements. However, the current biomass is above the biomass at MSY and the South Atlantic Council weighed setting the ACL at a lower level, closer to the equilibrium level, and let the fish remain in the water and be surplus biomass, versus taking advantage of the increased biomass and giving the increase to the fishermen. Over those four years, this amounts to about 200,000 pounds total. The South Atlantic Council set the ACL based on an average of years for the golden tilefish ACL but there was more uncertainty in that assessment. The South Atlantic Council recognized the dire economic conditions facing fishermen and concluded setting the ACL at the values provided by the SSC from the ABC control rule was sufficiently conservative

while addressing the economic and social needs of the recreational and commercial fishing sectors.

The South Atlantic Council concluded **Preferred Alternative 2** best meets the purpose of revising the vermilion snapper ACLs in the South Atlantic Council's area of authority and addresses the need to ensure the vermilion snapper ACLs are based upon the best available science. Further, **Preferred Alternative 2** enhances socioeconomic benefits to fishermen and fishing communities that utilize the vermilion snapper resource. **Preferred Alternative 2** also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and other applicable law.

5.2 Modify the commercial trip limit for vermilion snapper

5.2.1 Snapper Grouper Advisory Panel Comments and Recommendations

Regulatory Amendment 18 was available for the AP to review during the week of February 11, 2013, with a request for e-mail comments to be received by March 4, 2013. Advisory Panel members who submitted comments were in support of the South Atlantic Council's choice for the preferred alternative (**Alternative 3**). AP members offered that this alternative would extend the season over a longer period of time providing more opportunity to all fishery participants and, hopefully, reducing the derby.

5.2.2 Law Enforcement Advisory Panel Comments and Recommendations

The Law Enforcement Advisory Panel (LEAP) met February 6-7, 2013, in North Charleston, South Carolina. South Atlantic Council staff provided an overview of the actions and alternatives for consideration in Regulatory Amendment 18 and informed the LEAP on the proposed timing. This amendment would adjust the ACL (and sector ACLs) for vermilion snapper and red porgy based on the recently completed stock assessment updates for those two species. In addition, the amendment contains actions to consider changes in management measures for vermilion snapper. The LEAP did not express any concerns or provide recommendations. However, it was pointed out that the amendment did not contain the appropriate link to the updated penalty schedule. (Note: This section of the amendment document has been fixed.)

5.2.3 Scientific and Statistical Committee Comments and Recommendations

No specific comments were received on this action.

5.2.4 Public Comments and Recommendations

Regulatory Amendment 18 was distributed for public review and comment beginning on February 13, 2013, by posting to the South Atlantic Council's web site. Public notices were distributed making special note of this opportunity to comment. Regulatory Amendment 18 was included in the first briefing book and a revised document was included in the second briefing book.

The South Atlantic Council's March 2013 meeting agenda noticed an open informal public question and answer session with NMFS Regional Administrator Dr. Roy Crabtree and South Atlantic Council Chairman David Cupka beginning at 5:30 p.m. on Wednesday, March 6, 2013, during the South Atlantic Council meeting. In addition, public comments were accepted beginning at 8:45 a.m. on Friday, March 7, 2013, during the South Atlantic Council meeting. The South Atlantic Council considered all comments as they made their final decisions on Friday, March 8, 2013.

South Atlantic Council staff presented a summary of written public comments to the Snapper Grouper Committee during their March 5-6, 2013 meeting (**Appendix I**).

5.2.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council selected **Alternative 3** as **Preferred** for Action 2. The alternative would specify the following commercial trip limit for vermilion snapper in the South Atlantic:

Preferred Alternative 3. Reduce the commercial trip limit for vermilion snapper to 1,000 lbs gw (1,110 lbs ww). When 75% of the commercial ACL has been met or projected to be met, reduce the commercial trip limit to 500 lbs gw (555 lbs ww).

At their March 2013 meeting, the South Atlantic Council considered the following new alternative: First season trip limit = 1,500 lbs and second season trip limit = 1,000 lbs. When 75% of the commercial ACL has been met or projected to be met, reduce the commercial trip limit to 500 lb gw. The rationale was that in the first half of the year, there are not many species other than vermilion snapper available and it would be difficult to make an economically viable trip on 1,000 pounds; larger vessels cannot really make a trip for 1,000 pounds and they definitely would not for 500 pounds. During the second half of the season, grouper and other species are available so a trip limit of 1,000 pounds would be more economical with the other species. This could extend the second season and reduce discards. The South Atlantic Council approved a motion to move the action to the considered but rejected appendix in Regulatory

Amendment 18 because of the extensive support from the fishermen and from the Snapper Grouper AP for the preferred alternative and the rapid closure of the fishery. In addition, the South Atlantic Council will evaluate alternatives to modify the commercial fishing seasons for vermilion snapper in Regulatory Amendment 14 and this could address some of the concerns about the lower trip limit.

The South Atlantic Council recognizes this reduction in trip limit will negatively impact larger vessels and vessels that make longer trips. Based on commercial logbook data for 2012 (**Appendix G**, Table 1), approximately 17% of the trips exceeded 1,000 lbs gw in January and 13% in February. These vessels would have the opportunity to make additional trips to make up for the lost catch, but they would also experience increased costs for those additional trips. The trip limit and the step down would slow harvest and increase the ability to track commercial landings and close the commercial fishery without exceeding the commercial ACL. The South Atlantic Council concluded the benefits of slowing harvest with the lower trip limit and the step down outweigh the increased costs.

The South Atlantic Council concluded **Preferred Alternative 3** best meets the purpose of modifying the existing commercial trip limit for vermilion snapper in the South Atlantic Council's area of authority to optimize utilization of the resource and addresses the need to ensure overfishing does not occur and prevent unnecessary negative socio-economic impacts. Further, **Preferred Alternative 3** enhances socioeconomic benefits to the majority of fishermen and fishing communities that utilize the vermilion snapper resource. **Preferred Alternative 3** also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and other applicable law.

