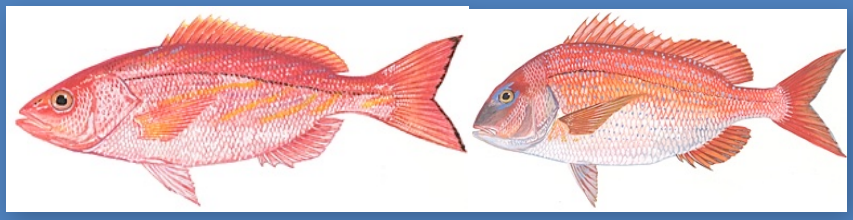
Regulatory Amendment 18

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



January 2013

Environmental Assessment

A publication of the South Atlantic Fishery Management Council pursuant to National Oceanic and Atmospheric Administration Award Number FNA10NMF4410012

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 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.
Lead agency:	FMP Amendment – South Atlantic Fishery Management Council Environmental Assessment – National Marine Fisheries Service (NMFS) Southeast Regional Office
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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 ABC control rule for 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, 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, the commercial fishing season, 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 Regulatory Amendment 14 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. Regulatory Amendment 18 to the Snapper Grouper FMP (Regulatory Amendment 18) revises the ACLs (including sector ACLs) for vermilion snapper and red porgy, and revises 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.

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) for vermilion snapper and red porgy, revise the annual catch target (ACT) for red porgy, modify the commercial trip limit for vermilion snapper, modify the commercial fishing seasons for vermilion snapper, and modify 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 amendments and submits them to the National Marine Fisheries Service (NMFS) who ultimately approves, the final 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 who are appointed by the Secretary of Commerce and 4 non-voting members
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and Florida through the Atlantic side of Key West
- Develops management plans/amendments and recommends regulations to NMFS for implementation

1.3 Why is the South Atlantic Council Considering Action?

Stock assessment updates have recently been completed for vermilion snapper and red porgy. The vermilion snapper update indicates the stock is no longer undergoing overfishing and is not overfished. The stock assessment update for red porgy indicates the species is not undergoing overfishing but is still overfished. Furthermore, the red porgy assessment update determined the stock cannot 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 and recommended updated acceptable biological catch levels (ABC) for both species. Based on the new ABC recommendations the South Atlantic Council would update the ACLs for vermilion snapper and red porgy accordingly. Additionally, the South Atlantic Council may update the ACT for red porgy.

The SSC has recommended a larger ABC for vermilion snapper than is currently in place, which could result in an increase in the commercial and recreational ACLs. Due to the potential for increased harvest, the South Atlantic Council will consider 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.

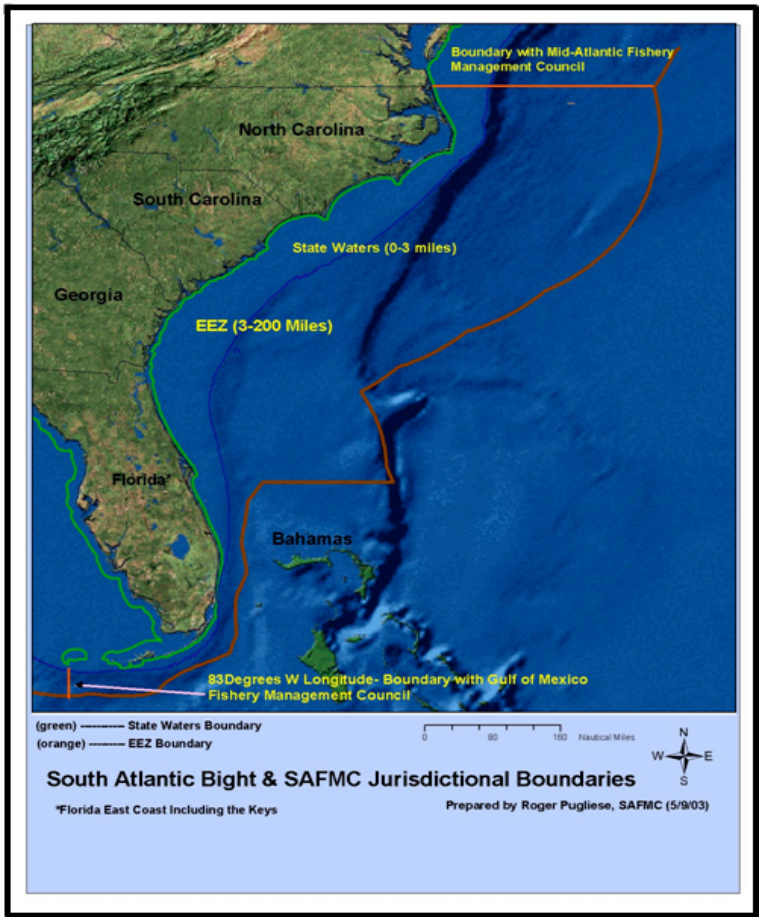
Need for Action

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 include vermilion snapper and red porgy in waters of the South Atlantic. Both are assessed species that were assigned ABC, ACLs, and accountability measures through Amendment 17B (SAFMC 2010) and the Comprehensive ACL Amendment (SAFMC 2011). 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 under consideration 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 (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.

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 update indicated red porgy was no longer experiencing overfishing and was rebuilding; however, the stock remained overfished. SEDAR 1 (2002) was again updated through the most recent 2012 SEDAR 1 update, which incorporated data through 2011. The 2012 assessment update demonstrated 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 cannot be rebuilt 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. Much of the data used in the 2006 SEDAR 1 updates were unchanged and; therefore, most data sets were simply updated by adding the seven additional years (2005-2011) of information at the end of the time series. New recreational MRIP harvest estimates for red porgy were available for 2004-2011; therefore, for the 2012 assessment updated 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 also updated.

Chapter 2. Proposed Action

2 List of Alternatives

Whole Weight vs. Gutted Weight

Vermilion snapper and landed whole, and landings are recorded in whole weight. The quota is specified in gutted weight. 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 and whole weight values will be given.

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

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

The South Atlantic Council included an action in Amendment 16 to allow the Regional Administrator to make adjustments to vermilion snapper based on the outcome of SEDAR 17 (2008). These adjustments were made in the final rule for Amendment 16.

The 2012 Commercial ACL for Jan-June is reduced by 11,000 lb gw for post quota bycatch mortality (PQBM) and July-Dec by 24,000 lb gw PQBM.

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.

Table 2-1. ABC/ACLs for 2013-2016 from the recent SEDAR assessment and the 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

Comparison of 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. **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 **Alternative 2**, the biological benefits under **Alternative 1 (No Action)** would be expected to be greater than **Alternative 2**. However, the 2012 stock assessment update indicates vermilion snapper is no longer undergoing overfishing, and the South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical Committee (SSC) has increased the ABC; therefore, there may not be a biological need to constrain harvest a level lower than that determined to be appropriate by the SSC.

Insert socioecon comparison of alts.

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

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

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

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

Comparison 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 fishing season 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 of expected to be met. A 1,000 lbs gw trip limit (**Alternative 2)** may slow the rate of vermilion snapper harvest, extend the fishing season, allow the quota to be more easily monitored methods,

and help to prevent ACL overages. Therefore, this option may have greater biological benefits compared to the status quo alternative. However, the Southeast Fisheries Science Center has implemented an improved quota monitoring system, and the South Atlantic Council has approved an amendment which would require dealers to report landings electronically each week. Therefore, the biological effects of **Alternatives 1** and **2** could be very similar. **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 **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.

Insert socioecon comparison of alts. One thing to consider here is that there has been considerable discussion that trip limits below 1,500 lbs may not be economically feasible for some fishermen, particularly those off Georgia who need to make long trips offshore to reach areas where vermilion snapper occur.

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

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.

Table 2-2. ABC/ACLs and commercial split season ACLs for 2012 and the values 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-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.

Table 2-3. ABC/ACLs and commercial split season ACLs for 2012 and the values 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-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.

Table 2-4. ABC/ACLs and commercial split season ACLs for 2012 and the values 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

Comparison of Alternatives

The biological consequences for vermilion snapper of shifting fishing seasons under **Alternative 2** are likely to be neutral since overall harvest 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 Council has approved an amendment that would require weekly electronic reporting by dealers, which would reduce the risk that the commercial ACL would be exceeded. **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. 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.

Insert socioecon comparison of alts.

2.4.1 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).

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

Comparison of Alternatives

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 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 in the commercial and recreational sectors is 38%; 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. 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 has been put into place since the implementation of Amendment 16 to ensure overfishing does not occur. 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.

Insert socioecon comparison of alts.

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

Note: These values are based upon the results of SEDAR 1 (2006); Current ABC = 395,304 lb ww landed catch; allocation of 50% commercial and 50% recreational. 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 2011). The values for 2018 would remain until modified.

Table 2-5. New ABC and ACLs based Table 5 of 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

Comparison of Alternatives

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. The status quo ABC, and sector ACLs (**Alternative 1**) are greater than the ABC recommend by the SSC in October 2012 (**Alternative 2**). Therefore, **Alternative 1 (No Action)** would be expected to have a greater level of negative biological impacts on the stock than **Alternative 2**. Because the 2012 stock assessment update indicates 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.

Insert socioecon comparison of alts.

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) Internet Mapping System website: http://ocean.floridamarine.org/efh_coral/ims/viewer.htm.

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 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 2011c), 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. It 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 2003a).

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). SEDAR 2-SAR2 (2003a) recommends that natural mortality (M) be defined as 0.25/year, with a range of 0.2-0.3/year. 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-SAR 2 2003a). 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 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2010) (Amendment 17B) 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 level (OFL) and applies the 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. 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 were 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, 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 NOAA Fisheries 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 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 3-1**). The Council implemented a size limit of 12” in 1992 and a further increase to 14” in 1997. The Council also implemented a 5 fish bag limit and a closed season for commercial harvest in March and April in 1997. Fishing mortality decreases steadily after 1992, reaching its lowest point during the moratorium of 1999. Mortality rose a bit in 2000 as the Council again allowed limited harvest, but it has stayed below the Fmsy level since. Stock biomass has shown recovery since the moratorium, but it has been slower than expected (**Figure 3-1 in red**). Landings of red

porgy have been well below MSY since the first size limit was implemented in 1992 (**Figure 3-2**) but recruitment has been below R_{MSY} (recruitment when the population is at B_{MSY}) since the early 1990s (**Figure 3-3).** This lack of recruitment explains why recovery has been slow.

