UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

AUG 16 2012

To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act (NEPA), an environmental review has been performed on the following action.

TITLE: Temporary Rule for Emergency Action to Allow Limited Harvest of Red Snapper in 2012 (RIN 0648-BC32)

LOCATION: Exclusive economic zone (EEZ) off the Southeast coast

SUMMARY: In a letter dated June 19, 2012, the South Atlantic Fishery Management Council (Council) requested that NOAA Fisheries Service (NOAA Fisheries) allow harvest and possession of red snapper in 2012 through emergency regulations. At their June 11-15, 2012, meeting, the Council reviewed new information in the form of red snapper rebuilding projections, 2012 acceptable biological catch levels, and 2012 discard mortality levels. After accounting for the 2012 discard mortalities, the Council determined that directed harvest could be allowed without compromising the rebuilding of the stock to target levels. The Council decided to send the request for emergency action by a 12 to 1 vote.

As outlined in their letter to NOAA Fisheries, the Council's request is centered around the following items: (1) Red snapper annual catch limit of 13,067 fish; (2) recreational annual catch limit (ACL) of 9,399 fish; (3) commercial ACL of 3,668 fish or 20,818 pounds gutted weight; (4) for the recreational sector, three-day weekend openings of which the number of weekends would be determined by NOAA Fisheries Service and the opening dates would be subject to modification based on weather conditions; (5) for the commercial sector, seven-day mini-season increments subject to the remaining quota; (6) open the seasons as soon as possible; (7) recreational bag limit of one fish per person per day with no size limit; and (8) commercial 50-pound gutted weight trip limit with no size limit.

NOAA Fisheries has determined that the opening of two weekends and seven days for the recreational and commercial sectors, respectively, are the proper number of days in order to balance expected, positive socio-economic effects while minimizing the probability of ACL overages. The openings would occur as early as possible in 2012 to prevent an opening late in the year when poor weather can lead to unsafe fishing conditions.

Once commercial landings have been reported for the first seven-day commercial opening, NOAA Fisheries will evaluate if the commercial ACL has been met. If the commercial ACL is not met, the commercial season may be reopened.

RESPONSIBLE OFFICIAL:

Roy E. Crabtree, Ph.D.
Regional Administrator
National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA)
Southeast Regional Office
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St. Petersburg, Florida 33701-5505
(727) 824-5305

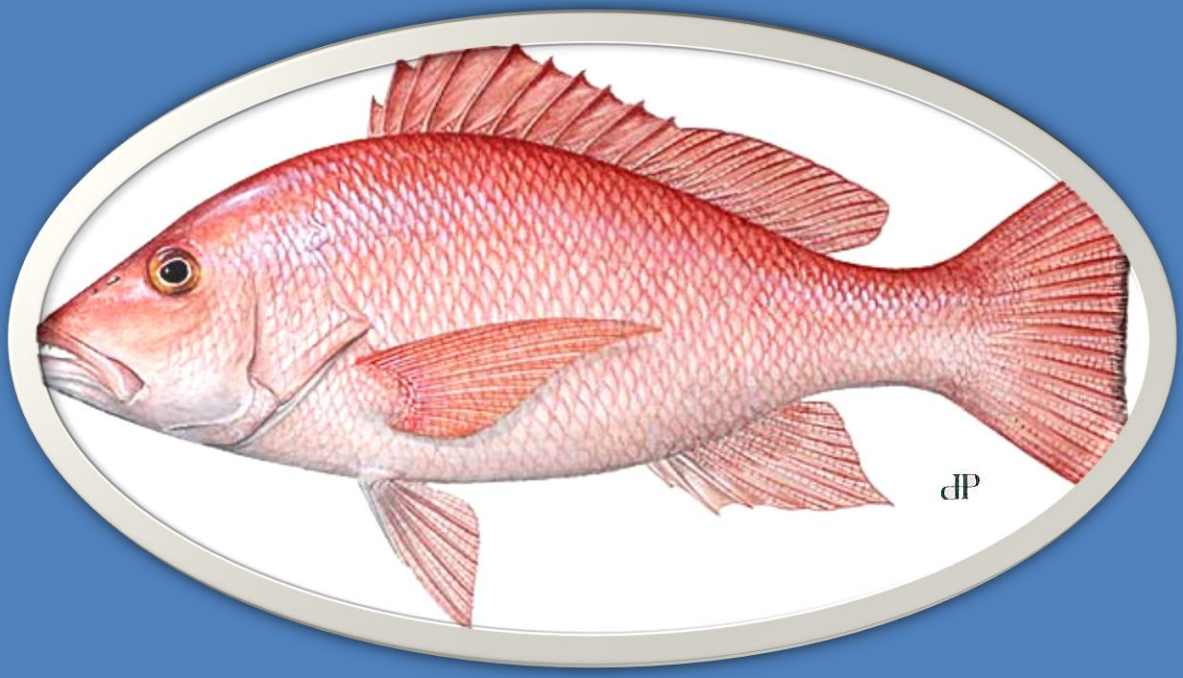
The environmental review process led us to conclude that this action will not have a significant impact on the environment. Therefore, an environmental impact statement was not prepared. A copy of the finding of no significant impact (FONSI), including the environmental assessment, is enclosed for your information.

Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist us in preparing future NEPA documents. Please submit any written comments to the Responsible Official named above.

Sincerely,

for Patricia A. Montanio
NOAA NEPA Coordinator

Enclosure



Measures to Allow Limited Harvest of Red Snapper (*Lutjanus campechanus*) in the South Atlantic in 2012

Temporary Measures through Emergency Action

Environmental Assessment Regulatory Impact Review Fishery Impact Statement

August 2012

Definitions, Abbreviations, and Acronyms Used in the Document

ABC acceptable biological catch

ACL annual catch limits

AM accountability measures

ACT annual catch target

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

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

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

B_{CURR} the current stock biomass

CPUE catch per unit effort

DEIS draft environmental impact statement

EA environmental assessment

EEZ exclusive economic zone

EFH essential fish habitat

F a measure of the instantaneous rate of fishing mortality

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

F_{CURR} the current instantaneous rate of fishing mortality

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

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

FEIS final environmental impact statement

FMP fishery management plan

FMU fishery management unit

M natural mortality rate

MARMAP Marine Resources Monitoring Assessment and Prediction Program

MFMT maximum fishing mortality threshold

MMPA Marine Mammal Protection Act

MRFSS Marine Recreational Fisheries Statistics Survey

MRIP Marine Recreational Information Program

MSFCMA Magnuson-Stevens Fishery Conservation and Management Act

MSST minimum stock size threshold

MSY maximum sustainable yield

NEPA National Environmental Policy Act

NMFS National Marine Fisheries Service

NOAA National Oceanic and Atmospheric Administration

OFL overfishing limit

OY optimum yield

RIR regulatory impact review

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

2012 Temporary Measures through Emergency Action for Red Snapper in the South Atlantic

Documents:	Environmental assessment Regulatory impact review Fishery impact statement
Proposed actions:	To allow a limited harvest of red snapper in 2012
Lead agency:	NOAA Fisheries
For Further Information Contact:	Phil Steele NOAA Fisheries, Southeast Region 263 13th Avenue South St. Petersburg, FL 33701 727-824-5301 Phil.Steele@noaa.gov

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Chapter 1.
Introduction

1.1 What Actions Are Being Proposed?

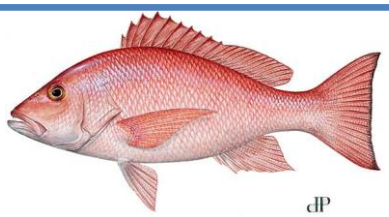
The harvest and possession of red snapper has been prohibited since January 4, 2010. Fishery managers are proposing temporary changes to the red snapper regulations, for 2012 by means of a temporary rule through emergency action under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Managers are proposing several actions; the most noteworthy would allow some harvest of red snapper for a limited time in 2012.

1.2 Who is Proposing the Actions?

The South Atlantic Fishery Management Council (South Atlantic Council) evaluated new information regarding red snapper at their June 2012 meeting and requested emergency action in a June 19, 2012, letter (**Appendix G**) addressed to NOAA Fisheries Service (NOAA Fisheries). NOAA Fisheries Service is an agency within the National Oceanic and Atmospheric Administration and the Department of Commerce. Under the the Magnuson-Stevens Act, the Secretary of Commerce may promulgate emergency regulations if the South Atlantic Council requests the taking of such action by less than unanimous vote. The South Atlantic Council voted 12 to 1 to request emergency action at their June 2012 meeting.

South Atlantic Fishery Management Council

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



1.3 Where is the Project Located?

Management of the federal snapper grouper fishery located off the southeastern United States (South Atlantic) in the 3-200 nautical miles U.S. Exclusive Economic Zone is conducted under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP, SAFMC 1983) (**Figure 1-1**). Red snapper is one of sixty fish managed by the South Atlantic Council under the Snapper Grouper FMP.

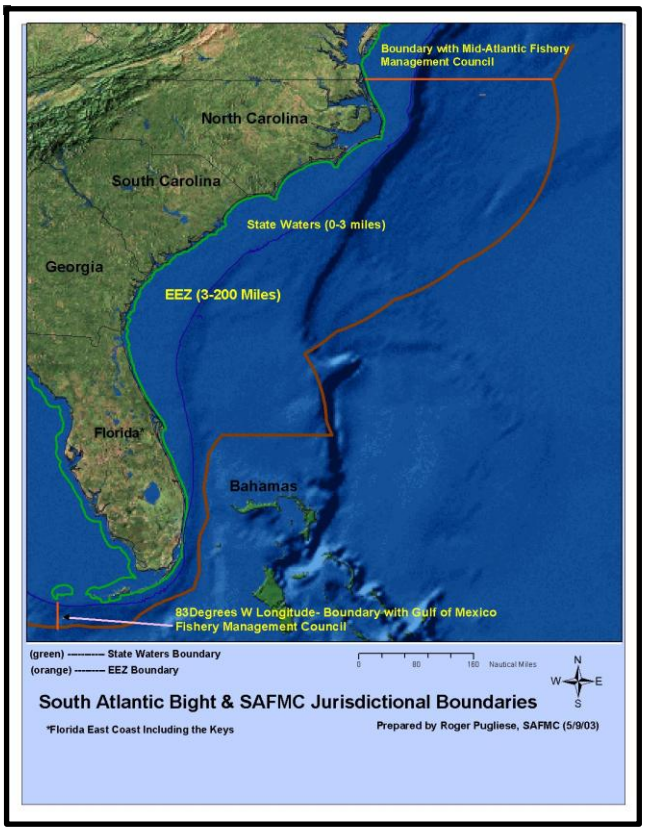


Figure 1-1. Jurisdictional boundaries of the South Atlantic Fishery Management Council.

1.4 Why is the Council and NOAA Fisheries Considering Action?

The South Atlantic Council and NOAA Fisheries have determined that retention of a limited number of red snapper in 2012, along with appropriate management controls, would not jeopardize the rebuilding of the red snapper stock. The South Atlantic Council and NOAA Fisheries made this determination following a comparison of the allowable mortality for red snapper in 2012 under the red snapper rebuilding plan with recent discards levels. The method is described in more detail in **Section 1.6** and **Appendix C**. The preferred alternatives evaluated in this environmental assessment as outlined in **Chapter 2** were contained in the South Atlantic Council's request (**Appendix G**).

Purpose for Action

Establish regulations to allow some harvest of red snapper in the South Atlantic in 2012.

Need for Action

Reduce existing socio-economic adverse impacts to fishermen and fishing communities that utilize the red snapper portion of the snapper grouper fishery. Regulations should minimize (1) safety at sea concerns, (2) probability of overages of the annual catch limit, and (3) discard mortality of red snapper. In addition, collect fishery-dependent information on the life history of red snapper.

1.5 Are These Actions Within the Bounds of the Scientific Recommendations?

The proposed actions for red snapper are consistent with the following: (1) Assessment results from Southeast Data, Assessment, and Review (SEDAR) 24; (2) rebuilding projections provided by the Southeast Fisheries Science Center (SEFSC); (3) acceptable biological catch (ABC) recommendation from the South Atlantic Council's Scientific and Statistical Committee (SSC); and (4) rebuilding plan implemented in 2010. The assessment and the rebuilding plan have been peer reviewed and are based on the best available scientific information.

The South Atlantic Council determines the annual catch limits (ACLs) from the overfishing limit (OFL) and the ABC (**Figure 1-2**). The SSC determines the OFL and recommends the ABC (based on the South Atlantic Council/SSC's ABC control rule). The OFL is an estimate of the catch level above which overfishing is occurring and may come from a stock assessment. The ABC is defined as the level of a stock or stock complex's annual catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty, and should be specified based on the South Atlantic Council/SSC's ABC control rule. Using the ABC as a start, the South Atlantic Council is proposing to increase the total ACL for the red snapper stock in the South Atlantic for 2012 from the current ACL of zero (landings only). The total ACL is then divided into sector ACLs using the commercial and recreational allocations for red snapper of 28.07% and 71.93%, respectively; the South Atlantic Council specified the allocations through the Comprehensive ACL Amendment (SAFMC 2011b).

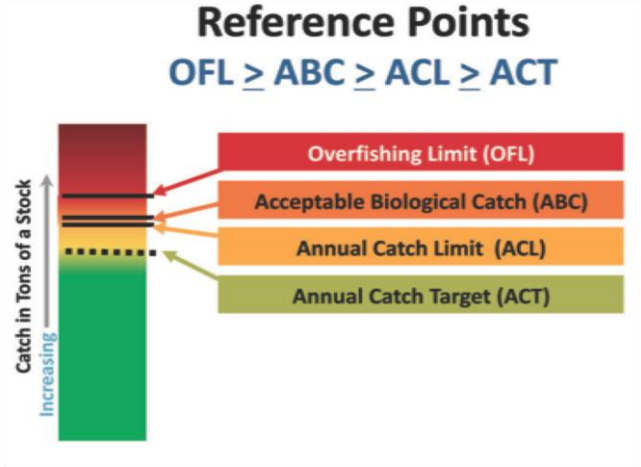


Figure 1-2. The relationship of the reference points to each other.

The ABC recommendation for red snapper from the South Atlantic Council's SSC is the catch level that corresponds to the rebuilding projections based on the rebuilding goal identified by the South Atlantic Council. The rebuilding projections were provided by the SEFSC and are included in **Appendix I-A** of Regulatory Amendment 10 to the Snapper Grouper FMP. The rebuilding goal is based on achieving a rate of fishing mortality equal to 98%$F_{30\%SPR}$, which equates to an ABC range of 374,000 to 421,000 lbs whole weight (ww) in 2011. ABCs of 374,000, 395,000, and 421,000 lbs ww from three rebuilding projections correspond to a headboat index weight of 0.20, 0.25, and 0.30, respectively. Increasing the weight in the headboat index (ie, 0.30 versus 0.20) implies greater confidence in the observed catch-per-unit-effort value. The South Atlantic Council adopted the ABC corresponding to the headboat index of 0.30, which equates to an ABC of 421,000 lbs ww for 2011, and an ABC of 541,000 lbs ww (86,000 fish) for 2012. The headboat index is considered a highly reliable source of information on stock abundance, and

the inability of the base run used in SEDAR 24 to match a pronounced increase in headboat CPUE was considered a key point in the assessment.

1.6 How Were the ACL Alternatives Determined?

Fishery managers are proposing an increase in the red snapper ACL for 2012. Chapter 2 of this document lists the ACL alternatives. The current ACL is zero (landings only) for red snapper, and the ABC for 2012 based on the rebuilding projection with a headboat index weight of 0.30 is 86,000 fish. In other words, 86,000 fish may be killed in 2012 under the rebuilding plan; kill is from landings or discard mortality. This ABC represents the amount of red snapper that can die in 2012 and not affect the rebuilding of the red snapper stock. Fishery managers are proposing a temporary increase of the ACL for 2012. To determine the 2012 ACL, fishery managers compared the estimated 2012 level of dead discards to the ABC for 2012. The 2010/2011 dead discard estimates and methods used to estimate 2012 dead discards are described in **Appendices B** and **C**, respectively. The ACL for 2012 is the difference between the ABC (projected mortalities) for 2012 and the estimate of the magnitude of dead discards expected to occur in the absence of fishing. Depending on the method of estimating the 2012 discard mortalities, the range for the ACL is from 2,121 to 13,067 fish (**Table 1-1**). At their June 2012 meeting, the South Atlantic Council determined that 2012 allowable landings should be calculated using the average of 2010 and 2011 estimated mortalities plus the 2012 ABC of 86,000 fish (**Alternative 2c**). On August 1, 2012, the SEFSC certified that the proposed action is based upon the best scientific information available.

Table 1-1. The estimated discard mortalities for 2012 and potential allowable landings allocated to each sector.

Method for estimating 2012 discard mortalities	2012 Discard Mortalities		Potential Allowable Landings/ACL
	ABC (proj.)	Esti-mated	
2011 increased by change in 2011-2012 exploitable abundance (36.6%) (ABC)	86,000	83,879	Alternative 2a 2,121 fish Rec=1,526 fish Comm.=595 fish or 3,379 lbs gw
2011 mortalities increased by change in 2011-2012 exploitable abundance (ABC) and decreased by change in 2010-2011 fishing effort	86,000	77,016	Alternative 2b 8,984 fish Rec=6,462 fish Comm.=2,522 fish or 14,313 lbs gw
Average of 2010-2011 estimated mortalities and 2012 projected mortalities	86,000	72,933	Alternative 2c Preferred 13,067 fish Rec=9,399 fish Comm.=3,668 fish or 20,818 lbs gw

Source: SERO-LAPP-2012-04 2012 (Appendix C)

Projected mortalities (or ABC) is the red snapper kill that is predicted to occur. The difference of the estimated and projected mortalities provide the ACL.