5.3 Modify the commercial fishing seasons for vermilion snapper

5.3.1 Snapper Grouper Advisory Panel Comments and Recommendations

Regulatory Amendment 18 was available for the AP to review during the week of February 11, 2013, with a request for email comments to be received by March 4, 2013. One AP member did not support the action and suggested allowing fishing year-round and impose mandatory reporting of landings within 24 hours of reaching port by electronic means. The same AP member offered that such a system exists in North Carolina for regulated fisheries. Two AP members supported **Alternative 2, Sub-alternative 2a**. This approach would align the start of the vermilion snapper season with that of black sea bass and would help to eliminate a period of increased regulatory discards. Large amounts of incidental bycatch could possibly cancel out some positive aspects of the proposed 2013-2016 ACL increase.

5.3.2 Law Enforcement Advisory Panel Comments and Recommendations

The Law Enforcement Advisory Panel (LEAP) met February 6-7, 2013, in North Charleston, South Carolina. South Atlantic Council staff provided an overview of the actions and alternatives for consideration in Regulatory Amendment 18 and informed the LEAP on the proposed timing. This amendment would adjust the ACL (and sector ACLs) for vermilion snapper and red porgy based on the recently completed stock assessment updates for those two species. In addition, the amendment contains actions to consider changes in management measures for vermilion snapper. The LEAP did not express any concerns or provide recommendations. However, it was pointed out that the amendment did not contain the appropriate link to the updated penalty schedule. (Note: This section of the amendment document has been fixed.)

5.3.3 Scientific and Statistical Committee Comments and Recommendations

No specific comments were received on this action.

5.3.4 Public Comments and Recommendations

Regulatory Amendment 18 was distributed for public review and comment beginning on February 13, 2013, by posting to the South Atlantic Council's web site. Public notices were distributed making special note of this opportunity to comment. Regulatory Amendment 18 was included in the first briefing book and a revised document was included in the second briefing book.

The South Atlantic Council's March 2013 meeting agenda noticed an open informal public question and answer session with NMFS Regional Administrator Dr. Roy Crabtree and South Atlantic Council Chairman David Cupka beginning at 5:30 p.m. on Wednesday, March 6, 2013 during the Council meeting. In addition, public comments were accepted beginning at 8:45 a.m. on Friday, March 7, 2013, during the South Atlantic Council meeting. The South Atlantic Council considered all comments as they made their final decisions on Friday, March 8, 2013.

South Atlantic Council staff presented a summary of written public comments to the Snapper Grouper Committee during their March 5-6, 2013, meeting (**Appendix I**).

5.3.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council selected **Alternative 1 (No Action)** as **Preferred** for Action 3. The alternative would specify the following commercial fishing seasons for vermilion snapper in the South Atlantic:

Preferred Alternative 1 (No Action). The commercial fishing year for vermilion snapper is split into two seasons of equal duration, each with its own ACL. The first season begins on January 1 and ends on June 30 (6 months). The second season begins on July 1 and ends on December 31 (6 months). The commercial ACL is split equally between the two seasons.

Note: The figures with the new commercial ACLs split by the current seasons **(Preferred Alternative 1, No Action)** are shown in **Table 4.3.1** (reproduced below).

Table 4.3.1. ABC/ACLs and commercial split season ACLs for 2013-2016 based on the recent SEDAR assessment and the South Atlantic Council/SSC-approved ABC control rule.

Year	ABC ww	Total ACL ww	Comm ACL ww	Comm ACL Jan-June ww	Comm ACL July-Dec ww
2013	1,372,000	1,372,000	932,960	466,480	466,480
2014	1,312,000	1,312,000	892,160	446,080	446,080
2015	1,289,000	1,289,000	876,520	438,260	438,260
2016	1,269,000	1,269,000	862,920	431,460	431,460

The South Atlantic Council discussed additional alternative fishing seasons and the desire to consider the black sea bass and vermilion snapper fishing seasons together to provide additional opportunities for fish and to also reduce the pressure on both of these species and try to mitigate the derby, but recognized that adding any new alternatives would delay completion of Regulatory Amendment 18. Rather than delay the increase in the vermilion snapper ACL, the South Atlantic Council chose to take no action in this amendment and directed staff to add this action, with additional alternatives, to Regulatory Amendment 14. The South Atlantic Council is scheduled to approve Regulatory Amendment 14 for public hearings at their June meeting, conduct public hearings in August 2013, and revise/approve the final amendment at their September 2013 meeting. Moving this action to Regulatory Amendment 14 will allow the South Atlantic Council to consider changes to the black sea bass and vermilion snapper fishing seasons jointly and to gather more public input given that there is limited support for the current alternatives at this time.

The South Atlantic Council concluded **Preferred Alternative 1 (No Action)** best meets the purpose to optimize utilization of the resource. Further, **Preferred Alternative 1 (No Action)** prevents unnecessary negative socioeconomic impacts that may otherwise be realized by fishermen and fishing communities that utilize the vermilion snapper resource. **Preferred Alternative 1 (No Action)** also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and other applicable law.

5.4 Modify the recreational closed season for vermilion snapper

5.4.1 Snapper Grouper Advisory Panel Comments and Recommendations

Regulatory Amendment 18 was available for the AP to review during the week of February 11, 2013, with a request for email comments to be received by March 4, 2013. AP members who submitted comments supported the South Atlantic Council's choice of a preferred for this action (**Alternative 2**). They maintain that regulatory discards have been a negative effect of Amendment 16 (SAFMC 2009a) and lifting the recreational closure while increasing the ACL will have long lasting positive benefits for both the fish and fishermen.

5.4.2 Law Enforcement Advisory Panel Comments and Recommendations

The Law Enforcement Advisory Panel (LEAP) met February 6-7, 2013, in North Charleston, South Carolina. South Atlantic Council staff provided an overview of the actions and alternatives for consideration in Regulatory Amendment 18 and informed the LEAP on the proposed timing. The LEAP did not express any concerns or provide recommendations. However, it was pointed out that the amendment did not contain the appropriate link to the updated penalty schedule. (Note: This section of the amendment document has been fixed.)