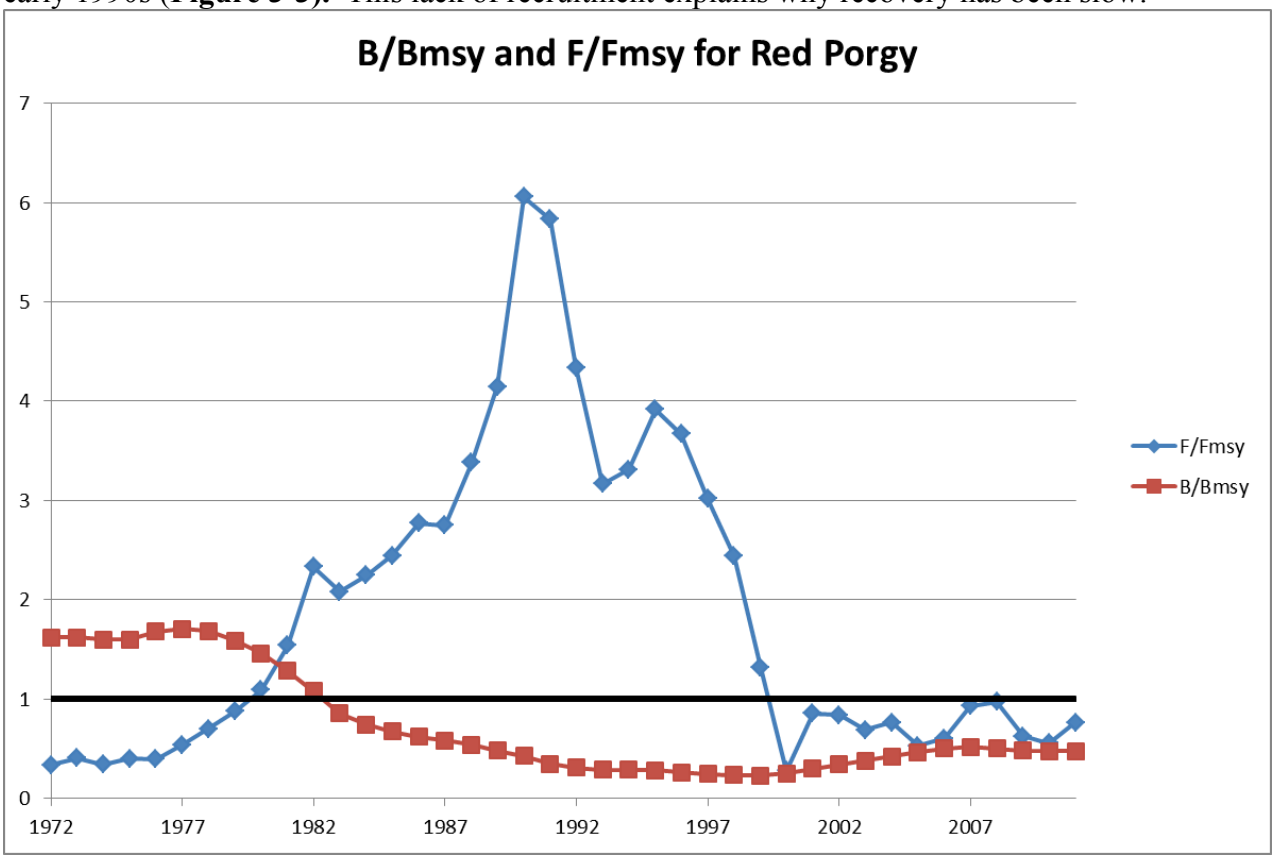


Figure 3-1. Biomass (B) and exploitation (F) levels relative to expected conditions of the red porgy stock at MSY. Relative biomass is depicted by B/BMSY and exploitation by F/FMSY. The index line at 1 represents MSY conditions. Data are from the 2012 assessment update report for red porgy.

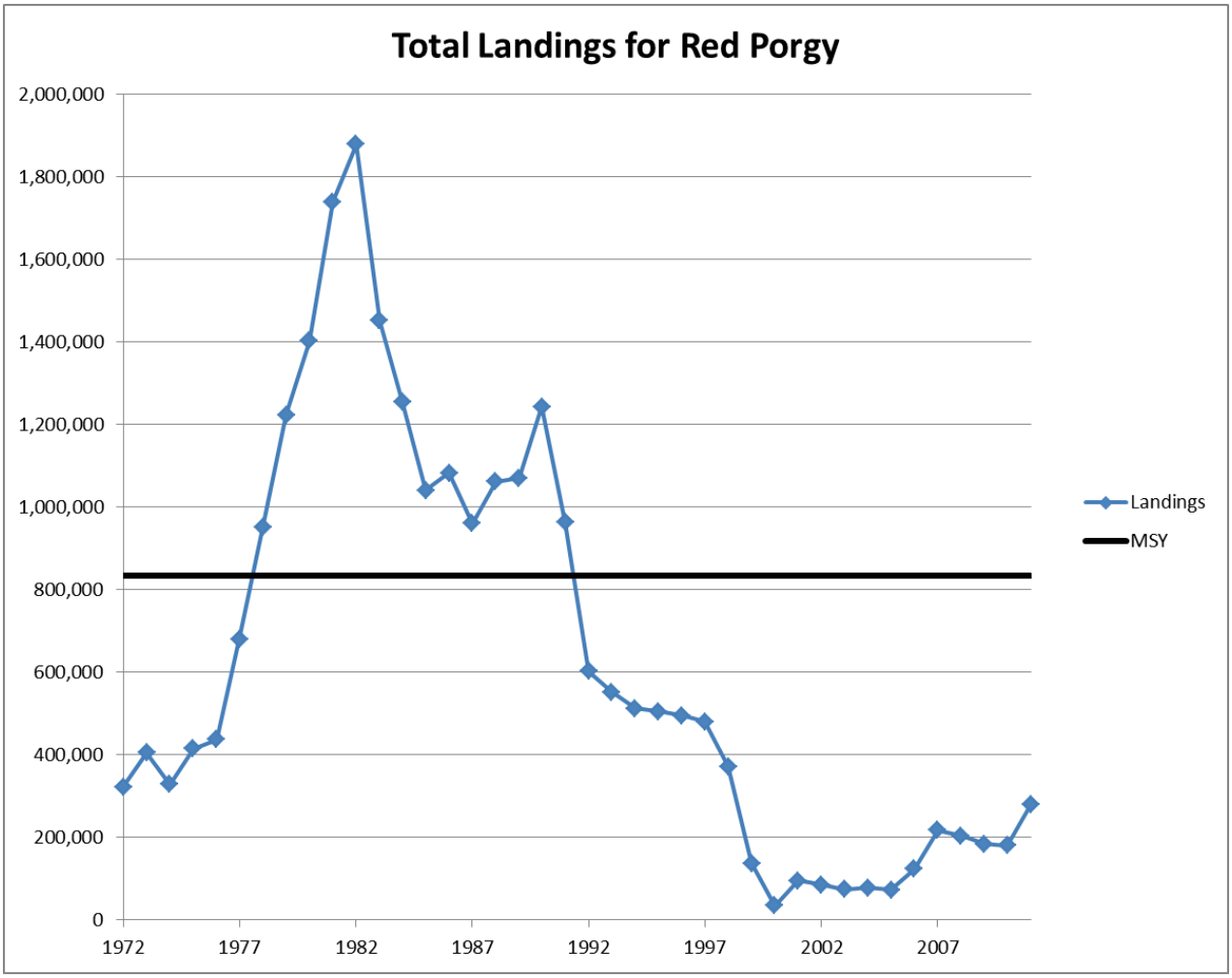


Figure 3-2. Landings in pounds whole weight of red porgy and the estimate of MSY. Data are from the 2012 assessment update report for red porgy.