Estimated mortalities are the red snapper kill that have previously occurred through keeping the catch and discards as estimated through the current data collection programs.

1.7 How Were the Length of the Seasons Determined?

Commercial

Once the total ACL and sector-ACLs are determined as described in the previous section, fishery managers must specify the season length. Chapter 2 specifies the season length alternatives. The objective is to specify a season length that would not result in landings exceeding the sector ACL, which would help ensure landings are below the 2012 ABC. The analysis supporting the season length determination is contained in **Appendix C**.

If the commercial fishing season opens in September 2012 as expected, the estimated days available before reaching the commercial ACL is between 6 to 152 days depending on the commercial trip limit implemented (**Table 1-2**). Based on the preferred commercial ACL of 20,818 lbs gutted weight (gw) and 50 lbs gw trip limit, the estimated commercial season length would be 68 days before the ACL is met. This assumes effort and catch rates of red snapper are comparable to 2009 levels prior to the prohibition on the harvest of red snapper.

Table 1-2. The estimated commercial season length in days under various commercial ACL (in pounds gutted weight (gw)) and trip limit scenarios if the season opens in September as expected.

Com-mercial ACL (lbs gw)	Trip Limit (lbs gw)			
	25 (Alt. 6a)	50 (Alt. 6b) (preferred)	75 (Alt. 6c)	100 (Alt. 6d)
3,379 (Alt. 2a)	22 days	11	7	6
14,313 (Alt. 2b)	96	47	31	23
20,818 (Alt. 2c) (preferred)	152	**68**	45	34

Source: SERO-LAPP-2012-04 2012 (Appendix C)

Methodology of the commercial trip limit and season length analysis
(Appendix C)

►Trip limits from 25 to 100 lbs were applied to logbook landings data from 2009, the last year the red snapper commercial sector was open.

►Trips were evaluated and if a trip reported landing red snapper above a specified trip limit, then landings were reduced to the trip limit.

►All trips landing quantities of red snapper below the trip limit were increased to the trip limit.

Based on logbook landings from 2011, the estimated allowable season length would be shortened from 68 to 14 days. During 2011, 107 vessels reported landings in statistical grids from Central-east Florida (Fort Pierce/Cape Canaveral) through Georgia of species associated with red snapper (red snapper was closed in 2011). (Commercial fishermen report logbook landings in statistical grids; the grids are approximately 60 by 60 nautical miles each.) These species include vermilion snapper, scamp, red porgy, black grouper, gag, red grouper, gray triggerfish, and greater amberjack. If each of these vessels made two trips per week and caught a 50 lb gw trip limit of red snapper, then the season would be open 14 days. If the 107 vessels each made three trips per week and caught a 50 lb gw trip limit, then the season would be open 9 days. Given that vessels off South Carolina and North Carolina would also be catching some red snapper, it is possible the season could be shorter than the 9 to 14 range.

In 2009, 1,997 logbook trips reported landing red snapper. Trips per month ranged from 113-235, or approximately 30-60 per week. During 2009, the maximum amount of pounds landed during a week was 21,423 pounds gutted weight between October 3-9, 2009. This amount

was landed by 44 vessels taking 60 trips. Logbook records indicate there were 107 vessels fishing in statistical zones from Central-east Florida (Fort Pierce/Cape Canaveral) through Georgia in 2011 that landed species commonly associated with red snapper (red snapper was closed in 2011). Commercial fishermen report logbook landings in statistical grids; the grids are approximately 60 by 60 nautical miles each. These species include vermilion snapper, scamp, red porgy, black grouper, gag, red grouper, gray triggerfish, and greater amberjack. If each of these vessels made two trips per week and caught a 50 lb gw trip limit of red snapper, then the projections show that the season would be open 14 days. If the 107 vessels each made three trips per week and caught a 50 lb gw trip limit, then the projections show that the season would be open 9 days. Given that vessels off South Carolina and North Carolina would also be catching some red snapper, it is possible the season could be shorter than the 9 to 14 day range.

Based on the analysis outlined above, fishery managers are proposing a seven-day commercial opening for red snapper in **Preferred Alternative 3**. As explained in **Section 6.3**, NOAA Fisheries will evaluate landings to determine if any additional days can be open in 2012.

Recreational

Fishery managers are proposing an opening of recreational fishing for red snapper in 2012. The analysis supporting the season length determination is contained in **Appendix C**.

If the recreational fishing season opens in September 2012 as expected, the estimated number of days available to fishing before reaching the preferred recreational ACL of 9,399 fish is between 2 to 24 days depending on two statistical scenarios of the model (**Table 1-3**).

Table 1-3. As estimated by Seasonal Autoregressive Integrated Moving Average Model (SARIMA), the recreational season length in days under each recreational ACL alternative (in numbers of fish) if the season opens in September as expected.

Recreational ACL (numbers of fish)	Estimated Recreational Season Length (days)	
	SARIMA mean	SARIMA 95% confidence interval
1,526 (Alt. 2a)	4 days	2
6,462 (Alt. 2b)	17	10
9,399 (Alt. 2c) (preferred)	24	14

Source: SERO-LAPP-2012-04 2012 (Appendix C)

The majority of private recreational fishermen fish on the weekends. To account for the higher fishing pressure on weekend days, the number of weekend days available under the preferred ACL alternative would be less than the number of consecutive days estimated to meet the level of landings specified in the preferred ACL alternative (between 14 to 24 days). Assuming 75 percent of a week's recreational landings are landed over the three-day weekend, 2.1-4.8 three-day weekends would be the equivalent of 11 to 25 consecutive days. Given uncertainties in estimated discard mortalities for 2012, and the potential for large shifts in fishing effort if red snapper are allowed to be harvested, the author of **Appendix C** recommends that the recreational fishing season be no longer than two to three consecutive three-day weekends. Taking this information into consideration, fishery managers created **Alternative 4**, which would establish two weekend-only openings in 2012 for the recreational sector (Friday, Saturday, Sunday) as a preferred alternative.

SARIMA = **S**easonal **A**utoregressive **I**ntegrated **M**oving **A**verage **M**odel

►Uses historical monthly landings and projected changes in exploitable abundance to predict future monthly landings

1.8 What is the History of Management for Red Snapper?

Red snapper regulations in the South Atlantic where first implemented in 1983. See **Appendix C** of Amendment 17A to the Snapper Grouper FMP for a detailed history of management for the snapper grouper fishery. Recent actions since the first SEDAR assessment in 2008 are presented in **Figure 1-3**.

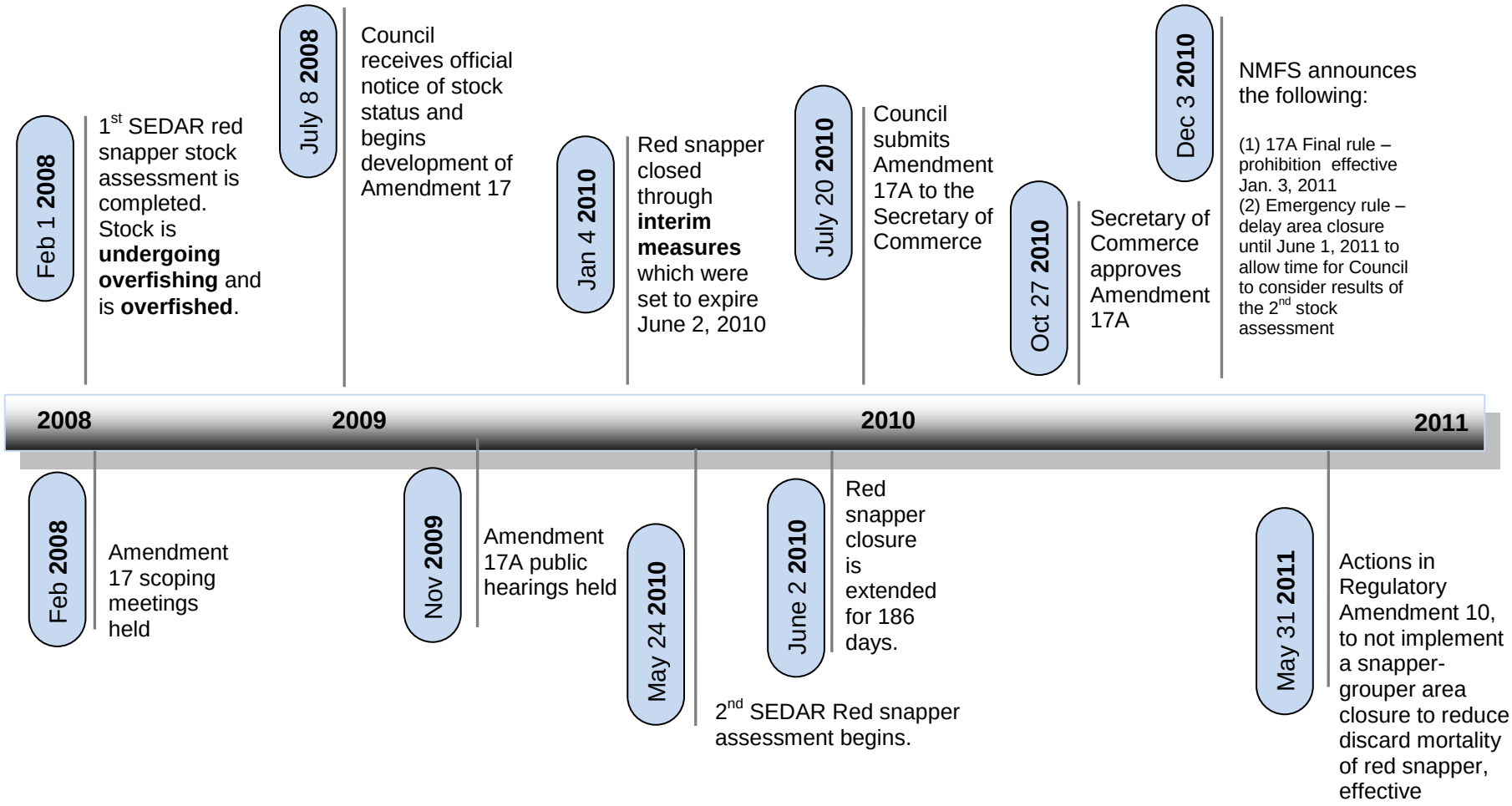


Figure 1-3. Timeline of recent red snapper management measures.

Chapter 2. Proposed Actions

2.1 Action 1. Allow Harvest and Possession of Red Snapper in 2012

2.1.1 Alternatives

Multiple alternatives and sub-alternatives may be chosen as preferred alternatives.

Alternative 1. (No action). The red snapper annual catch limit (ACL) equals zero (landings only). Red snapper may not be harvested or possessed in or from the South Atlantic exclusive economic zone (EEZ). The 20-inch total length (TL) minimum size limit and inclusion in the 10 fish snapper combined bag limit are currently not in effect as red snapper may not be harvested or possessed in or from the South Atlantic EEZ. The commercial and recreational allocations of red snapper are 28.07% and 71.93%, respectively. The accountability measures (AM) for red snapper, in addition to the harvest and possession prohibition, are as follows:

(1) Track CPUE of red snapper via a fishery-independent monitoring program to track changes in biomass and take action to end overfishing if assessment indicates progress is not being made.
(2) Track the biomass and CPUE through fishery-dependent sampling.
(3) CPUE would be evaluated every three years and adjustments would be made by the framework action.

RED SNAPPER REGULATIONS IN THE CODE OF FEDERAL REGULATIONS

50 C.F.R. § 622.32 Prohibited and limited-harvest species.
(3) South Atlantic.
(vi) Red snapper may not be harvested or possessed in or from the South Atlantic EEZ. Such fish caught in the South Atlantic EEZ must be released immediately with a minimum of harm. In addition, for a person on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper-grouper has been issued, the provisions of this closure apply in the South Atlantic, regardless of where such fish are harvested, i.e., in state or Federal waters.
§ 622.37 Size limits.
(e) South Atlantic snapper-grouper--(1) Snapper.
(v) Red snapper--20 inches (50.8 cm), TL, however, see § 622.32(b)(3)(vii) for the current prohibition on the harvest and possession of red snapper.
§ 622.39 Bag and possession limits.
(d) South Atlantic snapper-grouper--(1) Bag limits.
(iv) Snappers, combined--10. However, excluded from this 10-fish bag limit are cubera snapper, measuring 30 inches (76.2 cm), TL, or larger, in the South Atlantic off Florida, and red snapper and vermilion snapper. (See § 622.32(b)(3)(vii) for the prohibition on harvest and possession of red snapper and § 622.32(c)(2) for limitations on cubera snapper measuring 30 inches (76.2 cm), TL, or larger, in or from the South Atlantic EEZ off Florida.)
(ix) No red snapper may be retained.
§ 622.45 Restrictions on sale and purchase.
(d) South Atlantic snapper-grouper.
(10) No person may sell or purchase a red snapper harvested from or possessed in the South Atlantic, i.e., state or Federal waters, by a vessel for which a Federal commercial permit for South Atlantic snapper-grouper has been issued.

Alternative 2. Establish a temporary red snapper ACL for 2012 only.

Sub-alternative 2a. Establish a temporary red snapper ACL of 2,121 fish for 2012. Establish a temporary red snapper commercial ACL of 595 fish or 3,379 lbs gutted weight for 2012. Establish a temporary red snapper recreational ACL of 1,526 fish for 2012. The sector ACLs were calculated through use of the established allocations for red snapper (28.07% commercial; 71.93% recreational).

Sub-alternative 2b. Establish a temporary red snapper ACL of 8,984 fish for 2012. Establish a temporary red snapper commercial ACL of 2,522 fish or 14,313 lbs gutted weight for 2012. Establish a temporary red snapper recreational ACL of 6,462 fish for 2012. The sector ACLs were calculated through use of the established allocations for red snapper (28.07% commercial; 71.93% recreational).

Sub-alternative 2c (Preferred). Establish a temporary red snapper ACL of 13,067 fish for 2012. Establish a temporary red snapper commercial ACL of 3,668 fish or 20,818 lbs gutted weight for 2012. Establish a temporary red snapper recreational ACL of 9,399 fish for 2012. The sector ACLs were calculated through use of the established allocations for red snapper (28.07% commercial; 71.93% recreational).

Alternative 3 (Preferred). Establish a seven-day opening for 2012 for the commercial sector beginning on Monday following the first recreational three day opening. NMFS will compare landings to the ACL to determine if any additional days can be open in 2012. The temporary AM is the specification of the length of the opening and other management controls, the monitoring of landings, and the comparison of the landings to the ACL before potentially re-opening in 2012.

Alternative 4 (Preferred). Establish two weekend-only openings for 2012 for the recreational sector (Friday, Saturday, Sunday). NMFS will evaluate data to determine if any additional days can be open in 2012. The temporary AM is the specification of the length of the opening and other management controls.

Alternative 5 (Preferred). Suspend the red snapper commercial and recreational 20-inch TL minimum size limit for the duration of the temporary rule through emergency action.

Alternative 6. Establish a red snapper temporary commercial trip limit.

Sub-alternative 6a. Establish a red snapper temporary commercial trip limit of 25 lbs gutted weight per trip for the duration of the open 2012 commercial fishing season.

Sub-alternative 6b (Preferred). Establish a red snapper temporary commercial trip limit of 50 lbs gutted weight per trip for the duration of the open 2012 commercial fishing season.

Sub-alternative 6c. Establish a red snapper temporary commercial trip limit of 75 lbs gutted weight per trip for the duration of the open 2012 commercial fishing season.

Sub-alternative 6d. Establish a red snapper temporary commercial trip limit of 100 lbs gutted weight per trip for the duration of the open 2012 commercial fishing season.

Alternative 7 (Preferred). Establish a red snapper temporary recreational bag limit of one fish per person per day for the duration of the open 2012 recreational fishing season.

Note: After the conclusion of the commercial red snapper fishing season in 2012, red snapper may not be harvested or possessed by commercial fishermen in federal waters of the South Atlantic and in state waters for vessels holding federal snapper-grouper permits. After the conclusion of the recreational red snapper fishing season in 2012, red snapper may not be harvested or possessed by recreational fishermen in federal waters of the South Atlantic and in state waters for vessels holding federal snapper-grouper permits.

Chapter 3. Affected Environment

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

Affected Environment

- **Habitat environment (Section 3.1)**

  Examples include coral reefs and sea grass beds

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

  Examples include populations of red snapper, corals, turtles

- **Human environment (Section 3.3)**

  Examples include fishing communities and economic descriptions of the fisheries

- **Administrative environment (Section 3.4)**

  Examples include the fishery management process and enforcement activities

3.1 Habitat Environment

Many snapper grouper species utilize both open-water and bottom habitats during several life-history stages; larval stages of these species live in the water column and feed on plankton. Most juveniles and adults are 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 daily feeding migrations or seasonal shifts in cross-shelf distribution.

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

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 unvegetated areas of little or no relief.