5.4.3 Scientific and Statistical Committee Comments and Recommendations

No specific comments were received on this action.

5.4.4 Public Comments and Recommendations

Regulatory Amendment 18 was distributed for public review and comment beginning on February 13, 2013, by posting to the South Atlantic Council's web site. Public notices were distributed making special note of this opportunity to comment. Regulatory Amendment 18 was included in the first briefing book and a revised document was included in the second briefing book.

The South Atlantic Council's March 2013 meeting agenda noticed an open informal public question and answer session with NMFS Regional Administrator Dr. Roy Crabtree and South Atlantic Council Chairman David Cupka beginning at 5:30 p.m. on Wednesday, March 6, 2013

during the South Atlantic Council meeting. In addition, public comments were accepted beginning at 8:45 a.m. on Friday, March 7, 2013, during the South Atlantic Council meeting. The South Atlantic Council considered all comments as they made their final decisions on Friday, March 8, 2013.

South Atlantic Council staff presented a summary of written public comments to the Snapper Grouper Committee during their March 5-6, 2013 meeting (**Appendix I**).

5.4.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council selected **Alternative 2** as **Preferred** for Action 4. The alternative would modify the recreational closed season for vermilion snapper in the South Atlantic:

Preferred Alternative 2. Remove the recreational season closure for vermilion snapper.

The South Atlantic Council established the November 1 through March 31 (5 months) recreational closed season to end overfishing of vermilion snapper through Amendment 16 (SAFMC 2009a). The 2012 assessment with data through 2011 (SEDAR 17 Update Assessment 2012), indicated the vermilion snapper stock is no longer undergoing overfishing and is not overfished. In addition, a recreational annual catch limit (ACL) and recreational accountability measures (AMs) have been implemented through Amendment 17B (SAFMC 2010b) to ensure overfishing does not occur. Only 28% of the recreational ACL was landed during 2012. Therefore, the South Atlantic Council concluded the recreational season closure for vermilion snapper is no longer necessary.

The South Atlantic Council concluded **Preferred Alternative 2** best meets the purpose of modifying the existing recreational season closure for vermilion snapper in the South Atlantic Council's area of authority to optimize utilization of the resource and addresses the need to ensure overfishing does not occur and prevent unnecessary negative socio-economic impacts. Further, **Preferred Alternative 2** enhances socioeconomic benefits to fishermen and fishing communities that utilize the vermilion snapper resource. **Preferred Alternative 2** also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and other applicable law.

5.5 Revise the Annual Catch Limit (ACL, including sector ACLs), Optimum Yield (OY), and Annual Catch Target (ACT) for Red Porgy

5.5.1 Snapper Grouper Advisory Panel Comments and Recommendations

The Snapper Grouper Advisory Panel (AP) met November 7-8, 2012, in Charleston, South Carolina. South Atlantic Council staff briefed the AP on discussions relevant to snapper grouper held during the October 23-25, 2012 meeting of the Scientific and Statistical Committee (SSC). The SSC provided input on the recently completed vermilion snapper and red porgy stock assessment updates and recommended an ABC level for both species.

Red porgy are still overfished but no longer undergoing overfishing. The SSC recommended that the red porgy ABC remain at the yield at 75% F_{MSY}. The AP was informed that an increase in the vermilion ACL was likely; whereas, there was a possibility of a decrease in the red porgy ACL. The AP made the following motion pertaining to red porgy:
MOTION: SPECIFY THE ABC=ACL FOR RED PORGY
APPROVED (WITH 4 OPPOSED)

Regulatory Amendment 18 was available for the AP to review during the week of February 11, 2013, with a request for e-mail comments to be received by March 4, 2013. AP Members who submitted comments on the amendment supported **Alternative 1 (No Action)**. The following rationale was offered by an AP member: The 2012 stock assessment update (still impacted by MRFSS) indicated that the red porgy stock could not be rebuilt by the end of the rebuilding period even with the absence of fishing mortality. With a two-month commercial closure (March and April) and an established 120 fish regulatory limit of harvest, it is still hard to believe that not enough progress has been made towards rebuilding this species by 2018. The 2014 Red Porgy SEDAR benchmark should shed better light on the current status of this stock bringing it more in line with what commercial and recreational fishermen are seeing which is positive, and not negative rebuilding results. Since the recreational sector will not be affected either way until the benchmark, there should be no reason to rush any decision to change the current regulatory status creating more hardship on the already stressed commercial fishermen until the new SEDAR benchmark is made available next year.

5.5.2 Law Enforcement Advisory Panel Comments and Recommendations

The Law Enforcement Advisory Panel (LEAP) met February 6-7, 2013, in North Charleston, South Carolina. South Atlantic Council staff provided an overview of the actions and alternatives for consideration in Regulatory Amendment 18 and informed the LEAP on the proposed timing. The LEAP did not express any concerns or provide recommendations. However, it was pointed

out that the amendment did not contain the appropriate link to the updated penalty schedule. (Note: This section of the amendment document has been fixed.)