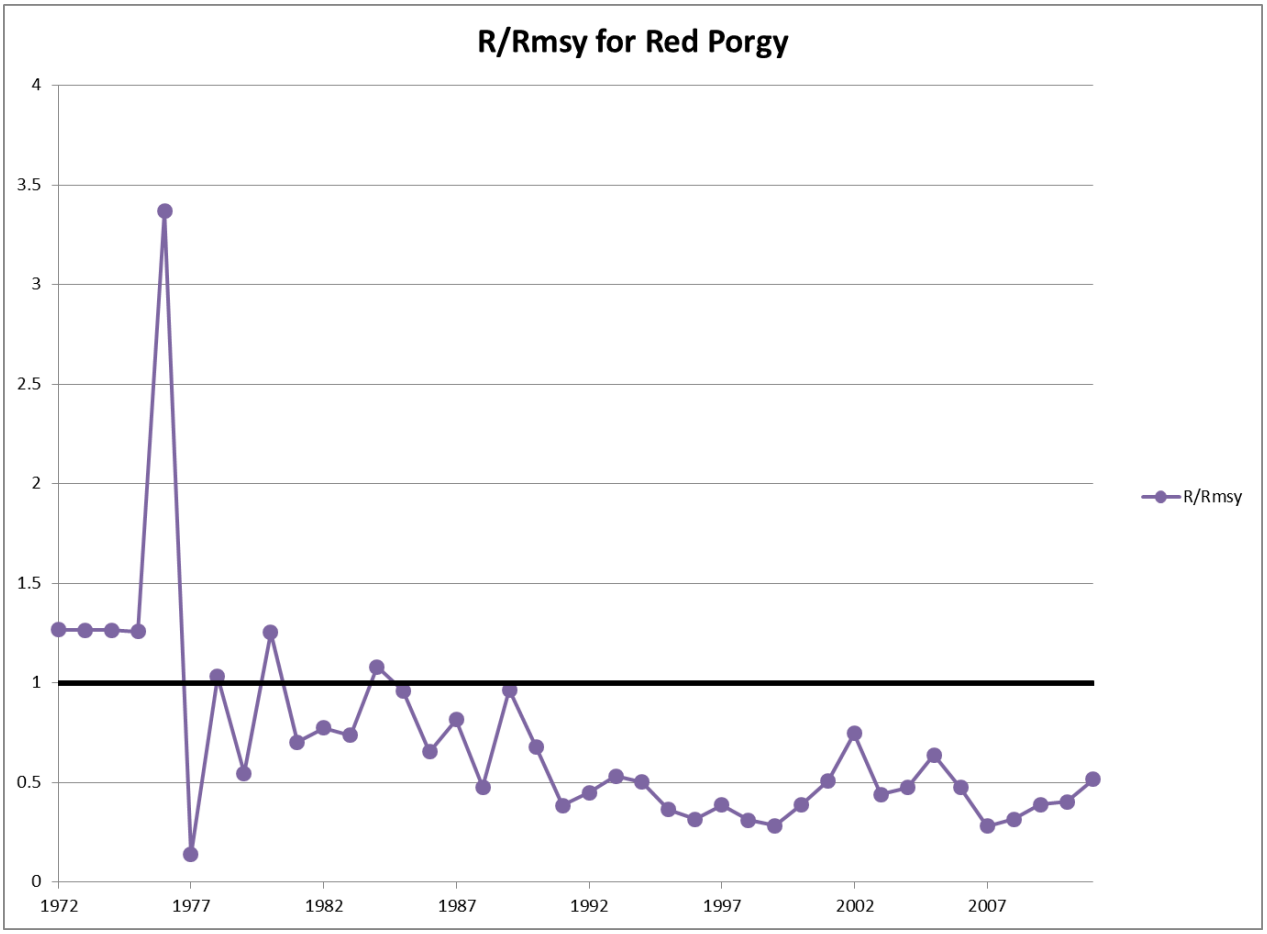


Figure 3-3. Annual recruitment relative to expected recruitment at MSY conditions for red porgy. The index line at 1 indicates expected MSY conditions. Data are from the 2012 assessment update report for red porgy.

Table 3.1 Scenario 6 projection results (projection years=15) with fishing mortality rate fixed at 75%FMSY (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

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. Most of the data sources were simply updated with the 4 additional years of observations available since the SEDAR 17 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 were 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. 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 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 catch per unit effort (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 Annual Catch Limit (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 Acceptable Biological Catch (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 shows 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 3-4** in blue). However, the 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 3-4** 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 Fmsy, 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 an equilibrium. For instance, landings have varied around MSY much of the recent past (**Figure 3-5**) and recruitment is hovering around R_{MSY} (recruitment when the population is at B_{MSY}; **Figure 3-6**). These diagnostics suggest that the stock is being sustainably harvested and that the stock is approaching an equilibrium condition.

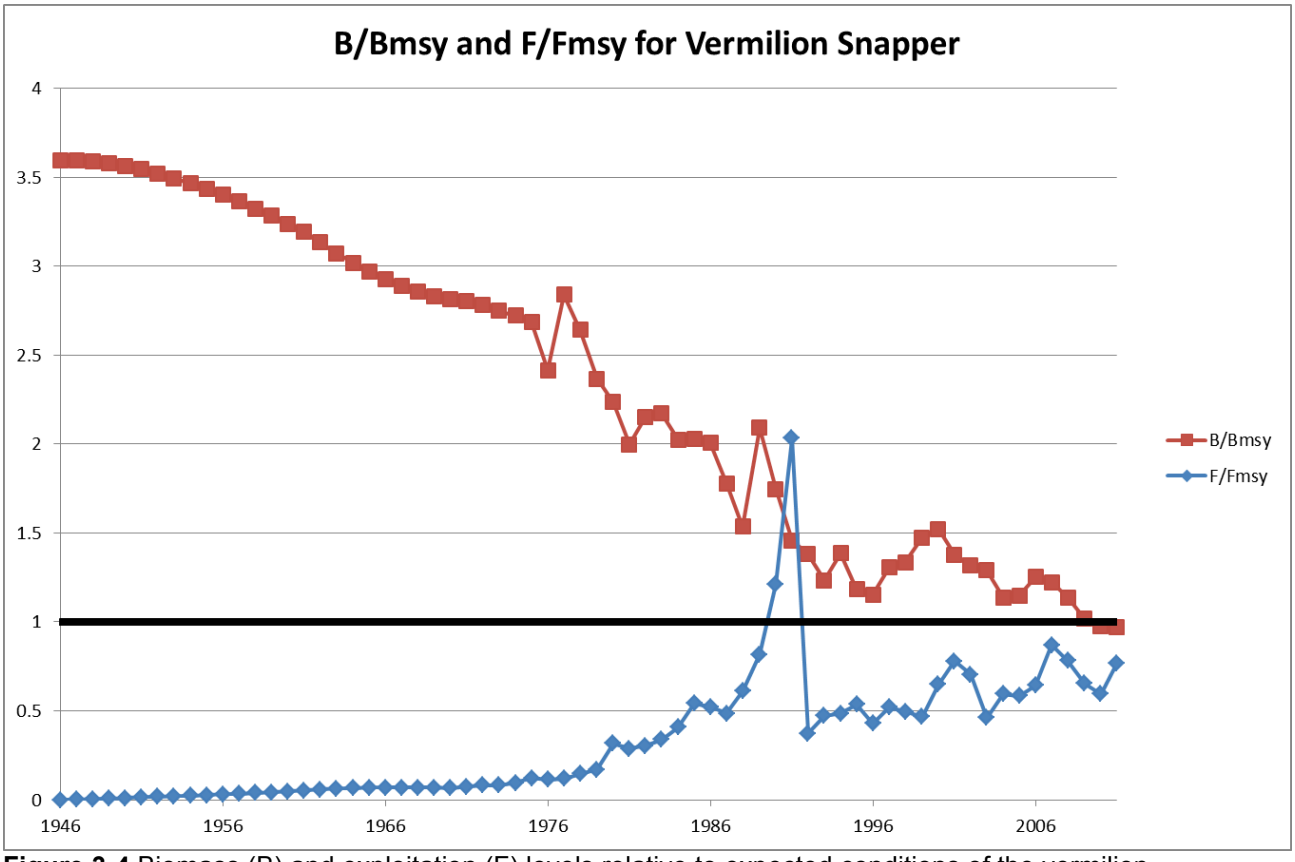


Figure 3-4 Biomass (B) and exploitation (F) levels relative to expected conditions of the vermilion snapper stock at MSY. Relative biomass is depicted by B/BMSY and exploitation by F/FMSY. The index line at 1 represents MSY conditions.. Data are from the 2012 assessment update report for vermilion snapper.

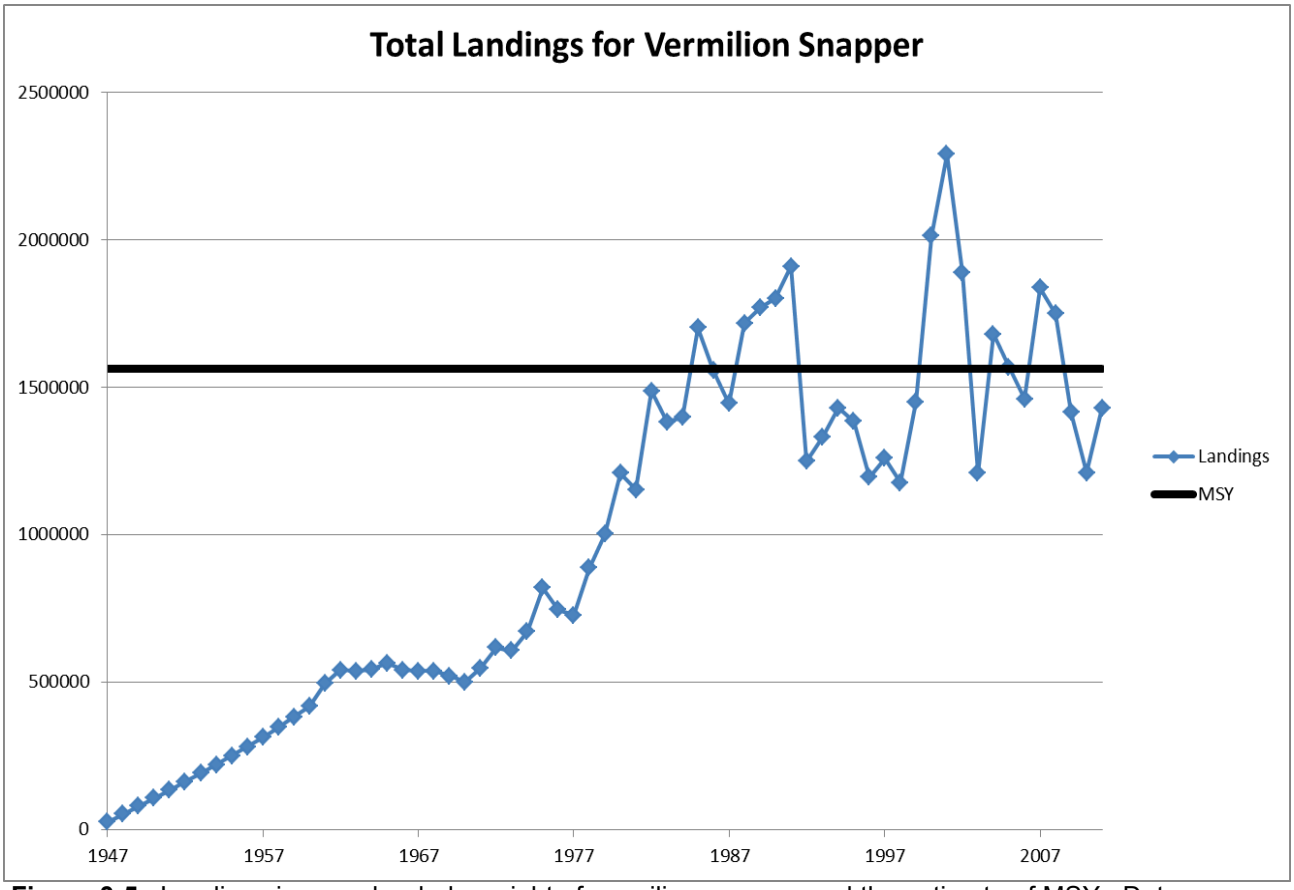


Figure 3-5. Landings in pounds whole weight of vermilion snapper and the estimate of MSY. Data are from the 2012 assessment update report for vermilion snapper.