More detail on these habitat types is found in Volume II of the Council's Fishery Ecosystem Plan (SAFMC 2009b) available at: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx

3.1.1 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.

EFH utilized by snapper grouper species in the South Atlantic 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 feet (but to at least 2,000 feet for wreckfish)] where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical 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 meters (100-foot) contour, such as attached microalgae; 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.

3.1.2 Habitat Areas of Particular Concern

Areas which meet the criteria for EFH-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 Council-designated Artificial Reef Special Management Zones (SMZs). Areas that meet the criteria for designating essential fish habitat-habitat areas of particular concern include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

3.2 Biological and Ecological Environment

The reef environment in the South Atlantic management area affected by actions in this environmental assessment is defined by two components (**Figure 3-1**). Each component will be described in detail in the following sections.

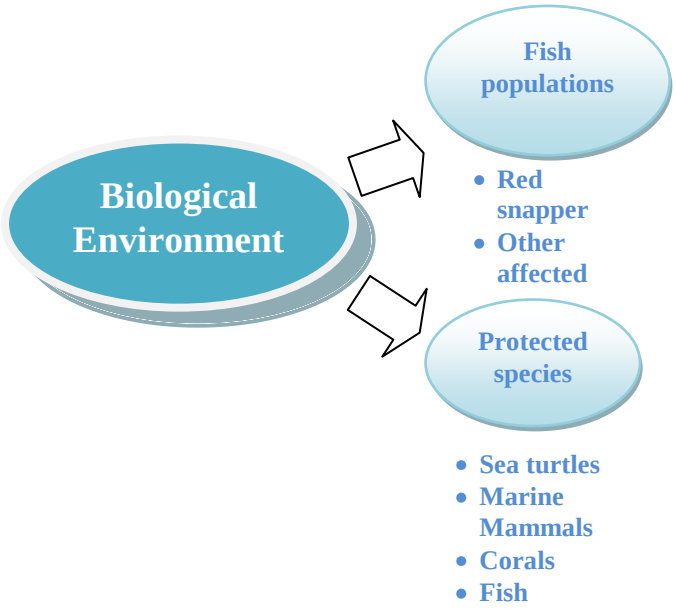


Figure 3-1. Two components of the biological environment described in this document.

3.2.1 Fish Populations

The waters off the South Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 60 species of fish, many of them neither "snappers" or "groupers". These species live in depths from a few feet (typically as juveniles) to hundreds of feet. As far as north/south distribution, the more temperate species tend to live in the upper reaches of the South Atlantic management area (black sea bass, red porgy) while the tropical variety's core residence is in the waters off south Florida, Caribbean Islands, and northern South America (black grouper, mutton snapper).

These are reef-dwelling species that live amongst each other. These species rely on the reef environment for protection and food. There are several reef tracts that follow the southeastern coast. The fact that these fish populations congregate together dictates the nature of the fishery (multi-species) and further forms the type of management regulations proposed in this document.

Snapper grouper species commonly taken with red snapper could be affected by the action. In addition to red snapper, snapper grouper species most likely to be affected by the proposed actions includes many species that occupy the same habitat at the same time. Therefore, snapper grouper species are likely to be caught when regulated since they will be incidentally caught when fishermen target other co-occurring species (See Section 3.2.5 for a discussion of the co-occurring species).

3.2.2 Red Snapper, *Lutjanus campechanus*

The red snapper is found from North Carolina to the Florida Keys, and throughout the Gulf of Mexico to the Yucatan Peninsula (Robins and Ray 1986). It can be found at depths from 10 to 190 m (33-623 feet). Adults usually occur over rocky bottoms. Juveniles inhabit shallow waters and are common over sandy or muddy bottom habitat (Allen 1985) **(Figure 3-2).**

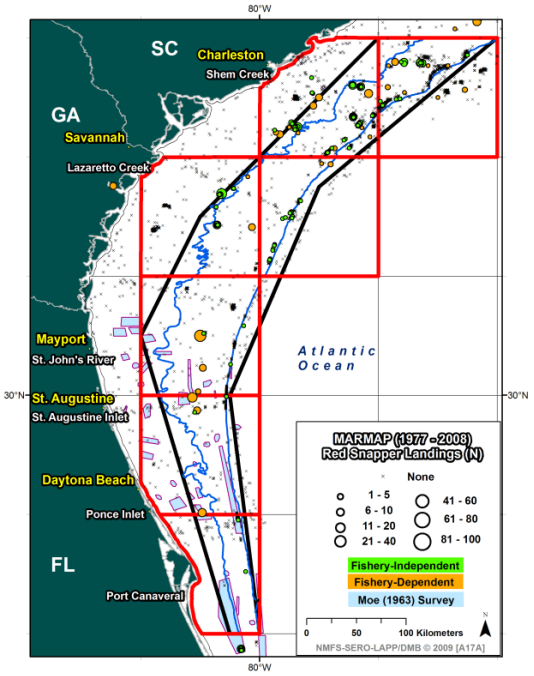
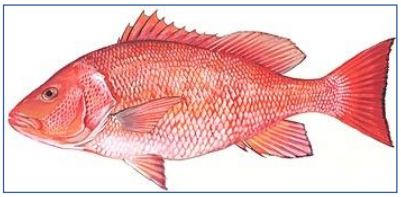


Figure 3-2. Distribution of red snapper taken by MARMAP in fishery-independent and fishery-dependent samples as well as locations where Moe (1963) reported red snapper.

The maximum size reported for this species is 100 cm (40 inches) total length (TL) (Allen 1985, Robins and Ray 1986) and 22.8 kg (50 lbs) (Allen 1985). Maximum reported age in the Gulf of Mexico is reported as 53 years by Goodyear (1995) and 57 years by Allman *et al.* (2002). For samples collected from North Carolina to eastern Florida, maximum reported age is 45 years (White and Palmer 2004). McInerny (2007) reports a maximum age of 54 years for red snapper in the South Atlantic. Natural mortality (M) is estimated to be 0.078 using the Hoenig (1983) method with a maximum age of 53 years (SEDAR 15 2008). The value of M used in SEDAR 24 (2010) based on the Hoenig (1983) method was 0.08. Manooch *et al.* (1998) estimated M at 0.25 but the maximum age in their study was 25 years (Manooch and Potts 1997).

In the U.S. South Atlantic and in the Gulf of Mexico, Grimes (1987) reported that size of red snapper at first maturity is 23.7 cm (9.3 inches) fork length. For red snapper collected along the Southeastern United States, White and Palmer (2004) found that the smallest mature male was 20.0 cm (7.9 inches) TL, and the largest immature male was 37.8 cm (15 in) TL. Fifty percent of males are mature at 22.3 cm (8.8 in) TL, while 50% of females are mature at 37.8 cm (15 in) TL. Males are present in 86% of age 1, 91% of age 2, 100% of age 3, 98% of age 4, and 100% of older age fish. Mature females are present in 0% of age 1, 53% of age 2, 92% of age 3, 96% of age 4, and 100% of older age individuals. Grimes (1987) found that the spawning season of this species varies with location, but in most cases occurs nearly year round. White and Palmer (2004) reported that the spawning season for female red snapper off the southeastern United States extends from May to October, peaking in July through September. Red snapper eat fishes, shrimps, crabs, worms, cephalopods, and some planktonic items (Szedlemayr and Lee 2004).

Red Snapper Life History
An Overview



- Extend from North Carolina to the Florida Keys, and throughout the Gulf of Mexico to the Yucatan Peninsula
- Waters ranging from 33-623 feet
- Red snapper do not migrate but can move long distances
- The spawning season extends from May to October, peaking in July through September.
- Can live for at least 54 years

Among red snapper, larger fish aren't always older fish

There is a great deal of variability in the age of red snapper at larger sizes. For example, the average size of a 10 year old red snapper is around 32 inches, but 10 year old fish range in size from 27 to 40 inches in length. Fish are currently being caught before they become old enough to reach their peak reproductive levels. Increasing the abundance of older, mature fish is important to long-term sustainability.

3.2.3 Stock Status of Red Snapper

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 NOAA Fisheries 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 Fishery Management Council's (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 results of SEDAR 24, utilizing the most recent data from 2009, determined that the red snapper stock to be undergoing overfishing and overfished **(Table 3-1).** The South Atlantic Council, through Amendments 17A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) and Regulatory Amendment 10 to the Snapper Grouper FMP, took action to end overfishing and begin rebuilding the stock. See **Section 1.6** for a history of recent management of red snapper.

Table 3-1. Stock status of red snapper.

Alt.	SEDAR 24 (2009 most recent data)
Overfishing (F_{CURR}/MFMT value)	Yes (4.1)
Overfished (B_{CURR}/MSST value)	Yes (0.09)
• If F_{CURR}>MFMT, then undergoing overfishing. The higher the number, the greater degree of overfishing. • If B_{CURR}<MSST, then overfished. The lower the number, the greater degree of overfished. • Note: The stock status is from the base run. Changing the base run changes the level of overfishing/overfished.	

It is important to note that the SEDAR Review Panel stated the following in the Review Workshop Report (SEDAR 24 2010):

"The panel suggests using the AW (Assessment Workshop) base case model to provide historical and current estimates of stock abundance, biomass, and exploitation, but cautions that this is one realization of a number of plausible runs and is conditioned on particular assumptions made about the data and population dynamics model that may change in future assessments."

The SSC reviewed the assessment at their November 2010 meeting and approved it as the best available science and usable for management purposes. The SSC discussed how to use the model results to provide fishing level recommendations to the South Atlantic Council (SSC Report 2010). The SSC decided to base their recommendations on three runs of the model using different "weights" for the headboat index since the latter was considered the most reliable. A weight function is used to give some elements more "weight" or influence on the results than other elements in the same model. The base run used a headboat (hb) weight of 0.11. The SSC chose to use three weights for the headboat index (hb = 0.2, hb = 0.25, and hb = 0.3) and base their catch level advice on the projections from each of these three model configurations. The South Atlantic Council adopted the ABC corresponding to the headboat index of 0.30. The proposed ACLs in this amendment are based on an ABC of 541,000 lbs whole weight in 2012.

3.2.4 Recent Mortality Estimates of Red Snapper

The Southeast Fisheries Science Center (SEFSC) has provided mortality estimates to fishery managers **(Table 3-2)**. At their June 11-15, 2012, meeting, the Council reviewed new information including these recent estimates of mortality. Despite the harvest and possession prohibition, red snapper landings have been reported **(Table 3-2)**.

Table 3-2. Total mortalities by fleet (units=number of fish).

Sector		2010	2011
For-hire	Landed	971	1950
	Discard mortalities	20569	22131
Private recreational	Landed	0	0
	Discard mortalities	31561	16156
Commercial	Landed	0	0
	Discard mortalities	18293	21169

3.2.5 Other Fish Species Affected

In addition to red snapper, snapper grouper species most likely to be affected by the proposed actions includes many species that occupy the same habitat at the same time. Therefore, snapper grouper species are likely to

be incidentally caught when fishermen target co-occurring species. The following species are ones that are most likely to be affected. Amendment 17A to the Snapper Grouper FMP (SAFMC 2010a) **Section 3.2.1**, describes their life history characteristics in detail.

black sea bass
(*Centropristis striata*)

gag
(*Mycteroperca microlepis*)

gray triggerfish
(*Balistes capriscus*)

greater amberjack
(*Seriola dumerili*)

red grouper
(*Epinephelus morio*)

scamp
(*Mycteroperca phenax*)

vermilion snapper
(*Rhomboplites aurorubens*)

3.2.6 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 (MMPA) and six are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). In addition to those six marine mammals, five species of sea turtle (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]) are protected under the ESA. **Section 3.5** of Amendment 17A to the Snapper Grouper FMP, describes life history characteristics in detail and discusses the previous ESA section 7 determinations of impacts from the snapper grouper fishery on these species.

NOAA Fisheries drafted a biological opinion, dated June 7, 2006, titled, "The Continued Authorization of Snapper-Grouper Fishing in the U.S. South Atlantic Exclusive Economic Zone (EEZ) as Managed Under the Snapper-Grouper Fishery Management Plan of the South Atlantic Region (SGFMP), Including Amendment 13C to the SGFMP." Subsequent to the biological opinion, five distinct population segments (DPS) of Atlantic sturgeon and two *Acropora* species occurring in the Southeast Region were listed (effective April 6, 2012); and *Acropora* critical habitat was designated. Additionally, on September 22, 2011, NOAA Fisheries and the U.S. Fish and Wildlife Service determined the loggerhead sea turtle population consists of nine DPSs (76 FR 58868). Previously, loggerhead sea turtles were listed as threatened species throughout their global range. The snapper-grouper fishery interacts with loggerhead sea turtle from what is now considered the Northwest Atlantic DPS, which remains listed as threatened. The Atlantic sturgeon (*Acipenser oxyrhincus*) has been recently listed under the ESA.

3.3 Socio-economic Environment

3.3.1 Economic Description of the Commercial Fishery

A recent description of the commercial component of the snapper grouper fishery is contained in Amendment 17A (SAFMC 2010a) and Regulatory Amendment 10 (SAFMC 2010b) and is incorporated herein by reference. The

following is brief summary and updated information, where available. Note that Amendment 17A expressed real dollars in terms of 2007 dollars while Regulatory Amendment 10 used 2008 dollars. For the current update in this Emergency Action, all dollar values have been converted to 2011 dollars. However, in estimating economic activities using the latest 5-year average, dollar values are expressed in 2008 dollars to be consistent with the available economic impact (business activity) model.

SAFMC (2010) contains numerous average annual (2003-2007) commercial sector performance statistics. Updates of all these statistics through 2011 are not available. Select statistics updated through 2011 are provided in the following paragraphs.

SAFMC (2010) reported average annual commercial landings of all snapper grouper species in the South Atlantic from 2003-2007 of approximately 6.43 million lbs with an ex-vessel value of approximately $14.98 million. The corresponding average figures for 2008-2011 are 5.03 million lbs valued at $13.66. The resulting most recent five-year average (2007-2011) harvest totals are approximately 5.33 million lbs valued at $14.28 million in 2011 dollars, or $13.66 million in 2008 dollars.

All harvests (all trips and all species) by all vessels harvesting snapper grouper averaged approximately 11.24 million lbs valued at $24.74 million over 2003-2007 (SAFMC 2010a, with some corrections based on the most recent logbook data). Comparable average figures for 2008-2011 are 12.21 million lbs valued at $23.86 million. The most recent five year average (2007-2011) harvest is 12.21 million lbs valued at $19.09 million.

During 2003-2007, an average of 890 commercial vessels per year harvested snapper grouper species and took an annual average of 14,665 trips. The corresponding figures for 2008-2011 are 865 vessels and 14,271 trips.

In 2003-2007, the largest portion of snapper grouper harvests was landed in Georgia and Florida (Georgia landings combined with Florida for confidentiality considerations), or approximately 46%, followed by North Carolina (28%), and South Carolina (25%). The distribution of revenues followed the same pattern but slightly differed in percentage levels, with Georgia/Florida accounting for about 49% of total revenues, followed by North Carolina (26%) and South Carolina (25%). This relative distribution of snapper grouper landings and revenues by state has largely remained the same for 2008-2011: Florida/Georgia accounted for 52% of landings and 47% of revenues, North Carolina for 28% of landings and 27% or revenues, and South Carolina for 20% of landings and 26% of revenues.

In 2003-2007, snapper grouper landings were mostly caught by hook and line (81%), with longline accounting for 6% of landings and other gear types at 13%. This relative distribution of landings by gear type remained the same for 2008-2011, although the share of hook and line fell slightly to 79% and the longline share slightly increased to 9%.

The landings of red snapper in 2003-2007 averaged annually at approximately 121,000 valued at $421,000. Noting that since 2010, harvest and sale of red snapper has been prohibited, only the 2008 and 2009 landings and revenues may be updated. For these two years, red snapper landings averaged at about 309,000 lbs valued at $505,000. Georgia/Florida accounted for most of the landings and revenues at about 89% of total red snapper landings. Red snapper revenues over a 5-year period (2005-2009) averaged at approximately $612,000 (2008 dollars).

Estimates of the economic impacts (business activity) associated with the commercial snapper grouper fishery are derived using the model developed for and applied in USDOC (2009). Based on the average annual ex-vessel revenues for all snapper grouper species over the period 2007-2011 of $13.66 million, the commercial snapper grouper fishery is estimated to support 2,575 full time equivalent (FTE) jobs and generate approximately $180 million in output (sales) impacts and approximately $77 million in income impacts per year to the U.S. economy. Among the jobs supported, 336 FTE jobs are estimated to be in the harvesting sector and 205 FTE jobs are in the dealer/processor sector. Approximately two-thirds of the jobs supported by the commercial snapper grouper fishery are estimated to accrue to the restaurant sector. The estimates of economic activity include the direct effects (effects in the sector where an expenditure is actually made), indirect effects (effects in sectors providing goods and services to directly affected sectors), and induced effects (effects induced by the personal consumption expenditures of employees in the direct and indirectly affected sectors).

It is noted that the harvest of red snapper has been prohibited during 2010. During 2005-2009, commercial harvest of red snapper averaged approximately 171,000 valued at approximately $612,000 (2008 dollars) per year. The business activity associated with these revenues is 115 full time equivalent (FTE) jobs, approximately $8 million in output (sales) impacts and approximately $3 million in income impacts per year to the U.S. economy. As a result of the prohibition on the harvest of red snapper, the persistence of the average annual snapper grouper revenues and associated business activity would not be expected to occur but would, instead, be expected to be reduced by some portion of the losses attributable to the reduction in red snapper harvests. The full loss, however, may not occur if harvests of other species were able to be increased to compensate for the red snapper losses.