5.5.3 Scientific and Statistical Committee Comments and Recommendations

The SSC reviewed the red porgy assessment update at their October 23-25, 2012 meeting in North Charleston, South Carolina. The SSC recommendations are as follows:

> "The SSC found this update to be well done and providing exactly what was asked for. Results suggest that spawning stock biomass has increased modestly since the benchmark assessment. The 1998 estimate of SSB is about 19% of SSB_{MSY}, and the 2012 estimate is about 47% of SSB_{MSY}. These estimates correspond to about 25% and 61% of MSST, using the Council's definition of MSST as (1-M)*SSB_{MSY} and assuming a natural mortality rate of M = 0.225. The $F_{2009-2011}/F_{MSY}$ estimate is about 64% and results suggest the stock has generally been exploited below the MFMT (represented by F_{MSY}) since the late 1990's. Thus, this assessment indicates that the stock is overfished, but is no longer undergoing overfishing.
>
> The SSC expressed some concern about the relatively low value of steepness (h=0.41) estimated by this update. There was also some discussion about the values of h estimated by previous red porgy assessments including the 2002 peer reviewed benchmark (SEDAR 1) and the 2006 update. However, the Committee recognized that constraints associated with the nature of update assessments make it difficult to properly evaluate how these issues could be resolved.
>
> As this stock is currently under a rebuilding plan, projections were used to evaluate the potential for stock recovery. Several management scenarios were evaluated: (1) no fishing mortality (F = 0), (2) current fishing mortality (fishing mortality rate fixed at the geometric mean of the fishing mortalities estimated during 2009-2011), and (3) multiple constant fishing mortality rates based on F_{MSY}, 85%F_{MSY}, 75%F_{MSY}, and 65%F_{MSY}. Under no management scenarios, including F = 0, is the red porgy population projected to have a 50% or greater chance of SSB > SSB_{MSY} during the current rebuilding time period ending in 2018. Additionally, it is only theoretically possible to achieve F = 0 owing to discard mortality that will inevitably occur by fisheries targeting other stocks. Among all scenarios considered, the red porgy stock exhibits a range of 2% to 18% probability of rebuilding by 2018 and a range of 12% to 89% probability of rebuilding by 2026.
>
> The SSC discussed the management implications of the scenarios described above and explored the possibility of utilizing a provision of the NMFS National Standard 1 (NS1) of the Magnuson-Stevens Fishery Conservation and Management Act that states: ''If the stock or stock complex has not rebuilt by T_{MAX}, then the fishing mortality rate should be maintained at $F_{REBUILD}$ or 75% of the MFMT, whichever is less.''

The SSC observed that the value of F at 75% F_{MSY} estimated by the update (0.13) is very close to the level of F associated with recent red porgy harvest. Therefore, using the NS1 provision described above (i.e., set F= $F_{REBUILD}$ or 75% of the MFMT, whichever is less) would result in a status quo of the current fishery. The SSC recommends that the ABC for red porgy in the South Atlantic be set as the yield at 75% F_{MSY} until the issues with the assessment can be addressed in the next benchmark assessment.

Below are tables summarizing red porgy's estimated status indicators as well as projected yields at 75% F_{MSY} for the period 2013-2026.

Table 17. Estimated status indicators, benchmarks, and related quantities from the Beaufort catch-age model, conditional on estimated current selectivities averaged across fisheries. Precision is represented by standard errors (SE) approximated from Monte Carlo/Bootstrap analysis. Estimates of yield do not include discards; D_{MSY} represents discard mortalities expected when fishing at F_{MSY}. Rate estimates (F) are in units of y^{-1}; status indicators are dimensionless; and biomass estimates are in units of metric tons or pounds, as indicated. Spawning stock biomass (SSB) is measured as adult biomass. Symbols, abbreviations, and acronyms are listed in Appendix A.

Quantity	Units	Estimate	SE
F_{MSY}	y^{-1}	0.17	0.017
$85\%F_{MSY}$	y^{-1}	0.15	0.015
$75\%F_{MSY}$	y^{-1}	0.13	0.013
$65\%F_{MSY}$	y^{-1}	0.11	0.011
$F_{30\%}$	y^{-1}	0.91	0.136
$F_{40\%}$	y^{-1}	0.44	0.045
$F_{50\%}$	y^{-1}	0.26	0.022
B_{MSY}	mt	4254	381
SSB_{MSY}	mt	3933	363
MSST	mt	3048	286
MSY	1000 lb	834	41.0
D_{MSY}	1000 fish	38.9	5.48
R_{MSY}	1000 age-0 fish	2222	218
Y at $85\%F_{MSY}$	1000 lb	826	40.7
Y at $75\%F_{MSY}$	1000 lb	810	40.1
Y at $65\%F_{MSY}$	1000 lb	780	39.2
$F_{2009-2011}/F_{MSY}$	—	0.64	0.178
SSB_{2011}/MSST	—	0.61	0.128
SSB_{2011}/SSB_{MSY}	—	0.47	0.100

Table 24. Scenario 6 projection results (projection years=15) with fishing mortality rate fixed at 75%F_{MSY} ($F = 0.13$) and 2012 landings based on the average landings in 2010 and 2011.

Year	F(per yr)	Pr(SSB > SSB_{MSY})	SSB(mt)	R(1000)	D(1000)	D(klb)	L(1000)	L(klb)	Sum L(klb)
2012	0.12	0.00	1854	1400	12	24	133	300	300
2013	0.13	0.00	1915	1391	13	25	138	306	606
2014	0.13	0.00	2019	1423	15	26	144	309	914
2015	0.13	0.00	2147	1476	16	28	159	328	1242
2016	0.13	0.01	2281	1540	17	30	175	354	1596
2017	0.13	0.02	2412	1603	18	31	187	379	1975
2018	0.13	0.03	2542	1663	19	33	198	401	2376
2019	0.13	0.05	2671	1721	20	35	208	423	2799
2020	0.13	0.07	2797	1775	21	37	218	445	3244
2021	0.13	0.10	2920	1827	22	38	227	466	3710
2022	0.13	0.12	3040	1875	23	40	237	487	4197
2023	0.13	0.15	3157	1921	24	42	246	508	4705
2024	0.13	0.19	3269	1965	24	43	255	527	5232
2025	0.13	0.22	3377	2005	25	45	263	546	5778
2026	0.13	0.25	3479	2043	26	46	272	565	6343

5.5.4 Public Comments and Recommendations

Regulatory Amendment 18 was distributed for public review and comment beginning on February 13, 2013, by posting to the South Atlantic Council's web site. Public notices were distributed making special note of this opportunity to comment. Regulatory Amendment 18 was included in the first briefing book and a revised document was included in the second briefing book.