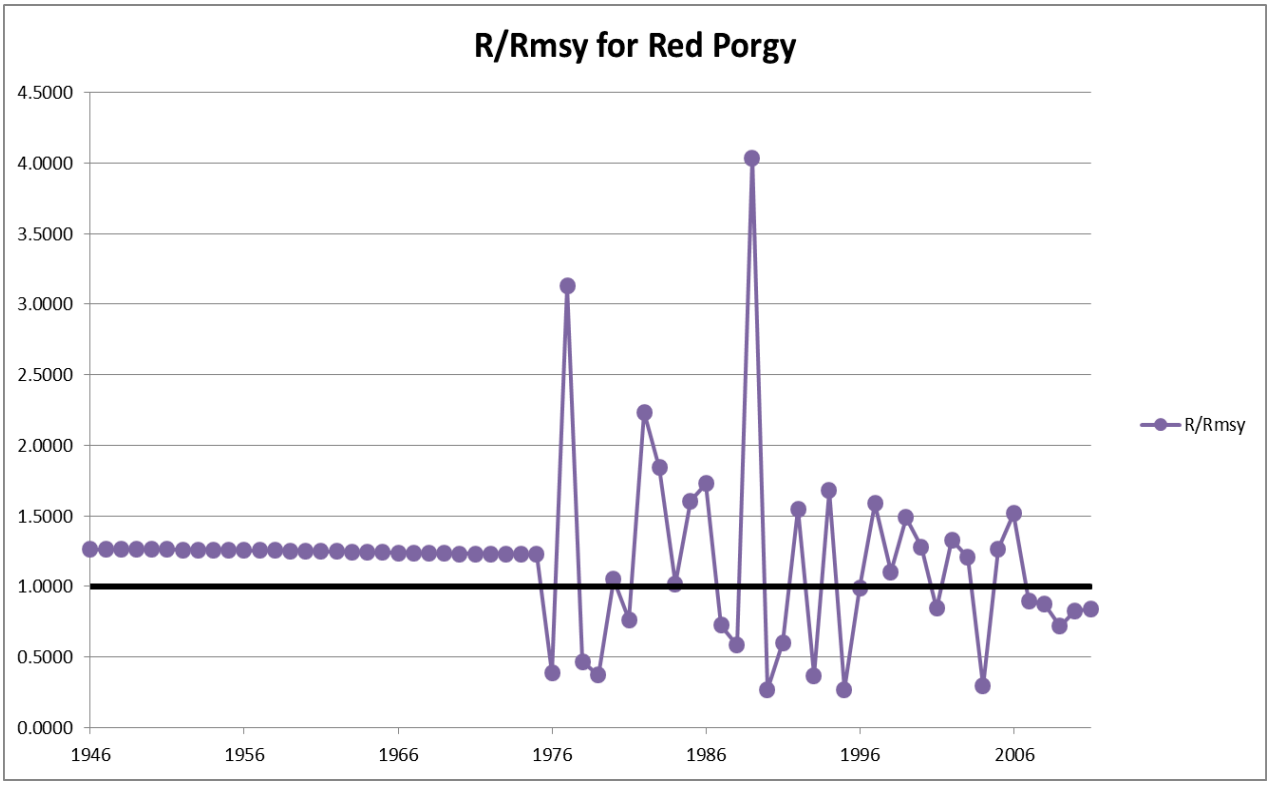


Figure 3-6 Annual recruitment relative to expected recruitment at MSY conditions for vermilion snapper. The index line at 1 indicates expected MSY conditions. Data are from the 2012 assessment update report for vermilion snapper.

Table 3.2 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

3.3 Protected Species

There are 31 different species of marine mammals that may occur in the exclusive economic zone (EEZ) of the South Atlantic region. All 31 species are protected under the Marine Mammal Protection Act of 1972 (MMPA) and six are also listed as endangered under the ESA (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). Other species protected under the ESA occurring in the South Atlantic include five species of sea turtle (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; five distinct population segments (DPSs) of Atlantic sturgeon (*Acipenser oxyrhincus*), and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]). Designated critical habitat for the *Acropora* corals also occurs within the South Atlantic region. **Section 3.5** of the Comprehensive ACL Amendment (SAFMC 2011c) discusses the life history characteristics of all these species in detail, other than Atlantic sturgeon. **Section 3.5** of the Comprehensive ACL Amendment is hereby incorporated by reference and may be found at: www.safmc.net/Library/SnapperGrouper/tabid/415/Default.aspx.

Below is a brief description of the life history characteristics for the DPSs of Atlantic sturgeon. 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 H**.

Five separate DPSs of the **Atlantic sturgeon** (*Acipenser oxyrinchus oxyrinchus*) were listed under the ESA effective April 6, 2012 (76 FR 5914; February 12, 2012). From north to south, the DPSs are the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic (**Figure 3-7**). The New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs are listed as endangered, and the Gulf of Maine DPS is listed as threatened. The five DPSs were listed under the ESA as a result of threats from a combination of habitat curtailment and

modification, overutilization (i.e., being taken as bycatch) in commercial fisheries, and the inadequacy of regulatory mechanisms in ameliorating these impacts and threats.

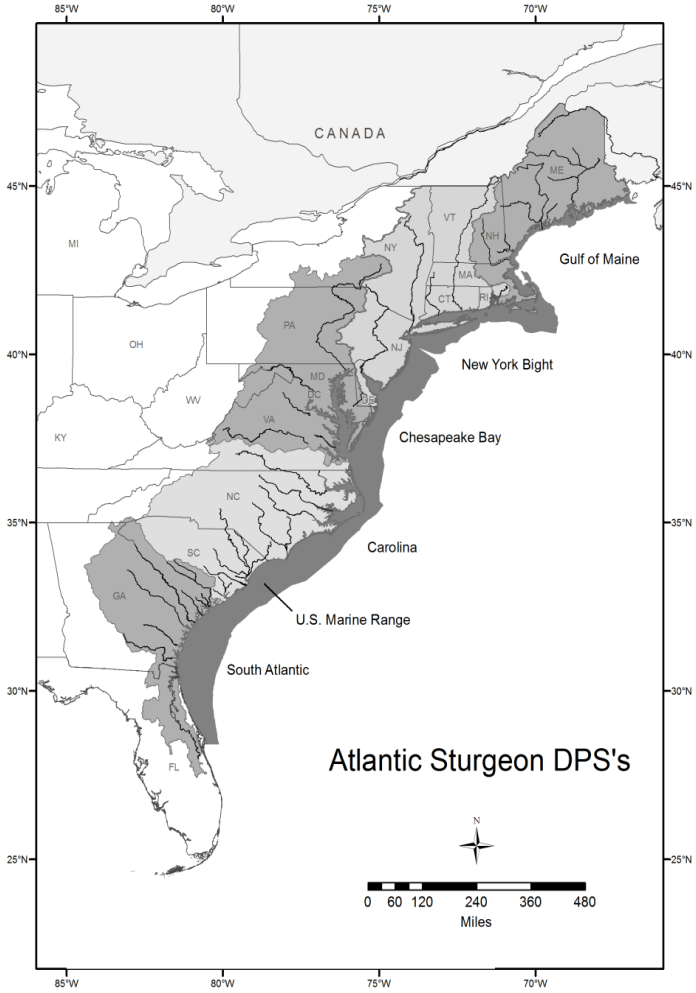


Figure 3-7. Map Depicting the Five DPSs of Atlantic sturgeon

Atlantic sturgeon are long-lived, estuarine dependent, anadromous[1] fish (Bigelow and Schroeder 1953, Vladykov and Greeley 1963, Mangin 1964, Pikitch et al. 2005, Dadswell 2006, ASSRT 2007), that historically occurred from Labrador south to the St. Johns River, Florida. Generally, Atlantic sturgeon use coastal bays, sounds, and ocean waters in depths less than 132 ft (Vladykov and Greeley 1963, Murawski and Pacheco 1977, Dovel and Berggren 1983, Smith 1985, Collins and Smith 1997, Welsh et al. 2002, Savoy and Pacileo 2003, Stein et al. 2004, Laney et al. 2007, Dunton et al. 2010, Erickson et al. 2011, Wirgin and King 2011), where they feed on a variety of benthic invertebrates and fish (Bigelow and Schroeder 1953, ASSRT 2007, Guilbard et al. 2007, Savoy 2007). Mature Atlantic sturgeon make spawning migrations from estuarine waters to rivers as water temperatures reach 43ºF for males (Smith et al. 1982, Dovel and Berggren 1983, Smith 1985, ASMFC 2009) and 54ºF for females (Dovel and Berggren

[1] Anadromous refers to a fish that is born in freshwater, spends most of its life in the sea, and returns to freshwater to spawn (NEFSC FAQ's, available at http://www.nefsc.noaa.gov/faq/fishfaq1a.html, modified June 16, 2011)