In 2003-2007, commercial snapper grouper permits averaged at 944, of which 749 were transferable and 195 were non-transferable. Transferable permits have no overall harvest limit of snapper grouper per trip. Note however that certain snapper grouper species, such for example as gag, vermilion snapper, and black sea bass are subject to trip limits. On the other hand, non-transferable permits are restricted to an overall harvest limit of 225 lbs per trip. The comparable numbers for 2008-2010 were 788 total permits, of which 643 were transferable permits and 145 transferable permits. According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 694 current holders of commercial snapper grouper permits as of July 9, 2012. Of these permits, 568 are transferable and 126 are non-transferable.

Imports continue to be a major source of seafood supply in the United States. During 2007-2011, imports of fresh and frozen snappers and groupers averaged 43.4 million lbs (product weight), valued at $104 million. Although fresh local product may benefit from some higher prices in some markets, the dominance of imports in the total snapper grouper market would be expected to exert limits on the movement of domestic ex-vessel prices resulting from changes in domestic landings.

3.3.2 Economic Description of the Recreational Fishery

A description of the recreational component of the snapper grouper fishery is contained in Amendment 17A (SAFMC 2010a) and Regulatory Amendment 10 (SAFMC 2010b) and is incorporated herein by reference. The following is a brief summary and updated information, where available.

SAFMC (2010b) reported that recreational snapper grouper harvest in the South Atlantic averaged approximately 10.8 million lbs per year during 2005-2009. Private boat anglers accounted for the largest harvests, accounting for approximately 6.1 million lbs, followed by shore anglers (1.7 million lbs), charter anglers (1.6 million lbs), and headboat anglers (1.4 million lbs). In 2010-2011, the recreational snapper grouper harvest averaged approximately 11.8 million lbs annually, with 6.7 million lbs contributed by the private mode, 2.7 million lbs by the shore mode, 1.2 million lbs by the charter mode and 1.2 million lbs by headboats.

In 2003-2008, red snapper harvest in the South Atlantic averaged approximately 403,000 lbs (SAFMC 2010a). Most red snapper harvests were taken by the private/rental mode (231,000 lbs), followed by the charter mode (110,000 lbs) and headboat (62,000 lbs). Although red snapper harvest in the South Atlantic has been prohibited since 2010, some fish continued to be harvested by the recreational sector. In 2009-2011, recreational red snapper harvest averaged about 346,000 lbs although most of these were harvested in 2009. The private/rental mode harvested most of red snapper (220,000 lbs), followed by the charter mode (75,000 lbs) and headboat (51,000 lbs). In 2005-2009, recreational harvest of red snapper averaged approximately 557,000 lbs per year. In 2005-2009, recreational harvest of red snapper averaged approximately 557,000 lbs per year.

Recreational effort derived from the Marine Recreational Statistics Survey (MRFSS) database can be characterized in terms of the number of trips as follows:

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

SAFMC (2010b) reported that over the years 2005-2009, an average of approximately 945,000 individual angler trips per year targeted snapper grouper species across all modes and states in the South Atlantic, or approximately 4% of all recreational shore, charter, and private angler trips. Snapper grouper target effort was highest in Florida, approximately 694,000 trips per year, and in the private mode, approximately 626,000 trips per year. In 2010-2011, total angler target trips for snapper grouper dropped to about 826,000 per year. This still comprised about 4% of all recreational shore, charter, and private angler trips. Florida accounted for the highest number of target trips at about 579,000 trips and the private mode accounted for the highest number of target trips at 592,000 trips. For the most recent five years (2007-2011), total target effort for snapper grouper in the South Atlantic averaged 906,106 trips annually. For the most recent five years (2007-2011), total target effort for snapper grouper in the South Atlantic averaged 906,106 trips annually.

Substantially more recreational trips catch than target any of the snapper grouper species in the South Atlantic. SAFMC (2010a) reported that during 2003-2008 an average of approximately 3.5 million individual angler trips in just the shore, private boat, and charter modes caught snapper grouper each year. Over 80% if these trips occurred off Florida. In 2009-2011, an average of about 2.8 million angler trips with

the shore, private, and charter modes caught snapper grouper, with about 76% occurring off Florida. In 2005-2009, recreational catch effort for snapper grouper in the South Atlantic averaged approximately 2.7 million trips per year. The corresponding average catch effort for the most recent five years (2007-2011) is 3.3 million trips per year. In 2005-2009, recreational catch effort for snapper grouper in the South Atlantic averaged approximately 2.7 million trips per year. The corresponding average catch effort for the most recent five years (2007-2011) is 3.3 million trips per year.

Similar to the discussion for the commercial sector, the harvest of red snapper was prohibited in the recreational sector in 2010. SAFMC (2010b) reported that red snapper target effort averaged approximately 57,300 trips per year in the South Atlantic during 2005-2009. While the prohibition of harvest needs not result in the cancellation of a target trip, the popularity of red snapper as a food fish, as opposed to being primarily a sport fish suggests that target effort would be expected to decline in response to the harvest prohibition. In 2010, red snapper target effort significantly dropped to about 4,000 trips and became practically non-existent in 2011.

As with catch trips for snapper grouper, catch trips for red snapper were also greater than target trips. In 2003-2008, catch trips for red snapper averaged 88,500 annually (SAFMC 2010a). In 2009-2011, red snapper catch trips averaged about 53,000 annually, although in 2010-2011 red snapper catch trips averaged only about 27,000 annually. In 2005-2009, red snapper catch trips averaged 94,000 per year. For the most recent five years (2007-2011) total catch effort for red snapper averaged about 79,000 trips per year.

As with catch trips for snapper grouper, catch trips for red snapper were also greater than target trips. In 2003-2008, catch trips for red snapper averaged 88,500 annually (SAFMC 2010a). In 2009-2011, red snapper catch trips averaged about 53,000 annually, although in 2010-2011 red snapper catch trips averaged only about 27,000 annually. In 2005-2009, red snapper catch trips averaged 94,000 per year. For the most recent five years (2007-2011) total catch effort for red snapper averaged about 79,000 trips per year.

Similar analysis of recreational effort is not possible for the headboat sector because headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. Despite the inability to associate headboat effort with specific species, the stationary bottom nature of headboat fishing, as opposed to trolling, suggests that most headboat trips and, hence, angler days, are snapper grouper trips by intent. SAFMC (2010b) reported that over the years 2005-2009, an average of approximately 225,000 angler trips were taken each year in the South Atlantic. The majority of these trips, approximately 153,000 trips per year, were taken in Georgia-Florida (Georgia is combined with Florida because of confidentiality considerations). In 2010-2011, anglers in the South Atlantic took an average of 188,000 trips. Georgia-Florida, with an average of about 144,000 trips, accounted for most of the trips.

SAFMC (2010a) reported an average of 1,811 snapper grouper for-hire permits in the South Atlantic for the period 2003-2008. In 2009-2010, South Atlantic snapper grouper for-hire permits averaged 1,953. In both periods, most permit holders listed Florida as their homeport state. According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 1,524 current holders of South Atlantic for-hire snapper grouper permits as of July 9, 2012.

Participation, effort, and harvest are indicators of the value of saltwater recreational

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

SAFMC (2010a) and SAFMC (2010b) contain discussions on estimates of the consumer surplus (CS) associated with fishing for snapper grouper derived from different studies, including Haab et al. (2009), Dumas et al. (2009), and NMFS (2009). The estimated CS per snapper grouper (individual fish) used in the analysis of the expected effects of the management changes proposed in SAFMC (2010a) was $80 (2009 dollars). More recently, Carter and Liese (2012) estimated CS values for various species, with the CS value for red snapper equal to $62.97 (2003 dollars) for the second fish harvested. They also estimated red snapper CS values of $11.08 (2003 dollars) for the second fish released due to size limit and $6.86 (2003 dollars) for the second fish released due to the bag limit.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (David Carter, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese *et al.* (2009), Dumas *et al.* (2009), Holland *et al.* (1999), and Sutton *et al.* (1999). SAFMC (2010a) utilized a value of $128 (2009 dollars) per charter angler trip to assess the expected change in net operating revenues of the proposed management changes on charter vessels. In a more recent study, Holland et al. (2012) reported that charter vessels in the South Atlantic had average revenues of approximately $106,000 per vessel in 2009.

Net operating revenues per angler trip are lower for headboats than for charterboats. Net operating revenue estimates for a representative headboat trip are $48 in the Gulf of Mexico (all states and all of Florida), and $63-$68 in North Carolina. For full-day and overnight headboat trips, net operating revenues are estimated to be $74-$77 in North Carolina. Comparable estimates are not available for Georgia and South Carolina. SAFMC (2010a) utilized a value of $68 (2009 dollars) per headboat angler trip to assess the expected change in net operating revenues of the proposed management changes on headboat vessels. Holland et al. (2012) reported that headboats in the South Atlantic had average revenues of approximately $188,000 per vessel in 2009.

These value estimates should not be confused with angler expenditures or the economic activity (impacts) associated with these expenditures. While expenditures for a specific good or service may represent a proxy or lower bound of value (a person would not logically pay more for something than it was worth to them), they do not represent the net value (benefits minus cost), nor the change in value associated with a change in the fishing experience.

Estimates of the economic impacts (business activity) associated with the recreational snapper grouper fishery were derived using average output (sales) and job (FTE) impact coefficients for recreational angling across all fisheries

(species), as derived by an economic add-on to the Marine Recreational Fisheries Statistical Survey (MRFSS), and described and utilized in USDOC (2009). Estimates of the average expenditures by recreational anglers are provided in USDOC (2009) and are incorporated herein by reference. Estimates of the average snapper grouper effort (2007-2011) and associated business activity (2008 dollars) are provided in **Table 3-3**. Snapper grouper target trips were selected as the measure of snapper grouper effort. Consistent with the distribution of snapper grouper target effort, the largest amount of business activity associated with snapper grouper fishing occurs in Florida (across all modes), and the contributions by private/rental mode anglers were the greatest. It should be noted that output impacts and value added impacts are not additive. Also, the impacts cannot be added across states to generate a regional total because impacts for individual states reflect (are reduced by) leakage of business activity into neighboring states. In a regional model (all four states combined), expenditures flowing from, for example from Georgia to Florida, would remain in the region and continue to be counted. Regional estimates of business activity are not available.

Table 3-3. Summary of snapper grouper target trips (2005-2009 average) and associated economic impacts (2008 dollars). Output and value added impacts are not additive.

	North Carolina	South Carolina	Georgia	Florida
	Shore Mode			
Target Trips	9,670	25,475	6,475	194,795
Output Impact	$2,422,010	$2,594,068	$104,298	$5,564,825
Value Added Impact	$1,348,706	$1,444,439	$62,540	$3,230,686
Jobs	29	32	1	59
	Private/Rental Mode			
Target Trips	92,797	73,343	26,749	442,414
Output Impact	$5,065,182	$3,226,950	$417,919	$16,729,951
Value Added Impact	$2,856,099	$1,882,882	$253,503	$9,997,035
Jobs	54	37	4	176
	Charter Mode			
Target Trips	5,140	1,980	446	26,822
Output Impact	$2,000,917	$667,711	$28,037	$10,511,585
Value Added Impact	$1,122,919	$377,229	$16,364	$6,188,466
Jobs	25	9	0	108
	All Modes			
Target Trips	107,607	100,798	33,670	664,031
Output Impact	$9,488,109	$6,488,729	$550,254	$32,806,361
Value Added Impact	$5,327,724	$3,704,550	$332,406	$19,416,186
Jobs	109	77	5	343

Source: effort data from the MRFSS, economic impact results calculated by NMFS SERO using the model developed for USDOC (2009).

As noted in the previous paragraph, the values provided in **Table 3-3** reflect only effort derived from the MRFSS. Because the headboat sector in the Southeast is not covered in the MRFSS, the results in **Table 3-3** do not include estimates of the business activity associated with headboat anglers. Although estimates of the business activity associated with the headboat sector were provided in SAFMC (2010a), these estimates were based on the model parameters appropriate for the charterboat sector, which are higher than would be expected for the headboat sector because of higher fees charged by charter vessels and other factors discussed in SAFMC (2010a). As a result, these estimates are not repeated here and updated, more appropriate estimates of the business activity associated with the headboat component of the snapper grouper fishery are not available.

3.3.3 Social Environment

More detailed descriptions of the social environment for the red snapper fishery appear in the SAFMC (2009; 2010a; 2011a; 2011b) which include demographic information at the county level for areas of substantial red snapper fishing activity. Communities with substantial landings of snapper grouper species were identified in SAFMC (2010c) with demographic descriptions for those communities. Figure 3.3.1.1 below provides a depiction of red snapper regional quotient landings and value of landings for South Atlantic communities. A regional quotient is the amount of local landings and/or value divided by the total landings and value for the region. For this analysis, total landings for Florida Keys communities were included as we are unable to disaggregate landings at the community level to Gulf or Atlantic at this time. Values for pounds and value of landings are not reported to address confidentiality concerns, yet **Figure 3-3** still provides a glimpse of the proportion of red snapper that is landed by the top fifteen communities.

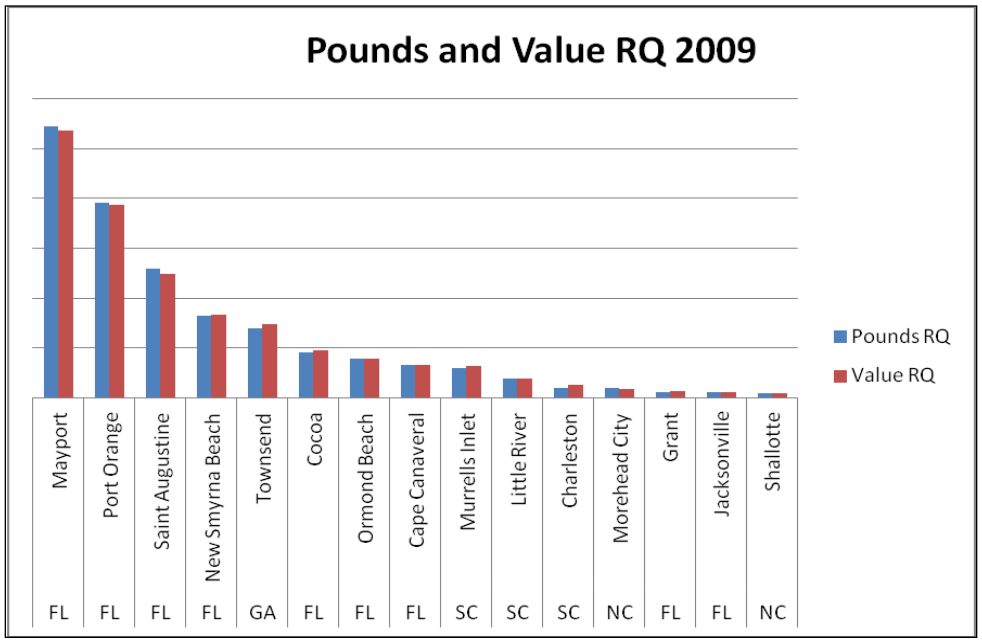


Figure 3-3. Pounds and Value RQ for South Atlantic Red Snapper

To better understand how South Atlantic red snapper fishing communities are engaged and reliant on fishing, indices were created using secondary data from permit and landings information for the commercial sector and permit information for the recreational sector (Colburn and Jepson, 2012; Jacob et al., 2012). Fishing engagement is primarily the absolute numbers of permits, landings and value. For commercial fishing, the analysis used the number of vessels designated commercial by homeport and owner address, value of landings and total number of commercial permits for each community. For receational engagement we used the number of recreational permits, vessels designated as recreational by homeport and owners address. Fishing reliance has the same variables as engagement divided by population to give an indication of the per capita impact of this activity.

Using a principal component and single solution factor analysis each community receives a factor score for each index to compare to other communities. Taking the fifteen communities in **Figure 3-3**,

factor scores of both engagement and reliance for both commercial and recreational fishing were plotted onto radar graphs. Each community's factor score is located on the axis radiating out from the center of the graph to its name. Factor scores are connected by colored lines and are standardized, therefore the mean is zero. Two thresholds of one and ½ standard deviation above the mean are plotted onto the graphs to help determine a threshold for significance. The factor scores are standardized therefore a score above 1 is also above one standard deviation. If factor scores above ½ standard deviation are rounded they would also be equal to one standard deviation.

In **Figure 3-4**, several communities have factor scores that exceed 1/2 standard deviation above the mean for commercial engagement and reliance. The communities of Cape Canaveral, FL; Jacksonville, FL; St. Augustine; Mayport, FL; Townsend, GA; Morehead City, NC; Shallotte, NC; Charleston, SC; Little River, SC; and Murrell's Inlet, SC and St. Augustine, FL all exceed the threshold of 1/2 standard deviation above the mean for commercial fishing engagement or reliance. Mayport, FL and Townsend, GA are two communities that exceed the threshold for both engagement and reliance.