The South Atlantic Council's March 2013 meeting agenda noticed an open informal public question and answer session with NMFS Regional Administrator Dr. Roy Crabtree and South Atlantic Council Chairman David Cupka beginning at 5:30 p.m. on Wednesday, March 6, 2013 during the Council meeting. In addition, public comments were accepted beginning at 8:45 a.m. on Friday, March 7, 2013, during the South Atlantic Council meeting. The South Atlantic Council considered all comments as they made their final decisions on Friday, March 8, 2013.

South Atlantic Council staff presented a summary of written public comments to the Snapper Grouper Committee during their March 5-6, 2013, meeting (**Appendix I**).

5.5.5 South Atlantic Council Choice for Preferred Alternative

The South Atlantic Council selected **Alternative 3** as **Preferred** for Action 5. The alternative would specify the following for red porgy in the South Atlantic until modified:

Preferred Alternative 3. Revise the ACL (including sector ACLs) for red porgy for 2013 through 2015 as shown below using the OY=ACL=ABC formula established in the Comprehensive ACL Amendment (SAFMC 2011b). The values for 2015 would remain until modified.

Note: The new ABC, ACLs, and recreational ACTs are shown in Table 4.5.1 (reproduced below). Revising the ACL results in a new recreational ACT (based on the existing formula for calculating the red porgy recreational ACT). There is no commercial ACT for red porgy.

Table 4.5.1. New ABC and ACLs based scenario 6 projection results from Table 24 of the red porgy assessment. Gutted weight determined with conversion factor of 1.04 from commercial logbooks.

Year	ABC ww	Total ACL ww	Comm ACL ww	Rec ACL ww	Rec ACT ww
2013	306,000	306,000	153,000	153,000	109,670
2014	309,000	309,000	154,500	154,500	110,746
2015	328,000	328,000	164,000	164,000	117,555
2016	354,000	354,000	177,000	177,000	126,874
2017	379,000	379,000	189,500	189,500	135,834
2018	401,000	401,000	200,500	200,500	143,718

The South Atlantic Council considered extending the increases through 2018 but chose to be more conservative and only allow the increases through 2015. The South Atlantic Council will receive a new benchmark stock assessment for red porgy in 2014. The South Atlantic Council will consider the new assessment in 2015 and any necessary changes to the ABC/ACL/ACT and management measures will be developed during 2015 with implementation in 2016.

The South Atlantic Council concluded **Preferred Alternative 3** best meets the purpose of revising the red porgy ACLs (and recreational ACT) in the South Atlantic Council's area of authority and addresses the need to ensure the red porgy ACLs (and recreational ACT) are based upon the best available science. Further, **Preferred Alternative 3** enhances socioeconomic benefits to fishermen and fishing communities that utilize the red porgy resource. **Preferred Alternative 3** also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and other applicable law.

Chapter 6. Cumulative Effects

This Cumulative Effects Analysis (CEA) for the biophysical environment will follow a modified version of the 11 steps. Cumulative effects for the socio-economic environment will be analyzed separately.

6.1 Biological

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

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

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

2. Establish the geographic scope of the analysis.

The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West, which is also the South Atlantic Fishery Management Council's (South Atlantic Council) area of jurisdiction. In light of the available information, the extent of the boundaries would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. Therefore, the proper geographical boundary to consider effects on the biophysical environment is larger than the entire South Atlantic exclusive economic zone (EEZ). The ranges of affected species are described in **Section 3.2**. The most measurable and substantial effects would be limited to the South Atlantic region.

3. Establish the timeframe for the analysis.

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

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

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

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

A. Past

The reader is referred to **Appendix B** for past regulatory activity for all species in the Snapper Grouper FMP. Past regulatory activity for the relevant snapper grouper species in this amendment is listed below.

Amendment 13C (SAFMC 2006) addressed overfishing of vermilion snapper and allowed increased harvest of red porgy as the stock rebuilt. This amendment was implemented in October 2006.

Amendment 15A (SAFMC 2008a) updated management reference points for red porgy and defined a rebuilding strategy for red porgy. The amendment was implemented in March 2008.

Amendment 15B (SAFMC 2008b) prohibited the sale of all bag limit caught snapper grouper species and established sector allocations for red porgy. Amendment 15B was implemented November 2009.

Amendment 16 to the FMP (SAFMC 2009a) included measures to end overfishing of vermilion snapper. Amendment 16: 1) Defined interim allocations based on landings of 68% commercial and 32% recreational; 2) established a commercial quota of 315,523 pounds gutted weight (lbs gw) January through June and 302,523 lbs gw July through December; 3) reduced the recreational bag limit from 10 fish to 5 fish; and 4) established a recreational closed season November through March. Amendment 16 also requires the use of dehooking tools to reduce bycatch mortality. This amendment was implemented in July 2009.

Amendment 17B (SAFMC 2010b), established annual catch limits (ACLs), annual catch targets (ACTs), and accountability measures (AMs) for 8 species experiencing overfishing including vermilion snapper and red porgy and modified management measures to limit total mortality to the ACL. Amendment 17B was implemented in January 2011.

Regulatory Amendment 9 (SAFMC 2011a) Regulatory Amendment 9 established a commercial trip limit for vermilion snapper. Regulatory Amendment 9 was implemented in July 2011.

The Comprehensive ACL Amendment (SAFMC 2011b) fulfills the 2011 mandate of the Magnuson-Stevens Fishery Conservation and Management Act to establish ACLs and AMs for

species managed by the Council that are not undergoing overfishing. The amendment addressed a number of species in the snapper grouper management complex, as well as dolphin (mahi-mahi), wahoo, and golden crab. The Comprehensive ACL Amendment was implemented in January 2012.