1983, Smith 1985, Collins et al. 2000), typically between February (southern systems) and July (northern systems). Individuals spawn at intervals of once every 1-5 years for males and once every 2-5 years for females. Spawning is believed to occur in flowing water between the salt front of estuaries and the fall line of large rivers, when and where optimal flows are 18-30 in/s and depths are 36-89 ft (Borodin 1925, Dees 1961, Leland 1968, Scott and Crossman 1973, Crance, 1987, Shirey et al. 1999, Bain et al. 2000, Collins et al. 2000, Caron et al. 2002, Hatin et al. 2002, ASMFC 2009). Females may produce 400,000 to 4 million eggs per spawning year (Vladykov and Greeley 1963, Smith et al. 1982, Van Eenennaam et al. 1996, Van Eenennaam and Doroshov 1998, Stevenson and Secor 1999, Dadswell 2006) and deposit eggs on hard bottom substrate such as cobble, coarse sand, and bedrock (Dees 1961, Scott and Crossman 1973, Gilbert 1989, Smith and Clugston 1997, Bain et al. 2000, Collins et al. 2000, Caron et al. 2002, Hatin et al. 2002, Mohler 2003, ASMFC 2009). Upon hatching, studies suggest that early juvenile Atlantic sturgeon (age-0 [i.e., YOY], age-1, and age-2) remain in low salinity waters of their natal estuaries (Haley 1999, Hatin et al. 2002, McCord et al. 2007, Munro et al. 2007) for months to years before emigrating to open ocean as subadults (Holland and Yelverton 1973, Dovel and Berggen 1983, Waldman et al. 1996, Dadswell 2006, ASSRT 2007). Growth rates and age at maturity are both influenced by water temperature, as Atlantic sturgeon grow larger and mature faster in warmer waters. Atlantic sturgeon may live up to 60 years, reach lengths up to 14 feet and weigh over 800 lbs. Tagging studies and genetic analyses (Wirgin et al. 2000, King et al. 2001, Waldman et al. 2002, ASSRT 2007, Grunwald et al. 2008) indicate that Atlantic sturgeon exhibit ecological separation during spawning throughout their range that has resulted in multiple, genetically distinct, interbreeding population segments.

The construction of dams, dredging, and modification of water flows have reduced the amount and quality of habitat available for Atlantic sturgeon spawning and foraging. Water quality (temperature, salinity, and dissolved oxygen) has also been reduced by terrestrial activities, leading to further declines in available spawning and nursery habitat. Although spawning historically occurred within many Atlantic coast rivers, only 16 U.S. rivers are known to currently support spawning based on available evidence (i.e., presence of YOY or gravid Atlantic sturgeon documented within the past 15 years) (ASSRT 2007).

Overutilization of Atlantic sturgeon from directed fishing caused initial severe declines in Atlantic sturgeon populations in the Southeast, from which they have never recovered. Although directed harvest of this species has ceased, Atlantic sturgeon continue to be incidentally caught as bycatch in other commercial fisheries. Because Atlantic sturgeon mix extensively in marine waters and may utilize multiple river systems for nursery and foraging habitat in addition to their natal spawning river, they are subject to being caught in multiple fisheries throughout their range. Additionally, Atlantic sturgeon are more sensitive to bycatch mortality because they are a long-lived species, have an older age at maturity, have lower maximum fecundity values, and a large percentage of egg production occurs later in life. Based on these life history traits, Boreman (1997) calculated that Atlantic sturgeon can only withstand the annual loss of up to five percent of their population to bycatch mortality without suffering population declines. Mortality rates of Atlantic sturgeon taken as bycatch in various types of fishing gear range between 0-51 percent, with the greatest mortality occurring in sturgeon caught by sink gillnets. While many of

the threats to Atlantic sturgeon have been ameliorated or reduced due to existing regulatory mechanisms such as the moratorium on directed fisheries for Atlantic sturgeon, bycatch is currently not being addressed through existing mechanisms.

The recovery of Atlantic sturgeon along the Atlantic Coast, especially in areas where habitat is limited and water quality is severely degraded, will require improvements in the following areas: (1) elimination of barriers to spawning habitat either through dam removal, breaching, or installation of successful fish passage facilities; (2) operation of water control structures to provide appropriate flows, especially during spawning season; (3) imposition of dredging restrictions including seasonal moratoriums and avoidance of spawning/nursery habitat; and (4) mitigation of water quality parameters that are restricting sturgeon's use of a river (i.e., DO). Stronger regulatory mechanisms may likely aid in achieving these improvements. These regulatory mechanisms may also aid in reducing bycatch mortality in commercial fisheries, again assisting in the recovery of the species.

3.4 Human Environment

3.4.1 Economic Description of the Fishery

3.4.2 Social and Cultural Environment

3.4.3 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 these individuals is not available. Because the proposed action could be expected to impact fishermen and community members in numerous communities in the South Atlantic, census data (available at the county level, only) have been assessed to examine whether any coastal counties 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 county was greater than or equal to 1.2 times this average, then the county was considered an area of potential EJ concern. Census data for the year 2010 were used.

For Florida, the estimate of the minority (interpreted as non-white, including Hispanic) population was 39.5%, while 13.2% of the total population was estimated to be below the poverty line. These values translate to EJ thresholds of 47.4% and 15.8%, respectively (**Table 3-3**).

In Florida, Broward (4.6%) and Miami-Dade (34.5%) counties exceed the minority threshold by the percentage noted. In regard to poverty, Miami-Dade (1.1%) county exceeds the threshold by the percentage noted. No potential EJ concern is evident for the remaining counties which have values less than the poverty and minority thresholds. The same method was applied to the remaining South Atlantic states.

Table 3-3. Average proportion of minorities and population living in poverty by state, and the corresponding threshold used to consider an area of potential EJ concern.

	Minorities		Poverty	
State	% Population	EJ Threshold	% Population	EJ Threshold
FL	39.5	47.4	13.2	15.8
GA	41.7	50	15	18
NC	32.6	39.1	15.1	18.1
SC	34.9	41.9	15.8	19

Source: U.S. Census Bureau 2010

In North Carolina, the counties of Chowan (0.1%), Tyrrell (4.2%), Pasquotank (4.3%), Washington (15.6%), and Bertie (25.5%) exceed the minority threshold for potential EJ concern. The North Carolina counties of Chowan (0.5%), Perquimans (0.5%), Tyrrell (1.8%), Bertie (4.4%), and Washington (7.7%) exceed the poverty threshold. Chowan, Tyrrell, and Washington counties exceed both the minority and poverty thresholds and are the North Carolina communities identified as most likely to be vulnerable to EJ concerns.

In South Carolina, the counties of Colleton (2.5%) and Jasper (19.9%) exceed the minority threshold by the percentage noted. The South Carolina counties of Georgetown (0.3%), Jasper (0.9%), and Colleton (2.4%) exceed the poverty threshold. Colleton and Jasper counties exceed both the minority and poverty thresholds and are the South Carolina communities identified as most likely to be vulnerable to EJ concerns.

In Georgia, Liberty was the only coastal county to exceed the minority threshold (by 3.2%). None of Georgia's coastal counties exceeded the poverty threshold for potential EJ concern.

While some communities expected to be affected by this proposed amendment may have minority or economic profiles that exceed the EJ thresholds and, therefore, may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. It is anticipated that the impacts from the proposed regulations may impact minorities or the poor, but not through discriminatory application of these regulations.

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 Exclusive Economic Zone (EEZ), an area extending 200 nm from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

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

The 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 Scientific and Statistical Committee (SSC) to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedure Act, in the form of "notice and comment" rulemaking.

3.5.1.2 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of 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.

NOAA General Counsel issued a revised Southeast Region Magnuson-Stevens Act Penalty Schedule in June 2003, which addresses all Magnuson-Stevens Act violations in the Southeast

Region. In general, this penalty schedule increases the amount of civil administrative penalties that a violator may be subject to up to the current statutory maximum of $120,000 per violation. The Final Penalty Policy was issued and announced on April 14, 2011 (76 FR 20959).

Chapter 4. Environmental Consequences and Comparison of Alternatives

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

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

The South Atlantic Council included an action in Amendment 16 to allow the Regional Administrator to make adjustments to vermilion snapper based on the outcome of SEDAR 17 (2008). These adjustments were made in the final rule for Amendment 16.

The 2012 Commercial ACL for Jan-June is reduced by 11,000 lb gw for post quota bycatch mortality (PQBM) and July-Dec by 24,000 lb gw PQBM.

Alternative 2. Revise ACL (including sector ACLs) for vermilion snapper for 2013 through 2016 as shown below and set ACL=ABC=OY. The values for 2016 would remain until modified.

Table 4-1. ABC/ACLs for 2013-2016 from the recent SEDAR assessment and the 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

Whole Weight vs. Gutted Weight

Vermilion snapper and landed whole, and landings are recorded in whole weight. The quota is specified in gutted weight. 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 and whole weight values will be given.

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…" Only two reasonable alternatives for this action, including the no action alternative, have been identified by NMFS and the South Atlantic Fishery Management Council (South Atlantic Council). **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 2011) 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). 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 is 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 (3) 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). Therefore, the South Atlantic Council determined the range of alternatives is adequate and it is not reasonable to include additional alternatives that incorporate a buffer between the ABC and ACL.

4.1.1 Biological Effects

Amendment 16 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 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

Insert John Carmichael's write-up here

ABC Values for Vermilion Snapper

The Comprehensive ACL Amendment (SAFMC 2011) established an ABC control rule for assessed snapper grouper species (See **Table 4-2**). 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).

Table 4-2. 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 2011).

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 updated for vermilion snapper in October 2012. The SSC is the responsible entity for recommending an ABC for managed species. Section 600.310(b)(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 4-2) and revised the P* recommendation to 40% (increased from P*=0.275), which resulted in the ABC values included in **Table 4-1**. Because the ABC is recommended by the SSC based on established 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.

Biological Impacts of Action Alternatives

Vermilion snapper is not overfished nor 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 (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 pound gw (1,665 lbs ww) trip limit, a split season quota for the commercial sector, a four-month recreational seasonal closure, and a prohibition on retention of the species by captains and crew of for-hire vessels. 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 prosecuted today. 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.

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 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 4-2**. 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 (2008), a corresponding increase in the ACLs may be justified.