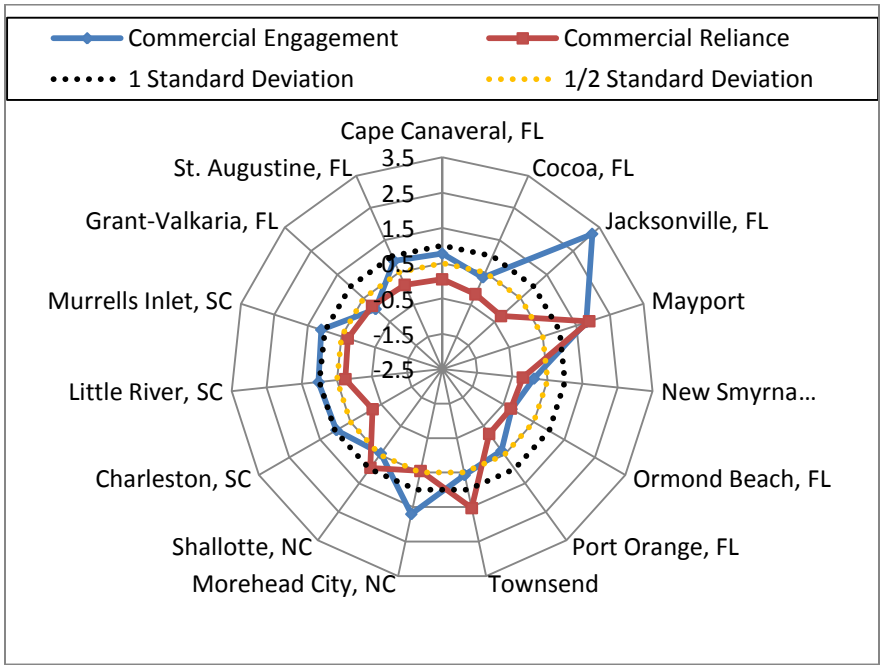


Figure 3-4. Commercial Engagement and Reliance for South Atlantic Red Snapper Communities

Although the fifteen communities selected above in **Figure 3-3** are those with the most commercial landings, because we have few data that allows us to demonstrate where most red snapper recreational landings occur, we are assuming that the would likely be the same communities where the most commercial landings are. By plotting the recreational engagement and reliance factor scores in **Figure 3-5** it becomes evident that eight communities show tendancies toward being engaged in recreational fisheries with three being reliant. The communities of Cape Canaveral, FL; Jacksonville, FL; Port Orange, FL; Morehead City, NC; Charleston, SC; Little River, SC; Murrells Inlet, SC; and St. Augustine, FL are all engaged in recreational fishing. The communities of Morehead City, NC; Murrells Inlet, SC and St. Augustine are also reliant.

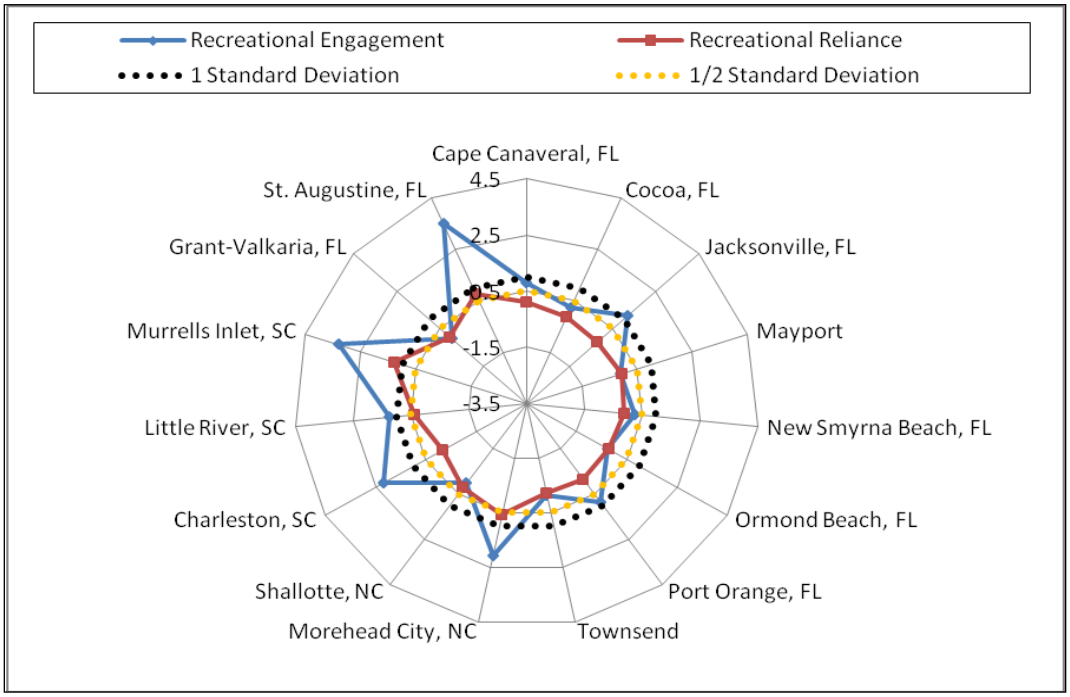


Figure 3-5. Recreational Engagement and Reliance for South Atlantic Red Snapper Communities

Having examined these communities with regard to their engagement and reliance upon commercial and recreational fishing, we would assume that those that are most engaged and reliant on either or both sectors of fishing would be the communities that will see the most impacts from regulatory change. While we infer much of our discussion about social demographic change and other factors affecting the selected communities from previous amendments, recent demographic data has been analyzed and is included in the Environmental Justice discussion below.

Environmental Justice

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

Information on the communities selected above was examined to identify the potential for EJ concern. Specifically, the rates of minority populations and the percentage of the population below the poverty line. The threshold for comparison is 1.2 times the state average such that, if the value for a community was greater than or equal to 1.2 times the state average, then the community was considered an area of potential EJ concern.

Using demographic information from the American Community Survey estimates for 2005-2009 there are no red snapper fishing communities that exceed the thresholds. If a community had exceeded the thresholds, they would be considered vulnerable if regulatory action were to cause some type of social disruption.

Although we have information concerning the community's overall status with regard to minorities and poverty, we do not have such information for fishermen themselves. Therefore we can only place our fishing activity within the community as a proxy for understanding the role minorities and poverty may have on those being affected by regulatory change. While subsistence fishing is also an activity that can be affected by regulatory change, we have no data on this activity at this time. We assume that the effects to other sectors will be similar to those that affect subsistence fishermen who may rely on red snapper. Because red snapper is a reef species, and likely would require a vessel to fish, there may be few if any subsistence fishermen who rely on this species.

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

3.4.1.1 Federal Fishery Management

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

Responsibility for federal fishery management decision-making is divided between the U.S. Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for collecting and providing the data necessary for the councils to prepare fishery management plans 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 NOAA Fisheries.

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

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

3.4.1.2 State Fishery Management

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

The South Atlantic States are also involved through the 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.

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

3.4.1.3 Enforcement

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

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

The NOAA Office of General Counsel Penalty Policy and Penalty Schedules can be found at www.gc.noaa.gov/enforce-office 3.html.

Chapter 4. Environmental Consequences and Comparison of Alternatives

4.1 Action 1. Allow Harvest and Possession of Red Snapper in 2012

4.1.1 Biological Effects

No action alternative – Continued closure

The following three documents outline the biological effects of the current red snapper management regime and provide the background for the biological effects of **Alternative 1 (No Action)**:

- Interim rule (NMFS 2009);
- Extension of the interim rule (NMFS 2009);
- Amendment 17A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 2010a);
- Emergency rule to delay effective date of snapper grouper closure specified in Amendment 17A to the Snapper Grouper FMP and,
- Regulatory Amendment 10 to the Snapper Grouper FMP (SAFMC 2011a)

The reader should refer to these documents for details on the effects of the current management of red snapper. These documents are available at www.safmc.net. In summary, unsustainable fishing pressure **(Figure 4-1)** prior to the red snapper harvest and possession prohibition (implemented on January 4, 2010), negatively affected the stock as evidenced by a decreased stock biomass **(Figure 4-2)**.

***Alternatives*[1]**
(preferred alternatives in red)

1. No action. ACL=0 (landings), Closed fishery.
2. 2012 ACL.
   - 2a. 2,121 fish (3,379 lbs comm.[2]/1,526 fish rec.)
   - 2b. 8,984 fish (14,313 lbs comm.[2]/6,462 fish rec.)
   - 2c. 13,067 fish (20,818 lbs comm.[2]/9,399 fish rec).
3. 7 day commercial season[3]
4. 6 day recreational season[3]
5. Suspend 20-inch total length (TL) minimum size limit
6. Commercial trip limit
   - 6a. 25 lb gutted weight
   - 6b. 50 lb gutted weight
   - 6c. 75 lb gutted weight
   - 6d. 100 lb gutted weight
7. 1 fish per person per day (recreational)

[1]See Chapter 2 for a more detailed description of the alternatives.
[2]Pounds are in gutted weight.
[3]NOAA Fisheries Service will evaluate landings to determine if the fishery may re-open again in 2012.

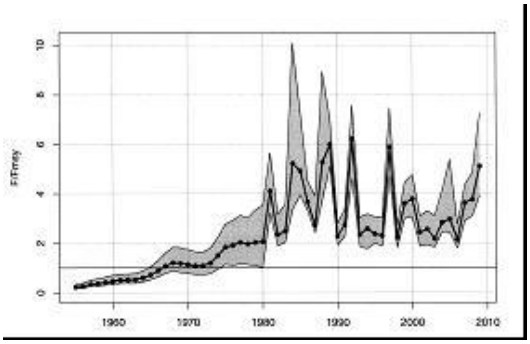


Figure 4-1. The overfishing ratio for red snapper over time. The stock is undergoing overfishing when the F/F_{MSY} is greater than one (SEDAR 24 2010).

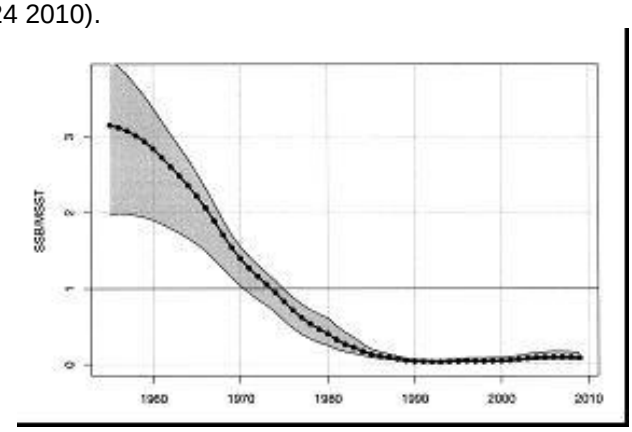


Figure 4-2. The overfished ratio for red snapper over time. The stock is overfished when the SSB/MSST is less than one (SEDAR 24 2010).

In response to the overfishing and overfished stock status of red snapper, fishery managers implemented a harvest and possession prohibition on January 4, 2010. Through Amendment 17A to the Snapper Grouper FMP, fishery managers continued the harvest prohibition of red snapper through the specification of an annual catch limit (ACL) = 0 and implemented a rebuilding plan. The reduction in fishing mortality and establishment of a rebuilding plan is expected to positively affect the stock. The beneficial effects of a rebuilding stock include a return to population characteristics of a more natural state; such population characteristics include the population age and size structure, sex ratio, genetic structure, and biomass. In addition, when the stock is rebuilt, components of the ecosystem (e.g., predator/prey relationship, community structure) would more closely resemble those of an unfished population.

The South Atlantic Fishery Management Council (South Atlantic Council) and NOAA Fisheries have determined that retention of a limited number of red snapper in 2012, along with appropriate management controls, would not jeopardize the rebuilding of the red snapper stock. See **Section 1.4** and **Chapter 5** for further explanation on how fishery managers reached this decision.

Alternatives 2 through 4 – Allowing limited harvest

Alternatives 2 through **4** would allow limited harvest and possession of red snapper in 2012. The allowable harvest levels in **Alternative 2** are consistent with the objectives of the Snapper Grouper FMP, the rebuilding plan from Amendment 17A to the Snapper Grouper FMP and environmental impact statement (SAFMC 2010a), and the ABC recommendation from the South Atlantic Council's

Scientific and Statistical Committee (SSC) and adopted by the South Atlantic Council. The scientific information upon which the ACLs are based in **Alternative 2** (SEDAR 24 and rebuilding projections provided by the Southeast Fisheries Science Center (SEFSC)) has been peer reviewed and the ACLs are based on the best available scientific information.

See **Section 1.6** for an explanation on how the ACLs and Sector-ACLs in **Alternative 2** (and sub-alternatives) were determined.

Preferred Alternative 2c would establish a temporary red snapper ACL of 13,067 fish for 2012, where the commercial ACL would be 3,668 fish or 20,818 lbs gutted weight (gw) and the recreational ACL would be 9,399 fish. The sector ACLs are based on allocations for red snapper (28.07% commercial; 71.93% recreational), which were established in the Comprehensive ACL Amendment (SAFMC 2011b).

Preferred Alternative 3 and **4** would establish a seven-day commercial and six-day recreational season respectively. NOAA Fisheries will evaluate commercial landings to determine if the red snapper ACL is harvested and determine if the commercial fishing season could re-open in 2012. In order to re-open, landings would need to be less than the sector-ACL at the end of the seven day commercial season.

See **Section 1.7** for an explanation on how the season lengths in **Alternatives 3 and 4** were determined.

On a basic level, **Alternatives 2** through **4** would have negligible biological effects to the resource if a portion of the total mortality is transferred from discard mortality to harvest mortality. In other words, red snapper previously killed through the effects of removal from the ocean and returned to the water would now die through retention. Under this scenario, the net loss to red snapper between **Alternative 1 (No action)** and **Alternatives 2** through **4** would be similar. A comparison of biological effects of the sub-alternatives within **Alternative 2** reveal greater adverse effects from increasing ACLs **(Sub-alternative 2a** to **2b** to **Preferred 2c)**; lower ACLs reduce the probability the red snapper commercial component of the snapper-grouper fishery would re-open in 2012, and lower ACLs reduce the chance that overfishing of the stock would occur. Lower ACLs would also increase the probability that the ACL would not be harvested during the initial seven day opening, thus making it less likely that any fish would be left over for a re-opening of commercial harvest.

However, such an analysis may be overly simplistic since fishing effort during the openings may increase if fishermen take trips that would not otherwise be taken, just so they can harvest red snapper. This increased effort may translate into increased mortality. If fishing effort increases, discarding of red snapper and other fish species as outlined in **Section 3.2.5**, may increase if **Alternatives 2** through **4** are implemented, when compared to **Alternative 1 (No action)**. Increased fishing effort may be more likely in the recreational sector (charter boats, headboats, and private recreational sector) than the commercial sector. For-hire fishermen from northern Florida and Georgia have often testified that potential customers have been unwilling to book trips without an opportunity to retain red snapper. Conversely, the establishment of a seven-day season for the commercial sector may not significantly

alter the fishing effort of commercial fishermen. In this regard, the proposed commercial trip limit may become a "bycatch allowance" with few commercial fishermen targeting the red snapper stock. The potential for increased effort was considered by the South Atlantic Council when they reviewed analysis conducted by the Southeast Regional Office (SERO) (SERO-LAPP-2012-04) to determine how long the recreational and commercial fishing seasons could be open to achieve the respective ACLs. The season length recommended by the South Atlantic Council in **Alternatives 3** and **4** represent the lower range of the estimated number of days that would be expected to meet the recreational and commercial ACLs.

Alternative 5 – Minimum size limit removal (commercial and recreational)

Minimum size limits have both beneficial and adverse effects *(see text box)*. Fishery managers in the South Atlantic often implement minimum size limits to increase a fish's opportunity to reproduce before the fish may be legally harvested. It is likely that red snapper encountered during the proposed seasons will have reached the reproductively mature size. In the U.S. South Atlantic and the Gulf of Mexico, Grimes (1987) reported that size of red snapper at first maturity is 9.3 inches (23.7 cm) fork length. For red snapper collected along the Southeastern United States, White and Palmer (2004) found that the smallest mature male was 7.9 inches (20.0 cm) total length (TL). However, minimum size limits may promote the discarding of fish of which a portion may not survive.

Biological impacts of minimum size limits

Beneficial	Adverse
▶ Decreases mortality rate on younger year class	▶ Encourages harvest of older, larger fish
▶ Increases the number of spawning opportunities	▶ Produces regulatory discards

Alternative 1 (No action) would retain the red snapper 20-inch TL minimum size limit; however, the size limit is not currently applicable due to the prohibition on the harvest and possession of red snapper. Under **Alternative 1 (No action),** if the season were to open, the minimum size limit would be applicable. **Alternative 5 (Preferred)** would temporarily suspend the size limit. Both alternatives could have adverse effects to the stock by promoting the discarding of fish to the water of which a portion would not survive. With a minimum size limit (**Alternative 1/No action)**, fishermen may produce "regulatory discards"; these are fish that are returned to the water because they are below the minimum size limit. These fish may be smaller and younger than a 20-inch TL fish and may have been caught in relatively shallow water. Often, discard mortality rates decrease along with depth that the fish was caught.