B. Present

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

The Joint Dealer Reporting Amendment has been approved for Secretarial Review by the Gulf of Mexico Fishery Management Council and the South Atlantic Council. This amendment is intended to improve the timeliness and accuracy of fisheries data reported by permitted dealers. The amendment would also create one dealer permit for all federally-permitted dealers in the southeast region. Requiring dealers to report landings data weekly will help to improve in-season quota monitoring efforts, which will increase the likelihood that AMs could be implemented prior to ACLs being exceeded.

The Generic For-Hire Reporting Amendment would increase the frequency with which headboats must report landings information, and would also require that all headboats report landings data electronically. This amendment would improve the timeliness and accuracy of landings data that is used to monitor recreational harvest sector in-season for the purpose of maintain catches below the recreational ACLs.

C. Reasonably Foreseeable Future

Regulatory Amendment 14 contains many actions to modify current management measures for various snapper grouper species such as black sea bass, hogfish, and gray triggerfish. Regulatory Amendment 14 also contains actions to modify the system of AMs currently in place for vermillion snapper, which would help control harvest of the species and promote sustainable harvest levels.

The Joint Commercial Logbook Reporting Amendment would be similar to the Generic For-Hire Reporting Amendments for the Gulf of Mexico and South Atlantic regions. This amendment would require electronic reporting of landings information by federally-permitted commercial vessels, which would increase the timeliness and accuracy of landings data.

The Joint Charter Boat Reporting Amendment would be similar to the Generic For-Hire Reporting Amendment by requiring charter vessels to regularly report their landings information electronically. Including charter boats in the recreational harvest reporting system would further improve the agency's ability to monitor recreational catch rates in-season.

Amendment 30 currently contains an action to require all vessels with a South Atlantic Unlimited or 225 lbs Snapper Grouper Permit to have a vessel monitoring system onboard.

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

A. Past
B. Present
C. Reasonably foreseeable future

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

The snapper grouper ecosystem includes many species that occupy the same habitat at the same time. For example, red snapper co-occur with vermilion snapper, tomtate, scup, red porgy, white grunt, black sea bass, red grouper, scamp, gag, and others. Therefore, red snapper are likely to be caught and suffer some mortality even though no retention is allowed since they will be incidentally caught when fishermen target other co-occurring species. Other natural events such as spawning seasons and aggregations of fish in spawning condition can make some species especially vulnerable to targeted fishing pressure. Such natural behaviors are discussed in further detail in **Chapter 3** of this document, which is hereby incorporated by reference.

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

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

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

In terms of the biophysical environment, the resources/ecosystems identified in earlier steps of the CEA are the fish populations directly or indirectly affected by the regulations. This step should identify the trends, existing conditions, and the ability to withstand stresses of the environmental components. Information on species most affected by this amendment are provided in **Section 3.2** of this document.

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

This step is important in outlining the current and probable stress factors on the affected species, ecosystems, and human communities identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the resources cannot be sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

Fish populations

This document updates thresholds already specified for vermilion snapper and red porgy to ensure future overfishing does not occur, and to ensure these stocks can be maintained at sustainable levels. With current AMs in place for both species it is unlikely that these thresholds would be exceeded. If the harvest limits are exceeded, management measures are in place to either restrict further fishing or correct for the overage in the following fishing season.

Climate change

Global climate changes could have significant effects on South Atlantic fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (IPCC 2007; Kennedy et al. 2002).

It is unclear how climate change would affect snapper grouper species in the South Atlantic. Climate change can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly impact snapper grouper species in the future, but the level of impacts

cannot be quantified at this time, nor is the time frame known in which these impacts will occur. In the near term, it is unlikely that the management measures contained in Regulatory Amendment 18 would compound or exacerbate the ongoing effects of climate change on snapper grouper species.

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

The purpose of defining a baseline condition for the resource, ecosystems, and human communities in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. Southeast Data, Assessment, and Review (SEDAR) assessments show trends in biomass, fishing mortality, fish weight, and fish length going back to the earliest periods of data collection. Red porgy and vermilion snapper have recently undergone stock assessment updates. Red porgy are currently overfished, but overfishing is not occurring. Red porgy are not likely to be fully rebuild by the end of the rebuilding period (2018) established in Amendment 15A (SAFMC 2008a). Vermilion snapper is neither undergoing overfishing nor is overfished. For a detailed discussion of the baseline conditions of species and the outcome of the 2012 assessment updates, the reader is referred to **Section 3.2** of the document. The reader is also referred to the information on ecosystems (**Section 3.1**) and human communities (**Section 3.4**).

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

The cause and effect relationship of fishing and regulatory actions is shown in **Table 6.1.1.**

Table 6.1.1. The cause and effect relationship of fishing and regulatory actions within the time period of the Cumulative Effects Analysis (CEA).

Time period/dates	Cause	Observed and/or Expected Effects
Pre-January 12, 1989	Habitat destruction, growth overfishing of vermilion snapper.	Damage to snapper grouper habitat, decreased yield per recruit of vermilion snapper.
January 1989	Trawl prohibition to harvest fish (SAFMC 1988).	Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many snapper grouper species.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	Prohibited gear: fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. Size/Bag limits: 10" TL vermilion snapper (recreational only); 12" TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20" TL gag, red,	Reduce mortality of snapper grouper species.