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. **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 **Alternative 2**, the biological benefits under **Alternative 1 (No Action)** would be expected to be greater than **Alternative 2**. However, the 2012 stock assessment update indicates vermilion snapper is no longer undergoing overfishing, and the SSC has increased the ABC; therefore, there may not be a biological need to constrain harvest 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 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)** would 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 SSC's recommended ABC and therefore the ACL National Standard 1 guidelines do not allow harvest to exceed the recommended ABC. Therefore, OY could not be achieved under **Alternative 1 (No Action)**, which is contrary to National Standard 1 guidance. Modifying the definition of OY to be equal to ABC and the ACL (**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's SSC has 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 an evaluation concludes that the ACL is being chronically exceeded for any one species or species group, and post-season AMs are repeatedly needed to correct for ACL overages, adjustments to management measures would be made. If the ACL is exceeded repeatedly over the course of four years, the South Atlantic Council would reassess the system of ACLs and AMs for the species. Amendment 17B (SAFMC 2010) 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.

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 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 Southeast Regional Office (SERO).

Additionally, the Southeast Fisheries Science Center (SEFSC) is working with SERO and the Gulf of Mexico and South Atlantic Council to develop a Joint Dealer Reporting Amendment, which was recently approved by both Councils. 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 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 highly likely to provide more timely and accurate data reporting and would thus reduce the incidence of quota overages.

Since Amendment 17B was implemented in 2011, recreational vermilion snapper landings have been far below the 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 will come 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 ACL when set equal to each other and **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 **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 **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

4.1.3 Social Effects

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. **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).

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 2011) (Regulatory Amendment 9) implemented a 1,500 lb gw (1,665 lb ww) commercial trip limit for vermilion snapper. At during the development of Regulatory Amendment 9, the South Atlantic Council also considered also 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 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. Maintaining the current trip limit would have little biological effect. To constrain harvest, AMs would be implemented when the ACL is met of expected to be met.

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 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 rexamined in Regulatory Amendment 14 to the FMP (Regulatory Amendment 14), which is under development by the South Atlantic Council. 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. With a slower the rate of harvest, it may be easier to track commercial landings in-season to determine when the ACL might be reached. It is unknown how much a 500 lb gw reduction in the trip limit will slow the rate of vermilion snapper harvest. 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 new CLM quota monitoring system allows for better in-season monitoring of commercial landings. 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. Specifically, the CLM system includes five different methods for predicting in-season closures. **Alternative 2** may decrease the vermilion trip limit by enough to slow the 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.

Insert Quantitative Analysis of Alt. 2 here. Mike Larkin is working on this and will have it completed by mid-January.

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 **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. If the SEFSC's improved CLM quota monitoring is able to accurately predict when 75% of the split season ACL will be harvested, **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 **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, 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.

Insert quantitative analysis of Alt. 3 here. Mike Larkin is working on this and will have it completed by mid-January.

However, with a smaller the trip limit, the magnitude of discarded fish could increase since some fishermen may continue to fish for other co-occurring snapper grouper species after they have harvested the vermilion snapper trip limit. 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 from two depth ranges, 25 – 50 meters and 50 – 75 meters. The 38% discard mortality was the discard mortality estimate used in SEDAR 17 (2008) for the commercial and recreational sectors. A 38% discard mortality rate is not insignificant. If the lowered trip limit were to increase regulatory discards of vermilion snapper when they are caught as bycatch while fishermen are fishing for other species after having harvested the trip limit, the biological benefits of the trip limit could be negated by the adverse effects of discard mortality. Therefore, if larger commercial trip limits prevent bycatch of vermilion snapper, they could have a greater biological benefit to the stock.

4.2.2 Economic Effects

4.2.3 Social Effects

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 the same as those needed to implement and enforce the 1,000 lb gw (1,110 lb ww) trip limit under **Alternative 2**. Because **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**. **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 **Alterative 3** would be minimal.

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

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.

Table 4-3. ABC/ACLs and commercial split season ACLs for 2012 and the values 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.

Table 4-4. ABC/ACLs and commercial split season ACLs for 2012 and the values 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.

Table 4-5. ABC/ACLs and commercial split season ACLs for 2012 and the values 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

The split season quotas were first implemented for vermilion snapper through Amendment 16. The purpose of splitting the commercial season into two distinct time periods was to provide opportunities to fish for vermilion snapper throughout South Atlantic and throughout the calendar year. Amendment 16 implemented a small commercial quota based on the outcome of 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. **Alternative 1 (No Action)** would maintain the current six-month time periods and quota allocations to each season. The season dates under **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. 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 30. 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. 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 to be 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.

The biological consequences for vermilion snapper of shifting fishing seasons under **Alternative 2** are likely to be neutral since overall harvest would be limited to the sector ACL and split-season ACLs, and AMs would be triggered in the ACLs were exceeded. Additionally, quota-

monitoring efforts have significantly 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 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. Neither of the alternatives or 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 significantly. Therefore, no effects on protected whales, sea turtles, fish, or corals are anticipated because of this action.

4.3.2 Economic Effects

Because **Sub-Alternative 2b** may result in the vermilion snapper commercial sector closing earlier during the second fishing season than under the status quo, or under **Sub-Alternative 2a**, those fishermen who were excluded from the black sea bass pot endorsement program may not be able to fully subsidize their harvest with vermilion snapper.

4.3.3 Social Effects

Those who did not receive an endorsement but still need to maintain their income during the early summer months would be able to fish for vermilion snapper in place of black sea bass. Furthermore, opening the second of the two fishing seasons earlier in the year would increase fishing opportunities for fishermen in North Carolina and South Carolina who are not able to fish for vermilion during the winter months.

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, 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).

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

Two Alternatives Considered

As with Action 1 of this amendment, Action 4 also considers only two 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 did not consider alternative that modified the dates for a recreational closure to be reasonable alternatives and moved them to the considered but rejected Appendix A. 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 indicates the vermilion snapper stock is no longer undergoing overfishing. Furthermore, since the recreational closure was put into place through Amendment 16, 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 Amendment 18 would increase the recreational ACL. Therefore, the South Atlantic Council 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 to 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 4-1**) and incidental catch of vermilion snapper during the closed recreational season is likely occurring.

The estimated discard mortality rate for vermilion snapper in the commercial and recreational sectors is 38%; 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 considered to be undergoing overfishing, the recreational ACL can be increased (Action 1), and ACLs and AMs have been implemented through Amendment 17B to ensure overfishing does not occur, the recreational closure may not be biologically necessary to maintain a sustainable stock biomass.

Removing the annual recreational closure for vermilion snapper would not be expected to have negative biological impacts on the stock since a new stock assessment suggests 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 to ensure overfishing does not occur. 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. 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 and February 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, the recreational ACL is not expected to be met. Based on recreational landings from 2011, the total estimated landings for the year (323,902 lbs ww; **Table 4-6**)) is much less than the recreational ACLs specified in **Table 4-1** (406,080 to 439,040 lbs ww). Therefore, based on data from 2011, the ACL is not expected to be met if the seasonal closure for vermilion snapper is removed.

Add discussion of the level of harvest that would likely occur during the closed season months if it were opened up. Insert tables/figures using harvest levels from the moths on either end of the closed seasons to fill in for the months with no landings. When would the rec. ACL likely be met based on those numbers?

Table 4-6. Estimated recreational catch of vermilion snapper if harvest open all year. Landings for two month waves. Based on data from 2011. Landings for January-February and November-December are average of March-October. Conversion factor of 1.11 used to convert gw to ww. From http://sero.nmfs.noaa.gov/.

Species Complex	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec	Total (gw)	Total (ww)
Vermilion Snapper	48,634	26,251	54,701	73,915	39,669	48,634	291,804	323,902

There are now strict harvest limits in place (which was not the case when vermilion snapper provisions were implemented through Amendment 16) and recreational AMs that are able to limit recreational harvest to the ACL or correct for ACL overages when they do occur. Furthermore, monitoring efforts for recreational harvest in the southeast are improving. Additionally, the South Atlantic Council is likely to include an action in Regulatory Amendment 14 that would modify recreational AMs for vermilion snapper, making them even more effective in preventing ACL overages in the future and consistent with recreational AMs for other species in the snapper grouper FMU.

In early 2013, the SEFSC will roll out its new electronic reporting system for headboats operating the southeast, and the Gulf of Mexico and South Atlantic Councils 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 very likely to help 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 HAPCs since most recreational anglers would most likely still fish for other snapper grouper species while vermilion snapper is closed to recreational harvest. **Alternative 2** would also not be expected to incur biological impacts on protected species since fishermen targeting other snapper grouper species during the vermilion closure would simply shift effort back to vermilion snapper during that time. 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.