Fish returned to the water below the minimum size limit are **Regulatory Discards.**

Fishery managers could produce adverse effects (additional mortality) from both **Alternative 1 (No action)** and **Preferred Alternative 5** through "high-grading" behavior. High-grading is a practice of selectively landing fish so that only the best quality (usually largest) fish are brought ashore. For example, recreational fishermen may discard smaller size fish in order to retain a larger, more desirable red snapper. As release mortality rates for red snapper range from 39 to 48 percent depending on the fishing sector (SEDAR 24 2010), high-grading can result in many dead discards. Fishermen would most likely high-grade less with no size limit (**Preferred Alternative 5**) as fishermen may cease targeting red snapper after harvesting the bag limit. Therefore, suspension of the 20-inch TL minimum size limit (**Preferred Alternative 5**) could have a greater beneficial biological effect than retaining the minimum size limit (**Alternative 1/No action**) if it resulted in fewer fish being discarded.

Returning smaller fish to the water when a larger one is caught is an example of **high-grading behavior.**

Alternative 6 – Commercial trip limits

Alternative 1 (No action) would not implement a trip limit to slow down the rate at which the proposed commercial ACL would be met for red snapper and could translate into adverse biological effects to the stock and snapper grouper fishery. Without a trip limit, the estimated total landings during the proposed seven-day season may exceed the commercial ACL. Based on logbook landings from 2009, the analysis contained in **Appendix C** estimates a season length of 26 days with an ACL of 20,818 lbs gw, no trip limit, and a season start date in September. The season length may be an overestimate if additional trips occur due to the red snapper opening.

Trip limits proposed in **Preferred Alternative 6** would increase the probability that the ACL would not be met during the seven-day season, increase the probability that the commercial season would re-open in 2012, and decrease the direct targeting of red snapper while reducing wasteful dead discards. Higher trip limits would result in more trips directly targeting red snapper as a fisherman's incentive to target a species would be expected to increase as trip limits increase.

The estimated season length, and thus biological effects, would vary depending on the ACL and trip limit combination **(Table 4-1)**. Generally, the smaller the trip limit, the greater the biological beneficial effect to the resource as lower trip limits would reduce the likelihood of an overage of the ACL. Based on the South Atlantic Council's preferred commercial ACL (3,668 fish or 20,818 lbs gw) and trip limit (50 lbs gw), the estimated season length is 68 days. This analysis assumes effort and catch rates of red snapper are comparable to 2009 levels. This analysis is contained as **Appendix C**.

Table 4-1. The estimated commercial season length in days under various commercial ACL (in pounds gutted weight (gw)) and trip limit scenarios if the season opens in September as expected. The analysis is based upon 2009 logbook landings data.

Commercial ACL (lbs gw)	**Trip Limit** (lbs gw)			
	25 (Alt. 6a)	**50** (Alt. 6b) (preferred)	**75** (Alt. 6c)	**100** (Alt. 6d)
3,379 (Alt. 2a)	22 days	11	7	6
14,313 (Alt. 2b)	96	47	31	23
20,818 (Alt. 2c) (preferred)	152	**68**	45	34

Source: SERO-LAPP-2012-04 2012 (Appendix C)

In 2009, 1,997 logbook trips reported landing red snapper. Trips per month ranged from 113-235, or approximately 30-60 per week. During 2009, the maximum amount of pounds landed during a week was 21,423 pounds gutted weight between October 3-9, 2009. This amount was landed by 44 vessels taking 60 trips. Logbook records indicate there were 107 vessels fishing in statistical zones from Central-east Florida (Fort Pierce/Cape Canaveral) through Georgia in 2011 that landed species

commonly associated with red snapper (red snapper was closed in 2011). Commercial fishermen report logbook landings in statistical grids; the grids are approximately 60 by 60 nautical miles each. These species include vermilion snapper, scamp, red porgy, black grouper, gag, red grouper, gray triggerfish, and greater amberjack. If each of these vessels made two trips per week and caught a 50 lb gw trip limit of red snapper, then the projections show that the season would be open 14 days. If the 107 vessels each made three trips per week and caught a 50 lb gw trip limit, then the projections show that the season would be open 9 days. Given that vessels off South Carolina and North Carolina would also be catching some red snapper, it is possible the season could be shorter than the 9 to 14 day range. Based on the analysis outlined above, fishery managers are proposing a seven-day commercial opening for red snapper in a **Preferred Alternative 3**. NOAA Fisheries will evaluate landings to determine the harvest of the ACL and whether additional days can be open in 2012.

Alternative 7 – Recreational bag limit

Bag limits also have desirable characteristics as management tools and are often used in conjunction with size limits to achieve a desired reduction in harvest. They are commonly used management measures, which are readily understood by fishermen, and violations of bag limits are readily apparent by simply counting the number of fish that are retained.

However, there are a number of shortcomings with bag limits similar to the ones previously mentioned concerning size limits. Once the one per person per day bag limit (**Preferred Alternative 7**) is reached, fishermen may retain larger red snapper and throw smaller red snapper back, some of which may be dead. In addition, the snapper grouper fishery represents many species occupying the same location at the same time such as vermilion snapper, scamp, and gag. Fishermen could continue to target these other co-occurring species and throw back fish that have bag limits such as red snapper, many of which will die. It would be expected that fishermen would still tend to target the largest, most desirable species.

Alternative 1 (No action) would not implement a bag limit to slow the rate at which the proposed recreational ACL is being met for red snapper and could translate into adverse biological effects to the stock and snapper-grouper fishery. Without a bag limit, the estimated total landings during the proposed six-day fishing season may exceed the recreational ACL. Conversely, the bag limit proposed in **Preferred Alternative 7** could result in beneficial effects by increasing the probability that the ACL would not be exceeded during the six-day, two weekend season by constraining harvest through effort controls. A bag limit could decrease the incentive to target red snapper; targeting of red snapper may increase discards if high-grading occurs as described previously.

If the recreational season opens in September 2012 as expected, the estimated days available before reaching the preferred recreational ACL of 9,399 fish is 24 days based on mean monthly 2012 landings projected by the Seasonal Autoregressive Integrated Moving Average Model (SARIMA) (**Table 4-2**). The estimated season length would be shortened to 14 days based on 95 percent upper confidence limit of monthly 2012 landings projected by the SARIMA. Assuming 75 percent of a week's recreational landings are landed over the three-day weekend, 2.1-4.8 three-day weekends would be the equivalent of 11 to 25 consecutive days.

SARIMA = **S**easonal **A**utoregressive **I**ntegrated **M**oving **A**verage **M**odel

►Uses historical monthly landings and projected changes in exploitable abundance to predict future monthly landings

Given uncertainties in estimated discard mortalities for 2012, and the potential for large shifts in fishing effort if red snapper are allowed to be harvested, SERO-LAPP-2012-04 2012 (**Appendix C**) recommended that the recreational fishing season be no longer than 2 to 3 consecutive three-day weekends.

Table 4-2. As estimated by SARIMA, the estimated recreational season length in days under each recreational ACL (in numbers of fish) alternatives if the season opens in September as expected.

Recreational ACL (numbers of fish)	**Estimated Recreational Season Length** (days)	
	SARIMA mean	**SARIMA 95% confidence interval**
1,526 (Alt. 2a)	4 days	2
6,462 (Alt. 2b)	17	10
9,399 (Alt. 2c) (preferred)	24	14

Source: SERO-LAPP-2012-04 2012 (Appendix C)

Allowing harvest of red snapper during a short time period, as proposed, offers risk due to estimation and observation uncertainty. If an overage of the proposed 2012 ACL (commercial and recreational combined) occurs, fishery managers would not deduct the overage amount from the ACL in the following year because it is not an accountability measure (AM) for red snapper. When the South Atlantic Council established an ACL equal to zero (landed catch) in Amendment 17A to the Snapper Grouper FMP, they did not feel it was reasonable to have an AM that would deduct an overage from the ACL in the following year. Any overage could decrease the probability of rebuilding to target levels within the specified rebuilding timeframe and possibly allow overfishing of the red snapper stock. However, the allowable catch for 2012 is relatively low and the length of the fishing season would be relatively short. Fishery managers are minimizing the probability of an ACL overage through the proposed short openings of the commercial and recreational sectors coupled with effort controls (e.g., bag and trip limits). If a new stock assessment indicates the probability of rebuilding the stock to B_{MSY} by 2046 has been reduced, adjustment to red snapper management measures could be made through a future regulatory or plan amendment. The South Atlantic Council is considering additional management measures for red snapper in Amendment 22 to the Snapper-Grouper FMP. Amendment 22 considers long-term management of red snapper, including the implementation of a tag program where retention is limited to those that possess tags.

Data collection effects

Fishery-independent and fishery-dependent data comprise a significant portion of information used in stock assessments. Fishery independent data for red snapper are being collected by the SEFSC and the Marine Resources Monitoring Assessment and Prediction Program. The prohibition on harvest and possession of red snapper beginning in early 2010 reduced the collection of fishery-dependent data for red snapper. The lack of this information has hindered the ability to assess the stock status of the red snapper population. The next benchmark stock assessment for red snapper has been delayed until 2014, due to data availability. The red snapper opening may have beneficial, indirect effects to the stock by allowing the collection of fishery-dependent data, including information on the age structure of the population and catch per unit effort. The data may provide a better understanding of the composition and magnitude of catch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, and lead to better decisions regarding additional measures that might be needed to rebuild the stock. The data collection process is outlined in **Section 6.5.**

Determination of biological effects cumulatively among all alternatives

In summary, allowing harvest through **Alternatives 2** to **4** is consistent with the following: (1) Assessment results from SEDAR 24; (2) rebuilding projections provided by the SEFSC; (3) ABC recommendation from the South Atlantic Council's SSC and adopted by the Council; and, (4) rebuilding plan implemented in 2010. The assessment and the rebuilding plan have been peer reviewed and are based on the best available scientific information. Overall net biological effects would be neutral if harvest is at or below the ABC.

The estimation of recreational landings would be difficult due to the current survey techniques and the shortness of the season length. However, despite potential increases in effort, conservative management measures are being proposed to prevent overfishing from occurring. Fishery managers and scientists would utilize several methodologies to monitor the mortalities of red snapper during the opening and to estimate if overages of the ACL has occurred. See **Section 6.3** for more information on this topic.

"High-grading" behavior could occur under both **Alternative 1 (No action)** and **Preferred Alternative 5**. **Preferred Alternative 7** could result in beneficial effects by increasing the probability that the ACL would not be exceeded during the six-day, two weekend season by constraining harvest through effort controls. A bag limit could decrease the incentive to target red snapper; targeting of red snapper may increase discards if high-grading occurs as described previously.

4.1.2 Economic Effects

4.1.2.1 Analytical Approach

The procedure for calculating the economic effects of the management alternatives for the commercial sector involves estimating the expected changes in ex-vessel revenues. Although net operating revenue would have been a better metric, the assignment of costs to harvesting red snapper cannot be undertaken with available information. However, it is worth noting that for vessels that would not undertake additional trips during the open season but would be able to keep instead of discard red snapper in their normal trips, revenues derived from selling red snapper would directly add to their net operating revenue. Since the red snapper ban took effect in 2010, more recent ex-vessel price for red snapper is not available. For the current purpose, the average ex-vessel price during 2005-2009 is used but expressed in 2011 price using the consumer price index. Thus, the average ex-vessel price for red snapper is $4.15 per pound in 2011 dollars. The current estimation approach is the same as that used in Amendment 18A (SAFMC 2012a) and Amendment 18B to the Snapper Grouper FMP (SAFMC 2012b), among others.

The procedure for calculating the economic effects for the recreational sector involves estimating the expected changes in consumer surplus (CS) to anglers and net operating revenues (NOR) to for-hire vessels. Consumer surplus is the amount of money that an angler would be willing-to-pay for a fishing trip over and above the cost of the trip. For the current purpose, the CS values used are $76.98 (2011 dollars) per landed fish and, where applicable, $8.39 (2011 dollars) per discarded fish due to the bag limit (Carter and Liese 2012). It is noted that Carter and Liese (2012) also provided estimates, on a declining scale, of additional red snapper landed and additional red snapper caught and released. That is, an additional red snapper kept or additional red snapper caught and released would have lower CS values than those presented above. Net operating revenue is total revenue less operating costs, such as fuel, ice, bait, and other supplies. This procedure follows the method employed in Amendment 17A (SAFMC 2010a) and Regulatory Amendment 10 to the Snapper Grouper FMP (SAFMC 2010b), among others.

CS = Consumer Surplus

►The amount of money that an angler would be willing to pay for a fishing trip over and above the cost of the trip.

The expected changes in ex-vessel revenues for the commercial sector and CS/PS for the recreational sector are calculated relative to **Alternative 1 (No action).** Since the no action alternative prohibits the harvest and sale of red snapper, the economic effects of this amendment would be positive. The measures in this emergency action are currently planned to be in place only for 2012, so the estimated economic effects would only be short-term in nature. Red snapper regulations beyond 2012 are not precisely known. After the measures in this emergency action are no longer in effect, the regulations will revert to what they were before this Emergency Action. Furthermore, the South Atlantic Council is developing Amendment 22 to the Snapper Grouper FMP as there will likely be some other types of regulations in the future depending on new information about the status of the stock. For this reason, the medium- and long-term economic effects of this amendment are difficult to estimate. However, qualitative discussions are added to provide some insights

NOR = Net Operating Revenues

►The total revenue less operating costs, such as fuel, ice, bait, and other supplies.

into the economic effects of this amendment beyond 2012.

4.1.2.2 Economic Effects of Alternative 2

Alternative 2 would establish a temporary red snapper ACL of 2,100 fish (Sub-alternative 2a), 9,000 fish (Sub-alternative 2b), or 13,067 fish (**Preferred Sub-alternative 2c**). This ACL would be allocated between the commercial (28.07%) and recreational sectors (71.93%).

Table 4-3 shows the commercial and recreational ACLs under each sub-alternative and their dollar values in terms of revenues to the commercial sector and CS to the recreational sector. There are general key issues associated with these estimates of economic effects and the 2012 opening of red snapper harvest in general.

Table 4-3. Revenue effects on the commercial sector and CS effects on the recreational sector of the ACL sub-alternatives using a baseline of zero landings for both sectors and zero discards for the recreational sector. Revenues and CS are in 2011 dollars.

Sub-alternatives	Commercial Sector		Recreational Sector	
	ACL (lbs gw)	Revenues (2011$)	ACL (fish)	CS (2011$)
Sub-alt. 2a	3,346	$13,886	1,511	$116,317
Sub-alt. 2b	14,338	$59,503	6,474	$498,369
Preferred Sub-alt. 2c	**20,818**	**$86,395**	**9,399**	**$723,535**

Source: NOAA/NMFS logbook, accumulative landings, and permit files.

Alternatives[1]

(preferred alternatives in red)

1. No action. ACL=0 (landings), Closed fishery.
2. 2012 ACL.
   - 2a. 2,121 fish (3,379 lbs comm.[2]/1,526 fish rec.)
   - 2b. 8,984 fish (14,313 lbs comm.[2]/6,462 fish rec.)
   - 2c. 13,067 fish (20,818 lbs comm.[2]/9,399 fish rec).
3. 7 day commercial season[3]
4. 6 day recreational season[3]
5. Suspend 20-inch total length (TL) minimum size limit
6. Commercial trip limit
   - 6a. 25 lb gutted weight
   - 6b. 50 lb gutted weight
   - 6c. 75 lb gutted weight
   - 6d. 100 lb gutted weight
7. 1 fish per person per day (recreational)

[1]See Chapter 2 for a more detailed description of the alternatives.
[2]Pounds are in gutted weight.
[3]NOAA Fisheries Service will evaluate landings to determine if the fishery may re-open again in 2012.

First, each sector is assumed to fully harvest its allocation under each sub-alternative. Any deviation from fully harvesting a sector's allocation would result in lower or higher revenues or CS. Exceeding its allocation would bring more benefits to the sector in the short term, although there could be negative long-term repercussions. If overages occurred, it would endanger the rebuilding of the stock within the rebuilding time frame. More restrictions could be imposed on the commercial and recreational sectors, in addition to the red snapper closure. In this event, economic benefits derivable from red snapper could be further delayed.

Second, the baseline (no action alternative) catch by each sector is zero. This appears valid for the commercial sector but not necessarily for the recreational sector. In 2010 and 2011 when the red snapper ban was in place, fish mortalities occurred due to the fishing activities of both sectors (**Appendix B**). In the commercial sector, mortalities came only from discards which did not bring in any revenues. In the recreational sector, mortalities came from illegal landings and from discards. Both landings and discards generated CS values for the recreational anglers. During 2010-2011, the

recreational sector landed an average of 1,461 fish and discarded an average of 45,209 fish. Using these figures as the baseline for the recreational sector would decrease the CS values under each sub-alternative. **Table 4-4** shows the same revenues for the commercial sector but lower CS for the recreational sector.

Table 4-4. Revenue effects on the commercial sector and CS effects on the recreational sector of the ACL sub-alternatives, using a baseline of zero landings for the commercial sector and some landings and discards for the recreational sector. Revenues and CS are in 2011 dollars.

Sub-alternatives	Commercial Sector		Recreational Sector	
	ACL (lbs gw)	Revenues (2011$)	ACL (fish)	CS (2011$)
Sub-alt. 2a	3,346	$13,886	1,511	$3,887
Sub-alt. 2b	14,338	$59,503	6,474	$119,069
Preferred Sub-alt. 2c	**20,818**	**$86,395**	**9,399**	**$231,806**

Source: NOAA/NMFS logbook, accumulative landings, and permit files.