Time period/dates	Cause	Observed and/or Expected Effects
	black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991).	
Pre-June 27, 1994	Damage to *Oculina* habitat.	Noticeable decrease in numbers and species diversity in areas of *Oculina* off FL
July 1994	Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993)	Initiated the recovery of snapper grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing continue for a number of snapper grouper species including golden tilefish.	Spawning potential ratio for golden tilefish is less than 30% indicating that they are overfished.
February 24, 1999	All S-G without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runners. Vessels with longline gear aboard may only possess snowy, Warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish.	
Effective October 23, 2006	Snapper grouper FMP Amendment 13C (SAFMC 2006)	Commercial vermilion snapper quota set at 1.1 million lbs gw; recreational vermilion snapper size limit increased to 12" TL to prevent vermilion snapper overfishing.
Effective February 12, 2009	Snapper grouper FMP Amendment 14 (SAFMC 2007)	Use marine protected areas (MPAs) as a management tool to promote the optimum size, age, and genetic structure of slow growing, long-lived deepwater snapper grouper species (e.g., speckled hind, snowy grouper, warsaw grouper, yellowedge grouper, misty grouper, golden tilefish, blueline tilefish, and sand tilefish). Gag and vermilion snapper occur in some of these areas.
Effective March 20, 2008	Snapper grouper FMP Amendment 15A (SAFMC 2008a)	Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy.
Effective Dates Dec 16, 2009, to Feb 16, 2010.	Snapper grouper FMP Amendment 15B (SAFMC 2008b)	End double counting in the commercial and recreational reporting systems by prohibiting the sale of bag-limit caught snapper grouper, and minimize impacts on sea turtles and smalltooth sawfish.
Effective Date July 29, 2009	Snapper grouper FMP Amendment 16 (SAFMC 2009a)	Protect spawning aggregations and snapper grouper in spawning condition by increasing the length of the spawning season closure, decrease discard mortality by requiring the use of dehooking tools, reduce overall harvest of gag and vermilion snapper to

Time period/dates	Cause	Observed and/or Expected Effects
		end overfishing.
Effective Date January 31, 2011	Snapper Grouper Amendment 17B (SAFMC 2010b)	Specified ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; AMs, for species undergoing overfishing. Established a harvest prohibition of six snapper grouper species in depths greater than 240 feet.
Effective Date July 15, 2011	Regulatory Amendment 9 (SAFMC 2011a)	Harvest management measures for black sea bass; commercial trip limits for gag, vermilion and greater amberjack
Effective Date April 16, 2012	Comprehensive ACL Amendment (SAFMC 2011b)	ACLs, ACTs, and AMs for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.
Effective Date July 1, 2012	Amendment 18A (SAFMC 2012a)	Established an endorsement program for black sea bass commercial fishery; established a trip limit; specified requirements for deployment and retrieval of pots; made improvements to data reporting for commercial and for-hire sectors
Target 2013	Amendment 28 (SAFMC 2013a)	Red snapper framework opening
Target 2013	Regulatory Amendment 15 (SAFMC 2013b)	Yellowtail snapper ACLs and ACTs adjusted with new assessment results; removal of gag trigger
Target 2013	Regulatory Amendment 18 (SAFMC 2013c)	Adjust ACLs and management measure for vermilion snapper and red porgy based on results from new update assessment.
Target 2013	Snapper Grouper Amendment 27 (SAFMC 2013d)	Establish the SAFMC as the managing entity for Nassau grouper in the Southeast U.S.; modify the SG framework; modify management measures for blue runner; reevaluate captain and crew possession prohibition for vermilion snapper, groupers, and tilefish; and increase crew size limit for dual-permitted vessels.
Target 2013	Regulatory Amendment 19 (SAFMC 2013e)	Adjust ACLs and recreational ACT for black sea bass based on results from new update assessment

Time period/dates	Cause	Observed and/or Expected Effects
Target 2013	Generic For-Hire Reporting Amendment	Require all federally-permitted headboats in the South Atlantic to report landings information electronically and on a weekly basis.
Target 2013	Amendment 30	VMS for commercial sector of snapper grouper fishery.
Target 2014	Snapper Grouper Amendment 29 (under development)	Update ABCs, ACLs, and ACTs for snapper grouper species based on recommendations from SSC.
Target 2014	Joint Commercial Logbook Reporting Amendment	Require all federally-permitted commercial fin fish fishermen in the southeast to report electronically.
Target 2014/2015	Joint Charterboat Reporting Amendment	Require all federally-permitted charterboats to report landings information electronically.

9. Determine the magnitude and significance of cumulative effects.

The proposed management action, as summarized in **Section 2** of this document, would revise the ACLs (including sector ACLs) and optimum yield for vermilion snapper and red porgy, and modify the recreational ACT for red porgy. Regulatory Amendment 18 would also modify several management measures for vermilion snapper in response to the outcome of a recent stock assessment updated completed in 2012. Detailed discussions of the magnitude and significance of the impacts of the preferred alternatives on the human environment appear in **Section 4** of this document. None of the impacts have been determined to be significant.

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

The cumulative effects on the biophysical environment are expected to be negligible. Avoidance, minimization, and mitigation are not necessary for the successful implementation of the proposed actions in this amendment.

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

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

6.2 Socioeconomic Cumulative Impacts

Participation in and the economic performance of the snapper grouper fishery has been affected by a combination of regulatory, biological, social, and external economic factors. Vermilion snapper and red porgy are only two of the 60 species included in the snapper grouper fishery, and in most cases management actions affecting one species will have broader effects that could affect harvest and catch of many other snapper grouper species. In general, there are few or no individuals or fishing businesses that do not target multiple snapper grouper species throughout the year. The following analysis of cumulative social and economic impacts of the proposed actions in this amendment considers the snapper grouper fishery as a whole.

Regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Gear restrictions, notably fish trap and longline restrictions, have also affected harvests and economic performance. The limited access program implemented in 1998/1999 substantially affected the number of participants in the fishery. Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have played a role in determining the changing composition of the fishery. Additional factors, such as changing career or lifestyle preferences, stagnant to declining ex-vessel fish prices due to imports, increased operating costs (e.g., gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for non-fishery uses have impacted both the commercial and recreational fishing sectors.

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. In general, it can be stated, however, that the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing, in tandem with other adverse influences, the likelihood of economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and industries. Some reversal of this trend is possible and expected. Establishment of ACLs and AMs for species undergoing overfishing is expected to help protect and sustain harvest at the optimum yield level. However, certain pressures would remain, such as total effort and total harvest considerations, increasing input costs, import induced price pressure, and competition for coastal access. A detailed description of the expected social and economic impacts of the actions in this amendment is contained in **Chapter 4**.