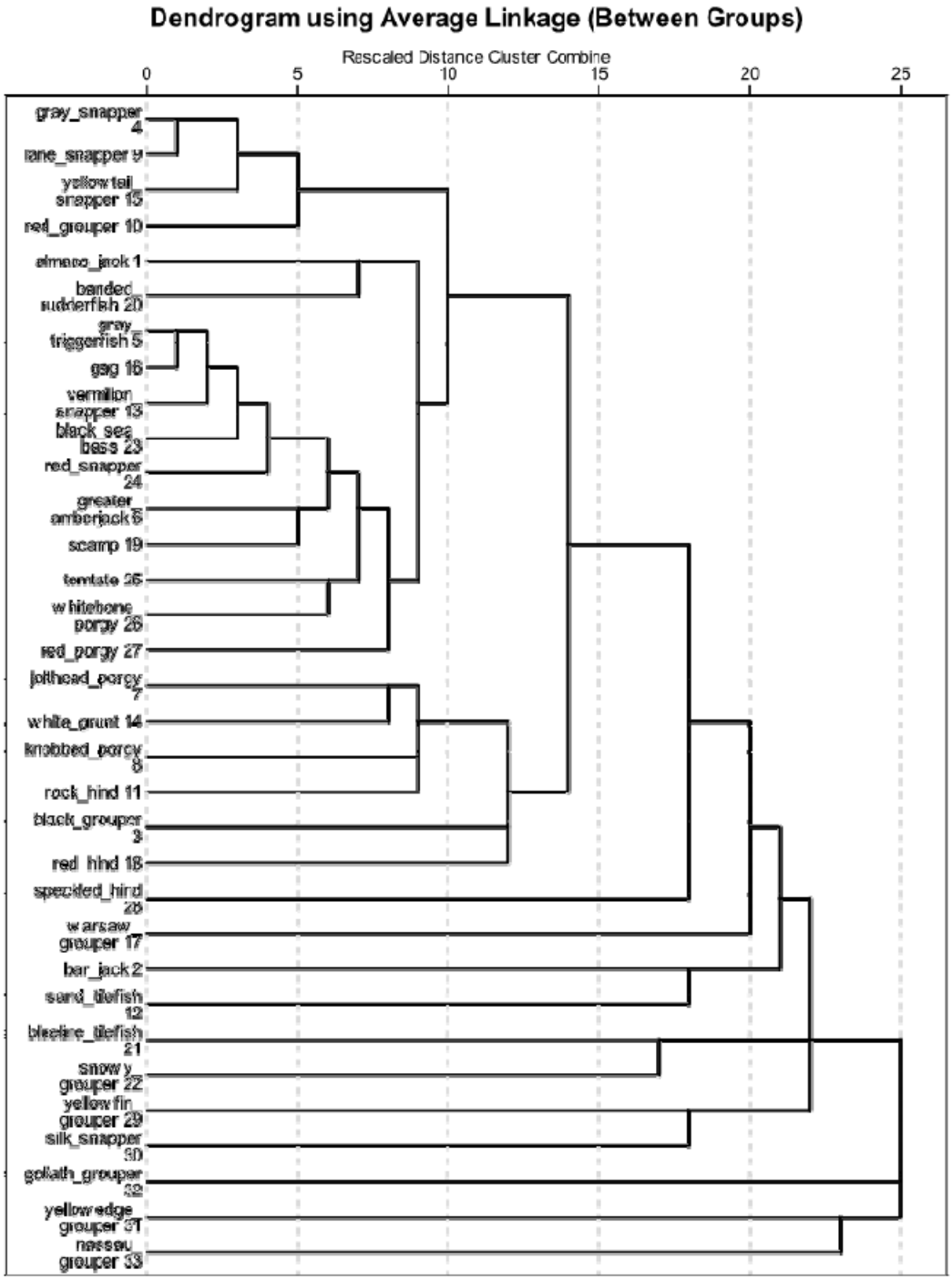


Figure 4-1. Hierarchical cluster analysis of species presence-absence in the snapper grouper recreational headboat landings aggregated by year, month, area, and depth. (Linkage Method: Between Groups, Dissimilarity Measure: Sørenson, Transformation: Binary). Numbers denote case numbers. Source: SERO-LAPP-2010-06.

4.4.2 Economic Effects

4.4.3 Social Effects

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 in order to maintain its effectiveness. Law enforcement requires staff time and monetary resources. Under **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 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 **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 lb ww = 380,100 lb gw
Commercial ACL = 197,652 lb ww = 190,050 lb gw
Recreational ACL = 197,652 lb ww = 190,050 lb gw
Recreational ACT = 160,098 lb ww = 153,940 lb gw
OY = 395,304 lb ww (OY=ACL=ABC)

Note: These values are based upon the results of SEDAR 1 (2006); Current ABC = 395,304 lb ww landed catch; allocation of 50% commercial and 50% recreational. 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 2011). The values for 2018 would remain until modified.

Table 4-7. New ABC and ACLs based Table 5 of 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

Two Alternatives Considered

The NMFS acknowledges there are two alternatives for this action. Section 1502.14(a) of the NEPA states that "agencies shall: rigorously explore and objectively evaluate all reasonable alternatives…" Only two reasonable alternatives for this action, including the no action alternative, have been identified by NMFS and the South Atlantic Council. **Alternative 2** simply updates the ACL for red porgy according to the accepted formula (ACL=ABC=OY) used for specifying ACLs for red porgy as was implemented through the Comprehensive ACL Amendment (SAFMC 2011). The rationale for using the formula (ACL=ABC=OY) is discussed in detail in Section 4.1.4 of the Comprehensive ACL Amendment and is hereby incorporated by reference.

4.5.1 Biological Effects

Red porgy were assessed through a benchmark assessment in 2002 (SEDAR 1), with subsequent assessment updates performed in 2006 and 2012. Amendment 12 to the FMP 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 to SEDAR 1 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 2008), which defined a rebuilding strategy for red porgy. The rebuilding strategy for red porgy that 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 395,281 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 2011) 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.

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 National Standard 1 Guidelines state that if a stock reaches the end of its rebuilding plan period and it is not yet determined to be rebuilt, then the rebuilding F should not be increased until the stock has been demonstrated to be rebuilt. Furthermore, the National Standard 1 Guidelines that if the stock cannot be rebuilt within the specified time period then the rebuilding F should be reduced to no more than 75% of the maximum fishing mortality threshold until the stock has been demonstrated to be rebuilt.

The SSC is the responsible entity for recommending an ABC for managed species. Section 600.310(b)(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 recommended an ABC based on the yield at 75%F_{MSY}, which resulted in the ABC values included in **Table 4-7**. 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) from which other management references points such as the ACL, and ACT may be based.

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

Insert write up from John Carmichael

Biological Impacts of Action Alternatives

The Comprehensive ACL Amendment (SAFMC 2011) established an ABC, sector ACLs, a recreational ACT, and AMs for red porgy, which represent the status quo situation for management of the species. The Comprehensive ACL Amendment (SAFMC 2011) 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 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 **Alternative 2**. Because 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 snapper be associated with the yield at $75\%F_{MSY}$ in accordance with the National Standard 1 Guidelines.

Alternative 2 would maintain the current definition of OY and ACL for red porgy established in the Comprehensive ACL Amendment (SAFMC 2011). 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 significantly 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 2011) 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 SEFSC is working with SERO and the Gulf of Mexico and South Atlantic Council to develop a Joint Dealer Reporting Amendment, which was recently approved by both Councils. 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 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 generic dealer reporting amendment are highly likely to provide more timely and accurate data reporting and would 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 will come 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 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 2011). 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 Regulatory Amendment 14. 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 Regulatory Amendment 14 were to strengthen the AMs for red porgy, the risk of overfishing further may decrease compared to the status quo.

Alternative 1 (No Action) and **Alternative 2** 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** would decrease the ACL from the status quo, but overall, this option would not change current fishing practices for vermilion snapper. 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

4.5.3 Social Effects

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

5.1.2 Law Enforcement Advisory Panel Comments and Recommendations

5.1.3 Scientific and Statistical Committee Comments and Recommendations

5.1.4 Public Comments and Recommendations

5.1.5 South Atlantic Council Choice for Preferred Alternative

5.2 Modify the commercial trip limit for vermilion snapper.

5.2.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.2.2 Law Enforcement Advisory Panel Comments and Recommendations

5.2.3 Scientific and Statistical Committee Comments and Recommendations

5.2.4 Public Comments and Recommendations

5.2.5 South Atlantic Council Choice for Preferred Alternative

5.3 Modify the commercial fishing seasons for vermilion snapper.

5.3.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.3.2 Law Enforcement Advisory Panel Comments and Recommendations

5.3.3 Scientific and Statistical Committee Comments and Recommendations

5.3.4 Public Comments and Recommendations

5.3.5 South Atlantic Council Choice for Preferred Alternative

5.4 Modify the recreational closed season for vermilion snapper.

5.4.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.4.2 Law Enforcement Advisory Panel Comments and Recommendations

5.4.3 Scientific and Statistical Committee Comments and Recommendations

5.4.4 Public Comments and Recommendations

5.4.5 South Atlantic Council Choice for Preferred Alternative

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

5.5.2 Law Enforcement Advisory Panel Comments and Recommendations

5.5.3 Scientific and Statistical Committee Comments and Recommendations

5.5.4 Public Comments and Recommendations

5.5.5 South Atlantic Council Choice for Preferred Alternative

Chapter 6. Cumulative Effects

6.1 Biological

As directed by the National Environmental Policy Act (NEPA), federal agencies are mandated to assess not only the indirect and direct impacts, but the cumulative impacts of proposed actions as well. NEPA defines a cumulative impact as *"the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time"* (40 C.F.R. 1508.7). Cumulative effects can either be additive or synergistic. A synergistic effect is when the combined effects are greater than the sum of the individual effects.

Various approaches for assessing cumulative effects have been identified, including checklists, matrices, indices, and detailed models (MacDonald 2000). The Council on Environmental Quality (CEQ) offers guidance on conducting a Cumulative Effects Analysis (CEA) in a report titled "Considering Cumulative Effects under the National Environmental Policy Act". The report outlines 11 items for consideration in drafting a CEA for a proposed action.

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.
2. Establish the geographic scope of the analysis.
3. Establish the timeframe for the analysis.
4. Identify the other actions affecting the resources, ecosystems, and human communities of concern.
5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.
6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.
7. Define a baseline condition for the resources, ecosystems, and human communities.
8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.
9. Determine the magnitude and significance of cumulative effects.
10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.
11. Monitor the cumulative effects of the selected alternative and adapt management.

This 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.

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. For the species addressed in Regulatory Amendment 18 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 13; FMP), landings data through 2012 were used in the subject biological analysis. Long-term evaluation is needed to determine if management measures have the intended effect of improving stock status. Monitoring should continue indefinitely for all species to ensure that management measures are adequate for preventing overfishing in the future.

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 the species addressed in Regulatory Amendment 18. Past regulatory activity for the relevant snapper grouper species includes bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system.

Amendment 15A to the FMP (SAFMC 2008): 1) Updated management reference points for snowy grouper, black sea bass, and red porgy; 2) modified rebuilding schedules for snowy grouper and black sea bass; 3) defined rebuilding strategies for snowy grouper, black sea bass, and red porgy; and
4) redefined the minimum stock size threshold for the snowy grouper stock. The amendment was approved by the Secretary of Commerce on March 14, 2008.