Third, the for-hire sector is assumed to not undertake additional trips for targeting red snapper. It is not possible to determine if opening the harvest of red snapper under this Emergency Action would entice additional effort from the for-hire sector. Those usual trips taken by for-hire vessels would add benefits to anglers because they could keep their red snapper bag limit. Increased motivation on the part of anglers to target red snapper and thus increase their demand for for-hire trips would be dampened by some of the measures in this amendment, such as the one-fish bag limit and weekend-only opening. Nevertheless, in the event that for-hire trips actually increased, net operating revenues of for-hire vessels would likely increase and the economic effects to the recreational sector would be greater than those shown in **Table 4-3 or Table 4-4**. However, the likelihood of the recreational sector exceeding its allocation would also be higher, resulting in likely long-term negative repercussions on the sector. Possibilities for effort change among private anglers and some of their implications on for-hire operations are discussed below in connection with the discussion of **Preferred Alternatives 4** and **7**.

Fourth and partly related to the third point above, there is the general issue of whether opening of red snapper harvest in 2012 would lead to effort increases in the red snapper segment in particular and the snapper grouper fishery in general. An increase in the overall effort of the commercial sector appears to be unlikely. In 2010-2011, when red snapper harvest was prohibited, the commercial sector discarded an average of about 118,000 lbs gw, which is significantly greater than the highest commercial ACL in this amendment. Under the 2012 opening of red snapper harvest, some of these discards would be kept and generate extra revenues to the vessels. There is always the possibility that some vessels may increase their target effort for red snapper, but measures in this amendment, such as the trip limit and 7-day open season, in addition to the relatively low ACL, would constrain such effort increases.

The case with the recreational sector with respect to effort increase is not quite as clear as with the commercial sector. Recreational effort could remain the same if anglers take trips as usual but this time keep their bag limit for red snapper or if existing effort is merely redirected to the open season for red snapper. Another possibility is for red snapper directed effort to increase as more people target red snapper. This could have implications not only in the catch of red snapper but also of other species caught in the same trip, affecting the level of economic benefits derivable from all such species.

Noting the foregoing discussions, the preferred alternative (**Preferred Sub-alternative 2c**) may be expected to result in approximately $86,000 (2011 dollars) revenue increase for the commercial sector and CS increases to the recreational sector of approximately $232,000 (2011 dollars) to $724,000 (2011 dollars). Among the sub-alternatives, this would provide the biggest revenue increase to the commercial sector and CS increase to the recreational sector.

4.1.2.3 Economic Effects of Preferred Alternative 3

Preferred Alternative 3 would establish a 7-day open season for the commercial sector in 2012, with NOAA Fisheries evaluating the data to determine if any additional days to harvest red snapper can be open in 2012 if not all of the commercial sector's ACL was not harvested in the seven day season. The various potential lengths of the red snapper commercial season are discussed in **Appendix D**. The commercial fishing season is estimated to last 68 days, assuming the 2012 season would start in September and the South Atlantic Council's preferred options for ACL (20,818 lbs gw) and trip limit (50 lbs gw). This would be about ten 7-day seasons. While 68 days was the initial estimated length of the commercial fishing season, it was reduced to 7 days for all the reasons discussed in Section 1.7.

Assuming no overages, the revenues shown above (**Table 4-3** or **Table 4-4**) would be the maximum revenues the commercial sector could generate in 2012. It may be recalled that the price per pound used in deriving those revenues was based on inflation-adjusted prices in 2005-2009 when the red snapper season was open year round. There are two contrasting possibilities here for a different price level. Because of the red snapper closure in the South Atlantic, it is possible for the price of red snapper to be relatively high. Red snapper landings, once harvest and sale are allowed, would then result in higher revenues than shown in **Table 4-3 or Table 4-4**. It appears, though, that the likelihood of red snapper price to be high may be low because of the presence of substitutes in the form of domestic landings of other snapper grouper and imports. The other possibility is for red snapper price to be lower, once harvest and sale of the species are allowed. A 68-day season would generally be expected to increase the motivation of fishermen to fish as fast as they can before the season ends. The prospect of a shorter season, especially under a 7-day initial opening, would only heighten such motivation. This could possibly result in most of the ACL being taken earlier than 68 days, potentially dampening prices fishermen would receive for their catch. If it were to happen, the commercial sector would receive lower revenues than shown in **Table 4-3 or Table 4-4**.

While a 7-day initial opening may be perceived as the start of mini-derbies (if more than one 7-day season occurs) that would tend to reduce the commercial sector revenues below the maximum estimated above, it would help to lessen the likelihood that overages would occur. In this sense, the long-term effects of this alternative would be positive.

4.1.2.4 Economic Effects of Preferred Alternative 4

Preferred Alternative 4 would establish a two weekend-only (Friday, Saturday, Sunday) opening for the recreational sector. As with the commercial sector, the various potential lengths of the red snapper recreational season are discussed in **Appendix B**. The recreational fishing season is estimated

to last 14 or 24 days, assuming a September season start and an ACL of 9,399 fish. This would be about five or eight weekend-only seasons. While 14-24 days was the initial estimated length of the recreational fishing season, it was reduced to two 3-day weekends for all the reasons discussed in Section 1.7.

In general, if this fishing season structure for the recreational sector resulted in the sector fully harvesting its ACL, the likely CS increase would be those shown in **Table 4-3** or **Table 4-4**. If there are differences in valuing fishing trips and fish between weekend and weekday anglers, the resulting CS values could differ from those shown in those two tables. At present, information on such CS difference is not available.

Preferred Alternative 4 would naturally favor those anglers taking weekend trips and for-hire vessels specializing on weekend trips. If for-hire booking for the remainder of 2012 has already been done, this alternative would favor weekend bookings. For-hire vessels so favored could generate higher net operating revenues especially if more anglers choose to target red snapper. In addition, only anglers on weekend trips would get all the kept fish (not caught and discarded fish) CS increases from opening the red snapper season in 2012. It is noted that both weekend and weekday anglers who caught and discarded red snapper would also derive some consumer surplus albeit at a much lower level. The possibility exists that some anglers would shift their trips to weekends to be able to catch and keep red snapper. Whether this would increase overall target effort for red snapper cannot be ascertained with available information.

Preferred Alternative 4 could assist in ensuring the recreational ACL is not exceeded. In this sense, the long-term economic implications of this alternative would be positive.

CS = Consumer Surplus

►The amount of money that an angler would be willing to pay for a fishing trip over and above the cost of the trip.

4.1.2.5 Economic Effects of Preferred Alternative 5

Preferred Alternative 5 would suspend the commercial and recreational size limit for red snapper during the temporary open season. This alternative has two contrasting possibilities in affecting the fishing cost of commercial vessels. Cost could decrease since commercial vessels would not be compelled to fish longer to catch legal-sized fish and would not have to spend time culling fish to separate the legal-sized fish. On the other hand, commercial vessels targeting red snapper could easily meet their trip limit (**Alternative 6**), and thus would be motivated to undertake many shorter trips. If this action promotes a derby-style behavior, fishing cost for the entire industry could increase as many more vessels will undertake many shorter trips before the season closes. This possibility could lead to the commercial sector exceeding its ACL, although the 7-day season (**Alternative 3**) could put some constraints on overages. One upside to shorter trips, however, is the lower likelihood of discards, although a fishing closure would not eliminate discards, as was the case in 2010 and 2011.

Preferred Alternative 5 would allow recreational anglers to keep whatever size fish they catch, and since CS is higher for kept fish than for discarded fish, anglers who catch and keep red snapper could experience higher CS per trip. Nevertheless, an increase in CS would still be constrained by the presence of the sector's ACL. High-grading of fish could still occur in the recreational sector,

especially under a 1-fish bag limit per person per day (**Preferred Alternative 7**). This issue is explored further in connection with the discussion of the economic effects of **Preferred Alternative 7**.

4.1.2.6 Economic Effects of Alternative 6

Alternative 6 would establish a commercial trip limit of 25 lbs gw (Sub-alternative 6a), 50 lbs gw (**Preferred Sub-alternative 6b**), 75 lbs gw (Sub-alternative 6c), or 100 lbs gw (Sub-alternative 6d) for 2012. **Table 4-5** shows the revenue per trip for each trip limit option and average revenues per trip affected by the trip limit options. All revenues are in 2011 dollars.

Data from the 2009 commercial fishing season are used to determine the economic implications of the various trip limit options. In 2009, trips that landed red snapper had average revenue of $658 from red snapper and an average revenue of $3,105 from all species caught in the trip. On average then, revenues from red snapper comprised 21% of total revenues from the trip. The highest revenue from red snapper for a trip was about $ 18,770, and the total revenue associated with this trip was $20,892. For this particular trip, red revenue accounted for about 90% of total trip revenue. The lowest red snapper revenue for a trip was about $8 and total revenue for this trip was about $319, or red snapper revenue was about 3% of total revenue for the trip.

In **Table 4-5**, red snapper revenue per trip is derived as the trip limit in pounds gw multiplied by the average ex-vessel price. This number should be distinguished from average revenue per trip from the sale of red snapper in 2009 when there was no red snapper trip limit. Consider, for example, Sub-alternative 6a in Table 4-5. Red snapper revenue per trip under the trip limit is equal to $104 while average revenue per trip from red snapper without the trip limit is $1,039. Based on 2009 commercial fishing season, **Preferred Sub-alternative 6b** would imply that there are 948 trips with an average revenue from red snapper that is equal to or greater than the red snapper revenue per trip of $218 under the trip limit. These trips have an average revenue of $1,304 from red snapper and average total revenue of $4,050 from all species caught in the trip. This sub-alternative would also imply that there are 1,049 trips with average revenue from red snapper that are below the red snapper revenue per trip of $218 under the trip limit. These trips have an average revenue of $76 from red snapper and an average total revenue of $2,253 from all species caught in the trip. Red snapper revenue comprised 3% of total trip revenue. Numbers for the other sub-alternatives have similar interpretation.

As discussed above (see discussion for **Alternative 2**), total commercial effort may not increase, but some vessels may increase their trips to target red snapper. For a given red snapper trip limit, those trips below the red snapper revenue per trip may not be taken to specifically target for red snapper. They may still occur and catch red snapper, with vessels generating additional revenue from red snapper. In the case of the preferred trip limit (**Preferred Sub-alternative 6b**), for example, 1,049 trips would unlikely be taken to specifically target red snapper. Some or all of them may still occur and generate additional revenue this time. On the other hand, some of those trips that caught more than a given trip limit may be taken to target red snapper. In the particular case of the preferred trip limit (**Preferred Sub-alternative 6b**), some of those 948 trips would be taken to specifically target red snapper. That only some of these trips may target red snapper may be partly inferred from the fact that the average red snapper revenue ($1,304) is substantially larger than the red snapper revenue per trip of $218 under the trip limit.

While, on average, red snapper revenue accounted for 28% to 39% of total revenue from a trip, there were actually some trips in 2009 that depended more heavily on red snapper as a source of revenue. Although not shown in the table, commercial data for 2009 indicate that 437 trips out of 1,997 trips

depended on red snapper for more than 50% of their total trip revenues. These are the most likely trips to be directed at harvesting red snapper during the open season.

Preferred Alternative 6 would help in ensuring the commercial ACL is not exceeded. Overages could require more stringent regulations, in addition to red snapper fishing closure, on commercial vessels harvesting snapper grouper. In this sense, the long-term economic effects of this alternative may be considered positive.

Table 4-5. Red snapper revenue per trip and average revenue for trips affected by the trip limit options based on 2009 commercial fishing season. Revenues are in 2011 dollars.

Sub-Alt.	Red Snap. Rev. Per Trip	Equal or Greater Than Red Snapper Revenue per Trip				Less Than Red Snapper Revenue per Trip			
		Trips	Red Snapper Revenue	Total Trip Revenue	% To Total	Trips	Red Snapper Revenue	Total Trip Revenue	% To Total
6a	$104	1228	$1,039	$3,685	28	769	$49	$2,180	2
Preferred 6b	**$218**	**948**	**$1,304**	**$4,050**	**32**	**1049**	**$76**	**$2,253**	**3**
6c	$311	784	$1,521	$4,274	36	1213	$100	$2,350	4
6d	$415	657	$1,746	$4,506	39	1340	$125	$2,419	5

Source: NOAA/NMFS logbook, accumulative landings, and permit files.

4.1.2.7 Economic Effects of Preferred Alternative 7

Preferred Alternative 7 would establish a recreational bag limit of 1 fish per person per day for 2012. In this document, a CS value of $76.98 (2011 dollars) is assigned to the first red snapper harvested and kept by an angler. An additional red snapper kept, say on a two-day trip, would have a lower value. Red snapper in excess of the bag limit would have to be released, and in this document the first caught and released red snapper is assigned a CS of $8.39 (2011 dollars). Additional red snapper caught and released would have lower values. Thus, a trip that caught two red snapper, one kept and the other released, would generate for the angler a total CS of $85.37 from red snapper. This is the sum of the CS value of $76.98 from keeping the fish and the CS value of $8.39 from catching and releasing the fish. It is noted that this is a net value which already accounts for fishing costs. In addition, other species kept or released in the same trip would also generate kept and released CS for the angler.

Preferred Alternative 7, in combination with **Preferred Alternative 4**, would tend to favor those catching one red snapper on weekends. As noted earlier, though, those catching more than one red snapper on a trip would still benefit from their released fish, although that benefit would be lower. It is likely that private mode anglers would be the dominant participants with the opening of the recreational red snapper season in 2012. In 2009, for example, private mode anglers accounted for over 90% of all target trips for red snapper.

Preferred Alternative 7, in combination with **Preferred Alternative 5,** could promote highgrading, given the usual understanding that a bigger red snapper is associated with a higher CS. To provide some sort of assurance the trip is "successful", at least one red snapper would be kept by the angler. The first fish caught would be kept to hedge against not catching any more red snapper, but fishing would not

necessarily cease right away. Any other red snapper caught would be either released if it is smaller or kept if it is bigger with the first kept fish being released. This would continue for the duration of the trip, noting especially that other species could be targeted or caught in the same trip. The more fish are caught, the higher is the probability of keeping a bigger fish, resulting in higher CS to the angler. In addition, overall CS would be higher when more fish are caught and released because anglers can derive additional CS from these fish.

Under **Preferred Alternative 4** (2 3-day weekend only openings), the recreational season could potentially span two waves (Wave 5; September-October) and (Wave 6; November-December) of the regular recreational season if one of the 3-day fishing seasons occurred during Wave 5, and the second 3-day fishing season was delayed to Wave 6 due to poor weather. During 2005-2009, target trips (i.e., trips in which the anglers expressed their target species) for red snapper averaged 5,993 in Wave 5 and 6,687 in Wave 6, or a total of 12,679 trips for the two waves. Catch trips (i.e., trips that caught red snapper whether or not anglers targeted the species) as expected were higher at 12,025 in Wave 5 and 11,290 in Wave 6, or a total of 23,315 trips for the two waves. Under **Preferred Alternative 7**, the maximum number of trips that can keep red snapper would theoretically be equal to the recreational ACL of 9,399, which is the preferred ACL alternative. It appears then that there is enough historical target and catch trips for these two waves to harvest the entire recreational ACL. In the event, however, that target effort for red snapper increases above historical levels during the open season, such increase would likely be redirected effort from the other waves.

This alternative would assist in keeping the recreational sector from exceeding its ACL, and this is important because of the difficulty of monitoring recreational harvest on a real time basis. Thus, the long-term economic implications of this alternative would be positive.

4.1.3 Social Effects

The decision to allow for the harvest of red snapper in South Atlantic waters is likely to have some positive social effects, as the closure of this fishery was highly controversial. Public comment suggested that there were more red snapper than that reflected by the stock assessment science. Although the stock assessment remains the same, with reduced mortalities occurring, the possibility of a partial open season for red snapper should have positive attitudinal effects if not more lasting impacts through alternatives that provide positive social changes with regard to fishing behavior and the anticipated socioeconomic benefits described below. **Alternative 1 (No Action)** would keep current regulations, which do not allow any harvest, in place and although this may likely have beneficial effects biologically, it may have negative social effects as the public might see the lack of any action as a sign that the South Atlantic Council or NOAA Fisheries does not sincerely consider public comment. Much of the public comment suggested that there could be negative social and economic impacts from the closure.

Alternatives[1]

(preferred alternatives in red)

1. No action. ACL=0 (landings), Closed fishery.
2. 2012 ACL.
   - 2a. 2,121 fish (3,379 lbs comm.[2]/1,526 fish rec.)
   - 2b. 8,984 fish (14,313 lbs comm.[2]/6,462 fish rec.)
   - 2c. 13,067 fish (20,818 lbs comm.[2]/9,399 fish rec).
3. 7 day commercial season[3]
4. 6 day recreational season[3]
5. Suspend 20-inch total length (TL) minimum size limit
6. Commercial trip limit
   - 6a. 25 lb gutted weight
   - 6b. 50 lb gutted weight
   - 6c. 75 lb gutted weight
   - 6d. 100 lb gutted weight
7. 1 fish per person per day (recreational)

[1]See Chapter 2 for a more detailed description of the alternatives.
[2]Pounds are in gutted weight.
[3]NOAA Fisheries Service will evaluate landings to determine if the fishery may re-open again in 2012.