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

Amendment 17B (SAFMC 2010b) specified harvest controls (ACLs and/or ACTs) and AMs for several snapper grouper species, and modified the framework to allow more efficient modification of these measures in the future, where necessary. While some final specifications of these

measures may result in additional short-term reductions in social and economic benefits to participants in the fisheries, these measures would be expected to support more stable management and sustainable social and economic benefits from enhanced resource protection, larger and/or more consistent harvests, and long-term stable stocks.

The cumulative impact of Amendments 16 (SAFMC 2009a), 17A (SAFMC 2010a), and 17B (SAFMC 2010b) are expected to be significant for commercial and recreational fisheries participants and those indirectly impacted by the actions contained in those amendments. The cumulative impact of Amendments 17A (SAFMC 2010a) and 17B (SAFMC 2010b) have been estimated and are contained in Amendment 17A (SAFMC 2010a). The impacts from the three amendments will likely result in commercial and for-hire vessel exit and loss of fishery infrastructure as a result.

Additional actions have been implemented for snapper grouper species in Amendment 24 (SAFMC 2011d) (red grouper rebuilding plan), Regulatory Amendment 9 (lower bag limit from 5 to 10 black sea bass per day) (SAFMC 2011a), and Amendment 18A (endorsement program for black sea bass pots) (SAFMC 2012a) that could contribute to the cumulative impact on commercial and for-hire captains and crew, for-hire customers, dealers, consumers, and associated businesses and communities. Additionally, several potential new snapper grouper amendments are being considered that will have some effects on the snapper grouper fishery, including Regulatory Amendment 14 (gray triggerfish, hogfish, black sea bass, greater amberjack and vermilion snapper), Regulatory Amendment 18B (longline endorsement program for golden tilefish), Amendment 27 (Nassau grouper, blue runner, crew size on dual-permitted vessel, and captain crew retention of bag limit on for-hire vessels), and Regulatory Amendment 17 (marine protected areas to protect warsaw grouper and speckled hind).

It is likely that most commercial fishermen with snapper grouper permits also hold other state and federal permits in order to switch fisheries during a closure or to take advantage of the market for a species. At a minimum, snapper grouper commercial fishermen can obtain an Atlantic dolphin wahoo commercial permit or Spanish mackerel commercial permit because these are both open access programs. Additionally, all federal for-hire permits for the South Atlantic (dolphin-wahoo, coastal migratory pelagics, and snapper grouper) are open access permits and can be obtained for for-hire vessels when necessary. Lastly, recreational anglers likely target species from several management units. Therefore, it should be noted that changes in the snapper grouper fishery could have significant impacts on effort in other fisheries.

The cumulative social and economic effects of past, present, and future amendments may be described as limiting fishing opportunities in the short-term. However, these amendments are expected to improve prospects for sustained participation in the respective fisheries over time. Specifically the adjusted ACLs for red porgy and vermilion snapper will better reflect current conditions in the fishery. For vermilion snapper, combining the increased ACL with reduced trip limits could help extend the commercial seasons for vermilion snapper, which has become increasingly important to snapper grouper commercial fishermen. Elimination of the recreational closed season for vermilion snapper could contribute to improved recreational fishing opportunities and optimal use of the resource.

Chapter 7. List of Preparers

Table 7.1.1. List of Regulatory Amendment 18 preparers.

Name	Agency/Division	Area of Amendment Responsibility
Gregg Waugh	SAFMC	Interdisciplinary plan team (IPT) Lead/ Deputy Executive Director
Kate Michie	NMFS/SF	IPT Lead/Fishery Biologist
Mike Larkin	NMFS/SF	Fishery Biologist
Myra Brouwer	SAFMC	Fishery Biologist
David Dale	NMFS/HC	EFH Specialist
Tony Lamberte	NMFS/SF	Economist
Kari MacLauchlin	SAFMC	Fishery Social Scientist
Brian Cheuvront	SAFMC	Economist
Mike Jepson	NMFS/SF	Anthropologist
Jack McGovern	NMFS/SF	Fishery Scientist
Rick DeVictor	NMFS/SF	Fishery Biologist
Adam Brame	NMFS/SF	Protected Resources Biologist
Scott Crosson	SEFSC	Economist
Lew Coggins	SEFSC	Fishery Biologist

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

Table 7.1.2. List of Regulatory Amendment 18 interdisciplinary plan team members.

Name	Organization	Title
Gregg Waugh	SAFMC	IPT Lead/Executive Director
Myra Brouwer	SAFMC	Fishery Biologist
Scott Sandorf	NMFS/SF	Technical Writer & Editor
David Dale	NMFS/HC	EFH Specialist
Adam Brame	NMFS/PR	Protected Resources Biologist
Nick Farmer	NMFS/SF	Fishery Biologist
Michael Larkin	NMFS/SF	Data Analyst
David Keys	NMFS/SER	Regional NEPA Coordinator
Scott Crosson	SEFSC	Economist
Lew Coggins	SEFSC	Fishery Biologist
Kari MacLauchlin	SAFMC	Fishery Social Scientist
Brian Cheuvront	SAFMC	Economist
Anna Martin	SAFMC	Coral Reef Scientist
Roger Pugliese	SAFMC	Senior Fishery Biologist
John Carmichael	SAFMC	Science & Statistics Program Mgr.
Jack McGovern	NMFS/SF	Fishery Biologist
Rick DeVictor	NMFS/SF	Fishery Biologist
Mike Jepson	NMFS/SF	Social Scientist
Monica Smit-Brunello	NMFS SERO/GC	Attorney
Tony Lamberte	NMFS/SF	Economist
Mike Errigo	SAFMC	Data Analyst

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

Chapter 8. Agencies and Persons Consulted

Responsible Agency

Regulatory Amendment 18:
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
Charleston, South Carolina 29405
(843) 571-4366 (TEL)
Toll Free: 866-SAFMC-10
(843) 769-4520 (FAX)
safmc@safmc.net

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

List of Agencies, Organizations, and Persons Consulted

SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
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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