Amendment 16 to the FMP (SAFMC 2009) includes measures to end overfishing for gag grouper and vermilion snapper. The measures for gag grouper included: 1) Defining interim allocations based on landings at 51% commercial and 49% recreational; 2) establishing a January through April shallow water grouper spawning season closure for both commercial and recreational sectors where no fishing for and/or possession of black grouper, red grouper, scamp, red hind, rock hind, yellowmouth grouper, tiger grouper, yellowfin grouper, graysby, or coney would be allowed; 3) establishing a directed commercial quota of 352,940 lbs (gutted weight); 3) reducing the current 5-grouper aggregate recreational bag limit to a 3-grouper aggregate bag limit and reducing the existing bag limit from 2 gag or black grouper to 1 gag or black grouper combined; and 4) excluding the captain and crew on for-hire vessels from possessing a bag limit for groupers. For 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 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.

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

Regulatory Amendment 9 to the Snapper Grouper FMP (Regulatory Amendment 9; SAFMC 2011b) was approved by the South Atlantic Council in March 2011 and the final rule published on June 15, 2011. Regulatory Amendment 9 reduced the bag limit for black sea bass from 15

fish per person to 5 fish per person (effective June 22, 2011), established trip limits on vermilion snapper and gag (effective July 15, 2011), and increased the trip limit for greater amberjack (effective July 15, 2011).

The Comprehensive ACL Amendment (SAFMC 2011) fulfills the 2011 mandate deadline of the Magnuson-Stevens Act to establish Annual Catch Limits (ACLs) and Accountability Measures (AMs) for species managed by the Council that are not undergoing overfishing. The amendment addresses a number of species in the snapper grouper management complex, as well as dolphin (mahi-mahi), wahoo, and golden crab. In addition to establishing ACLs for dolphin, the amendment prohibits the sale of bag limit dolphin by fishermen with a federal For-Hire (charter) Permit.

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 and the South Atlantic Councils. 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.

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 [insert what the actual action are when they are determined and expand discussion around that] actions to modify the system of AMs currently in place for vermillion snapper and red porgy, which would help control harvest of both species and promote sustainable harvest levels.

The [Joint?] Generic Headboat 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.

Amendment 30 (VMS)

The Joint Charter Boat Reporting Amendment would be similar to the Generic Headboat 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.

Commercial Logbook

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

The snapper grouper ecosystem includes many species, which occupy the same habitat at the same time. For example, 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 3.2.1** 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 species identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the resources cannot be sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

Fish populations

The Comprehensive ACL Amendment (SAFMC 2011c) addressed species included in this amendment. This document updates thresholds already specified for these species to ensure future overfishing does not occur, and to ensure these stocks can be maintained at sustainable levels.

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.

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

The purpose of defining a baseline condition for the resource and ecosystems in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. 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. However, the species addressed by this amendment have not been assessed through the SEDAR process. For a detailed discussion of the baseline conditions of species addressed in this document the reader is referred to **Section 3.2** and **Appendix B** (history of management).

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.**

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

Time period/dates	Cause	Observed and/or Expected Effects
Pre-January 12, 1989	Habitat destruction, growth overfishing of vermilion snapper.	Damage to snapper grouper habitat, decreased yield per recruit of vermilion snapper.
January 1989	Trawl prohibition to harvest fish (SAFMC 1988).	Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat.
Pre-January 1, 1992	Overfishing of many snapper grouper species.	Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished.
January 1992	Prohibited gear: fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC. Size/Bag limits: 10" TL vermilion snapper (recreational only); 12" TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20" TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991).	Reduce mortality of snapper grouper species.
Pre-June 27, 1994	Damage to *Oculina* habitat.	Noticeable decrease in numbers and

Time period/dates	Cause	Observed and/or Expected Effects
		species diversity in areas of *Oculina* off FL
July 1994	Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993)	Initiated the recovery of snapper grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing continue for a number of snapper grouper species including golden tilefish.	Spawning potential ratio for golden tilefish is less than 30% indicating that they are overfished.
July 1994	Commercial quota for golden tilefish; commercial trip limits for golden tilefish; include golden tilefish in grouper recreational aggregate bag limits.	
February 24, 1999	All S-G without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runners. Vessels with longline gear aboard may only possess snowy, Warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish.	
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

Time period/dates	Cause	Observed and/or Expected Effects
		harvest of gag and vermilion snapper to end overfishing.
Effective Date January 4, 2010	Red Snapper Interim Rule	Prohibit commercial and recreational harvest of red snapper from January 4, 2010, to June 2, 2010 with a possible 186-day extension. Reduce overfishing of red snapper while long-term measures to end overfishing are addressed in Amendment 17A.
Effective Dates June 3, 2010, to Dec 5, 2010	Extension of Red Snapper Interim Rule	Extended the prohibition of red snapper to reduce overfishing of red snapper while long-term measures to end overfishing are addressed in Amendment 17A.
Effective Date December 4, 2010	Snapper Grouper FMP Amendment 17A (SAFMC 2010a).	Specified SFA parameters for red snapper; ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; accountability measures. Establish rebuilding plan for red snapper. Large snapper grouper area closure inn EEZ of NE Florida. Emergency rule delayed the effective date of the snapper grouper closure.
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 June 1, 2011	Regulatory Amendment 10 (SAFMC 2011a)	Removed of snapper grouper area closure approved in Amendment 17A.
Effective Date July 15, 2011	Regulatory Amendment 9 (SAFMC 2011b)	Harvest management measures for black sea bass; commercial trip limits for gag, vermilion and greater amberjack
Effective Date May 10, 2012	Regulatory Amendment 11 (SAFMC 2012b)	Removed the harvest prohibition of six deepwater snapper grouper species implemented in Amendment 17B.
Effective Date April 16, 2012	Comprehensive ACL Amendment (SAFMC 2011c)	ACLs ACTs, and AMs for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.

Time period/dates	Cause	Observed and/or Expected Effects
July 11, 2012	Amendment 24 (Red Grouper) (SAFMC 2011d)	Established a rebuilding plan for red grouper, specified ABC, and established ACL, ACT and revised AMs for the commercial and recreational sectors.
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
Effective Dates: September 17, 2012 (commercial); September 14, 2012 (recreational)	Temporary Rule through Emergency Action (Red snapper)	Established limited red snapper fishing seasons (commercial and recreational) in 2012.
Effective Date January 7, 2013	Amendment 18A Transferability Amendment	Reconsidered action to allow for transfer of black sea bass pot endorsements that was disapproved in Amendment 18A.
Effective Date October 26, 2012	Amendment 20A (Wreckfish) (SAFMC 2012d)	Redistributed inactive wreckfish shares.
Effective Date October 9, 2012	Regulatory Amendment 12 (SAFMC 2012c)	Adjusted the golden tilefish ACL based on the results of a new stock assessment and modified the recreational golden tilefish AM.
Target 2013	Snapper Grouper Amendment 18B (SAFMC 2012e)	Establish a commercial longline endorsement program for golden tilefish; establish an appeals process; allocate the commercial ACL by gear; establish trip limit for the hook and line sector
Target 2013	Snapper Grouper Amendment 22 (under development)	Develop a recreational tag program for red snapper, snowy grouper, golden tilefish, and wreckfish in the South Atlantic.
Target 2013	Regulatory Amendment 13 (under development)	Adjust ACLs and allocations for unassessed snapper grouper species with MRIP recreational estimates
Target 2013	Snapper Grouper Amendment 27 (under development)	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, increase crew of commercial snapper grouper fishing trip.

Time period/dates	Cause	Observed and/or Expected Effects
Target 2013	Snapper Grouper Amendment 28 (under development)	Modify red snapper management measures, including the establishment of a process to determine future annual catch limits and fishing seasons.
Target 2013	Snapper Grouper Amendment 29 (under development)	Update ABCs, ACLs, and ACTs for snapper grouper species based on recommendations from SSC.
Target 2013	Regulatory Amendment 15 (under development)	Implement a revised ACL for yellowtail snapper based on the latest stock assessment, modify gag AM.
Target 2013	Regulatory Amendment 16 (under development)	Implement a revised ACL for yellowtail snapper based on the latest stock assessment, modify gag AM.
Target 2013	Regulatory Amendment 17 (under development)	Adjustments to MPAs to enhance protection of speckled hind and warsaw grouper.
Target 2013	Regulatory Amendment 18	Adjust ACLs and management measure for vermilion snapper and red porgy based on results from new update assessment.
Target 2013	Amendment 30	VMS for commercial sector of snapper grouper fishery.

9. Determine the magnitude and significance of cumulative effects.

The proposed management action, as summarized in **Section 2** of this document, would revise the ABCs, ACLs (including sector ACLs), and ACTs for select un-assessed species in the snapper grouper FMU. None of the species included in Regulatory Amendment 13 are overfished or undergoing overfishing. Detailed discussions of the magnitude and significance of the preferred alternative appear in **Section 4** of this document.

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

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

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

The effects of the proposed action are, and will continue to be, monitored through collection of data by NMFS, 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, which includes the 37 species included in this amendment, has been affected by a combination of regulatory, biological, social, and external economic factors. Regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Gear restrictions, notably fish trap and longline restrictions, have also affected harvests and economic performance. The limited access program implemented in 1998/1999 substantially affected the number of participants in the fishery. Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have played a role in determining the changing composition of the fishery. Additional factors, such as changing career or lifestyle preferences, stagnant to declining ex-vessel fish prices due to imports, increased operating costs (e.g., gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for non-fishery uses have impacted both the commercial and recreational fishing sectors.

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

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.

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

Chapter 7. List of Preparers

Table 7-1. 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
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	Social Scientist
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 7-2. 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	Social Scientist
Lew Coggins	SEFSC	Fishery Biologist
Kari MacLauchlin	SAFMC	Fishery Social Scientist
Jack McGovern	NMFS/SF	Fishery Biologist
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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:
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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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