By allowing a partial season for red snapper in **Alternative 2**, some of those concerns about the negative effects of the closure might be alleviated. Although it is difficult to determine how fishing behavior will change, the various **Sub-alternatives 2a-2c** offer a graduated increase in the allowable ACL for red snapper from 2,121 fish to 13,067 respectively, which should be positive. Certainly, the **Preferred Sub-alternative 2c** would have the greatest positive social effects by allowing for the largest temporary ACL. The increased fishing opportunities might allow for increased commerce for charter fishermen and associated businesses. Commercial fishermen may be able to keep more red snapper that might have been discarded otherwise and also see an economic benefit. So, there should be an overall positive social effect. However, there may also be negative social effects associated with this type of opening. The initiation of derby fishing where many vessels are pursuing red snapper at the same time could become a factor. This can place vessels in direct competition or force some to fish in weather that is dangerous. These concerns may be addressed by other alternatives described below.

Establishing a seven day opening for the commercial sector to be evaluated as an accountability measure under **Preferred Alternative 3** is likely to have few social effects other than to ensure that the ACL is not exceeded, which should be positive. The same is true for the recreational sector under **Preferred Alternative 4** that is a similar accountability measure for that sector. Under **Preferred**

Alternative 3, if the ACL has not been met, the opening can be extended which should have positive social effects by extending any economic and or social benefits. Therefore, it is incumbent upon NOAA Fisheries to ensure measures are in place to account for harvest by both sectors in a timely manner.

The suspension of the minimum size limit under **Preferred Alternative 5** should also have positive social effects as it removes the tendency for regulatory discards to occur. This allows fishermen to keep fish that they would otherwise have to discard if under the size limit. However, there is still a chance that fishermen will high-grade (discard smaller fish for a larger one) if possible. Nevertheless, the fewer opportunities for regulatory discards is a positive social effect by allowing fishermen to keep fish that might die even if not kept, as reef fish often do not survive the ascent to the surface which could increase mortalities.

By establishing a commercial trip limit under **Alternative 6** some effects of the derby fishing can be curtailed thereby possibly extending the commercial opening which would be a positive social effect. With the increasing trip limit from 25 lbs gw to 100 lbs gw in **Sub-alternative 6a to Sub-alternative 6d**, respectively, it is unclear as to how fishing behaviors might change. With larger trip limits, i.e. **Sub-alternative 6d**, red snapper are more likely to be targeted, whereas under **Sub-alternative 6a**, fishermen may use the opening to land more red snapper as bycatch rather than a target fish. With a larger trip limit the commercial sector might close earlier which can have both positive and negative effects. The positives come primarily from the glut of red snapper that may be on the market and often bring prices down, so, consumers see a benefit. However, fishermen can see a negative effect as prices can be reduced such that trip revenues are affected.

The establishment of a one fish bag limit with **Preferred Alternative 7** would have a similar effect as **Alternative 6** above for recreational fishermen by extending their season. Without a bag limit, a derby fishery could develop within the recreational sector that could substantially shorten the open season. Therefore, the one fish bag limit should have positive social effects by extending the season and whatever social and economic benefits occur as a result.

4.1.4 Administrative Effects

Administrative impacts associated with this action are primarily associated with data monitoring, outreach and enforcement. Selection of any of the action alternatives would increase the administrative impacts from the status quo. Selection of multiple alternatives would increase the administrative impacts as well.

Alternative 2 and associated sub-alternatives would establish a temporary ACL for red snapper for 2012. Although the sub-alternatives would specify various ACLs depending on which sub-alternative is chosen, the administrative impacts associated with any of the sub-alternatives would not differ much. Establishing an ACL in 2012 would require extensive outreach to explain the mechanics of the temporary ACL and monitoring. All of the alternatives in this action would increase the administrative impacts on the agency.

Preferred Alternative 3 and **Preferred Alternative 4** would result in the greatest administrative impacts. The red snapper component of the snapper grouper fishery is currently closed and has been since 2010. The proposed seven day commercial openings and multiple weekend only recreational seasons would involve rule-making, real time data monitoring, outreach and enforcement. Rule-making would result in a minor administrative burden. Most of the administrative burden would be associated with data monitoring, enforcement, and outreach.

Preferred Alternative 5 would eliminate the commercial and recreational size limit thereby reducing the administrative impacts. Administrative impacts would be associated with outreach.

Alternatives[1]

(preferred alternatives in red)

1. No action. ACL=0 (landings), Closed fishery.
2. 2012 ACL.
   - 2a. 2,121 fish (3,379 lbs comm.[2]/1,526 fish rec.)
   - 2b. 8,984 fish (14,313 lbs comm.[2]/6,462 fish rec.)
   - 2c. 13,067 fish (20,818 lbs comm.[2]/9,399 fish rec).
3. 7 day commercial season[3]
4. 6 day recreational season[3]
5. Suspend 20-inch total length (TL) minimum size limit
6. Commercial trip limit
   - 6a. 25 lb gutted weight
   - 6b. 50 lb gutted weight
   - 6c. 75 lb gutted weight
   - 6d. 100 lb gutted weight
7. 1 fish per person per day (recreational)

[1]See Chapter 2 for a more detailed description of the alternatives.
[2]Pounds are in gutted weight.
[3]NOAA Fisheries Service will evaluate landings to determine if the fishery may re-open again in 2012.

Alternative 6 and associated sub-alternatives would establish a trip limit of varying weights during the period of temporary ACL in 2012. Establishing the temporary ACL for 2012 would result in increased enforcement needs and outreach. Regardless of which sub-alternatives are selected, the administrative impacts would be similar.

Outreach and Education

The announcement of the temporary ACL and fishery openings would be published in the *Federal Register* as a temporary rule and will be communicated to interested parties via Fishery Bulletin, website updates, Twitter and NOAA Weather Radio updates. There is the potential that under **Alternatives 3 and 4 (Preferreds)** that the openings would need to be modified due to bad weather events. Fishery managers would use all tools available to reach out to constituents in those circumstances including the use of NOAA Weather Radio, Twitter, Facebook, and webpage updates.

Data Monitoring

Commercial landings would be monitored with the SEFSC Commercial Monitoring System. This quota monitoring system is based on dealer reports and is being used for all species with commercial ACLs. MRIP and the headboat survey would be used to monitor recreational landings. The states have stated that extra dockside samplers would be made available to collect biological data on landed fish. There could be additional measures to count vessels as they leave ports to try to quantify effort.

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

5.1 Action 1. Allow Harvest and Possession of Red Snapper in 2012

In anticipation of holding discussions during their June 2012 meeting to consider a limited re-opening of the red snapper fishery, the South Atlantic Fishery Management Council (South Atlantic Council) requested dead discard estimates from the Southeast Fisheries Science Center (SEFSC) for 2010 and 2011. In a letter dated April 7, 2012, the South Atlantic Council asked for red snapper discard mortality estimates (all sectors) to compare to the previously projected mortality levels from the latest stock assessment (SEDAR 24) and thus determine whether any harvest could be allowed in 2012. The SEFSC subsequently provided the information in **Appendix B**. After accounting for the 2012 discard mortalities, the South Atlantic Council determined that directed harvest could be allowed without compromising the rebuilding of the stock to target levels. Therefore, in a letter dated June 19, 2012, the South Atlantic Council requested that NOAA Fisheries allow harvest and possession of red snapper in 2012 through emergency regulations. NOAA Fisheries prepared this environmental assessment to address the South Atlantic Council's request.

At the June 11-15, 2012, South Atlantic Council meeting, staff from the Southeast Regional Office (SERO) presented options for different levels of possible harvest (based on different assumptions and mathematical methods) and approaches for allowing red snapper harvest to take place in 2012 (**Appendix C**). The South Atlantic Council chose to set the 2012 annual catch limit (ACL) for red snapper at 13,067 fish (**Preferred Sub-alternative 2c**) because this option was at neither extreme of the range of options presented in the SERO analysis and because Council members concluded it was a reasonable level of allowable harvest given the high level of uncertainty in selecting an ACL for the current year with the information available. On the other hand, the South Atlantic Council also reasoned that low levels of harvest (as those under **Sub-alternatives 2a and 2b**) would not provide enough socio-economic benefits to warrant a request for emergency action. The South Atlantic Council also opted to apply the current sector allocations (established through the Comprehensive ACL Amendment) of 28.07% commercial and 71.93% recreational to the ACL to calculate sector ACLs (recreational ACL = 9,399 fish; commercial ACL = 3,668 fish or 20,818 lbs gutted weight (gw)). See Section 1.6 for an explanation on how the ACLs were calculated.

The South Atlantic Council then discussed the manner in which a re-opening could be implemented. For the commercial sector, the South Atlantic Council opted for a 7-day mini-season (**Preferred Alternative 3**), with the possibility for additional openings in 2012 based on an evaluation of the landings at the conclusion of the 7-day period. Initially a 5-day season was proposed but it was noted that many commercial vessels customarily make 7-day trips and those vessels would have to modify their schedules to remain within a 5-day red snapper commercial opening. Also, opening commercial harvest in short intervals would allow the necessary time to evaluate landings relative to the commercial ACL. The South Atlantic Council chose to manage recreational harvest with two three-day (Friday-Sunday) openings in 2012 (**Preferred Alternative 4**). According to the SERO analysis (**Appendix C**), recreational season

lengths ranged from 11 to 25 consecutive days (based on the Council's preferred recreational ACL of 9,399 fish). The analysis suggested that the recreational fishing season should be no longer than 2-3 consecutive three-day weekends given the uncertainties in estimated discard mortalities for 2012 and the potential for large shifts in fishing effort.

The South Atlantic Council discussed possible size limit, bag limit, and trip limit specifications. To minimize regulatory discards, the South Atlantic Council chose **Preferred Alternative 5,** which would suspend the 20-inch size limit currently specified for red snapper for both commercial and recreational sectors. The South Atlantic Council expressed concerns over the possibility of high-grading, but determined that implementing mandatory retention would present enforcement difficulties. The South Atlantic Council chose **Preferred Alternative 7** as the red snapper recreational bag limit. A one fish per person per day (consistent with limits for other snapper grouper species such as snowy grouper, golden tilefish and wreckfish) was deemed the most appropriate. Finally, to allow for a controlled commercial harvest, the South Atlantic Council chose **Preferred Sub-alternative 6b**, which would establish a 50 lb gw commercial trip limit. The analysis in **Appendix C** suggests that, if the same number of vessels fishing off Central-east Florida through Georgia in 2011 that landed species commonly associated with red snapper made two trips per week and caught a 50 lb gw trip limit of red snapper, then the season would be open 14 days. If these vessels each made three trips per week and caught a 50 lb gw trip limit, then the season would be open 9 days. Hence a 50 lb gw trip limit was deemed the most appropriate to ensure the commercial red snapper ACL would be harvested while minimizing the chance of an overage.

One of the main factors the South Atlantic Council considered in discussing re-opening of red snapper harvest was the opportunity for data collection. Representatives from the SERO and the SEFSC indicated that data monitoring and acquisition during the re-opening would be critically important and would require cooperation among state and federal agencies, as well as additional resources, to obtain biological samples and conduct dockside intercepts. Accounting for recreational effort would be the most challenging. Staff from the SEFSC expressed their intention to communicate with Marine Recreational Information Program (MRIP) staff to determine how MRIP could provide additional resources to estimate effort, allow an enhanced sampling level on the docks to do the dockside intercepts, and how the proposed approach to allow harvest of red snapper would fit in with established MRIP estimation process. Moreover, the SEFSC representative stated that a critical component would be to collaborate with the states to get observers on headboats and, if possible, on charter vessels, to gather concrete data on discards.

Because the South Atlantic Council requested that actions to open the red snapper component of the snapper grouper fishery be implemented via Emergency Rule, there was no time to seek input from Advisory Panels. However, the chairman of the Snapper Grouper Advisory Panel, representatives of the Scientific and Statistical Committee and the Law Enforcement Advisory Panel participated in discussions during the South Atlantic Council's June 2012 meeting. In addition, the South Atlantic Council held a public comment session prior to approving any motions pertaining to the management of red snapper. The majority of stakeholders were in favor of a limited re-opening of red snapper harvest in 2012.

The Council concluded that **Preferred Alternatives and Sub-alternatives 2c, 3, 4, 5, 6b** and **7** best meet the purpose and need to allow harvest of red snapper in the South Atlantic in 2012 and reduce existing socio-economic adverse impacts to fishermen and fishing communities, while keeping mortality levels below the levels allowed in the rebuilding plan. The preferred alternatives also best meet the

objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

Chapter 6. Additional Information Including Opening and Closing Information and Data Collection Procedures

6.1 Justification for Emergency Action

At its June 2012 meeting, the South Atlantic Fishery Management Council (South Atlantic Council) requested that NOAA Fisheries promulgate emergency regulations to allow for the limited harvest and possession of red snapper in 2012. The South Atlantic Council voted to implement commercial and recreational management measures to ensure that only a limited amount of red snapper would be harvested and possessed and that this allowance would not prohibit the stock from rebuilding to target levels within the specified timeframe. The NOAA Fisheries' Policy Guidelines for the Use of Emergency Rules (62 FR 44421, August 21, 1997) list three criteria for determining whether an emergency exists, and the temporary rule is promulgated under these criteria. Specifically, the policy guidelines require that an emergency exists under the following conditions: (1) Result from recent, unforeseen events or recently discovered circumstances; (2) Present serious conservation or management problems in the fishery; and, (3) Can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under the normal rulemaking process.

Discard estimates from commercial logbooks, Marine Recreational Fisheries Statistical Survey (MRFSS), and the Southeast Headboat Survey recently became available to the South Atlantic Council and NOAA Fisheries and constitute recently discovered circumstances. The acceptable biological catch (ABC) from a red snapper rebuilding projection in 2012 is 86,000 fish (SEDAR-24 Projection Run 9c). Discards are projected to increase while the stock rebuilds; however, fishing effort for red snapper has declined during the harvest prohibition, which may reduce discards. Red snapper harvest can only be allowed if projected mortalities from harvest and release of fish are less than ABC for that year. Using the average of 2010 and 2011 estimated mortalities and 2012 ABC, NOAA Fisheries estimates there will be 72,933 red snapper killed in 2012 (**Preferred Sub-alternative 2c**) from incidental catch of red snapper. The ABC for 2012 from SEDAR 24 (2010) is 86,000 fish, therefore, the ABC is higher than discard mortalities for 2012. As a result, the South Atlantic Council and NOAA Fisheries determined 13,067 red snapper may be harvested in or from the South Atlantic in 2012.

A new stock assessment for red snapper has been delayed due to data availability. Actions have been taken to end overfishing and harvest has been prohibited since January 2010. Rebuilding projections from the 2010 stock assessment provide an estimate of available red snapper harvest each year. Waiting for a new assessment before any harvest of red snapper could occur would cause an unnecessary negative economic and social effect of fishermen and associated industries. A limited commercial and recreational season for red snapper in 2012 would provide fishery-dependent data needed for the 2014 red snapper stock assessment. These data would help evaluate the current state of the stock and determine whether fishing can open for longer periods of time in the future. A limited 2012 red snapper season would also

reduce socio-economic impacts on South Atlantic snapper-grouper fishermen by allowing a highly marketable fish to be harvested, which can boost their income.

Input from the public and from a number of communities indicates the harvest prohibition for red snapper has caused economic harm to individuals and associated communities. Unnecessarily prolonging the harvest prohibition presents serious conservation and management problems in the snapper grouper fishery. The immediate benefits of implementing a limited commercial and recreational fishing season for red snapper in 2012 outweigh the value of advance notice and public comment. In consideration of National Standard 10 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), a limited red snapper season must be implemented as soon as possible to prevent opening late in the fishing year when poor weather can lead to unsafe fishing conditions. Also, the public commented on this action at the June 2012 South Atlantic Council meeting during the Public Comment Session, and they strongly favored a fall season. The U.S. Coast Guard advised that a red snapper opening in late 2012 could lead to unnecessary accidents from unsafe fishing conditions. The South Atlantic Council considered this information when they made a motion to request a temporary rule for emergency action.

6.2 Timing of Openings and Closings

The proposed action would implement a new red snapper annual catch limit (ACL) in 2012 and establish limited commercial and recreational red snapper seasons. The Regional Administrator (RA) of NOAA Fisheries' Southeast Regional Office would determine the dates of the commercial and recreational season openings and closings. The recreational season would open for two consecutive weekends made up of Fridays, Saturdays, and Sundays, beginning at 12:01 a.m., local time, Friday. The commercial season would open at 12:01 a.m., local time, the Monday following the first recreational weekend opening and close seven days later.

The openings would occur as early as possible in 2012 to prevent an opening late in the year when poor weather can lead to unsafe fishing conditions. The U.S. Coast Guard advised that a red snapper opening in late 2012 could lead to unnecessary accidents from unsafe fishing conditions. Also, the public indicated at the June 2012 South Atlantic Council meeting during the public comment session that they strongly favored a fall season. The Regional Administrator (RA) would determine when severe weather conditions exist, the duration of the severe weather conditions, and which geographic areas are deemed affected by severe weather conditions. If severe weather conditions exist, the RA would file a notification to that effect with the Office of the Federal Register, and announce via NOAA Weather Radio and Fishery Bulletin any change in the red snapper fishing seasons.

6.3 Monitoring of Landings

NOAA Fisheries will monitor the commercial landings through the Commercial Landings Monitoring (CLM) system during and after the seven-day opening. The CLM monitors in-season commercial landings through dealer reports and state trip tickets. Once landings have been reported for the first seven-day commercial opening, NOAA Fisheries will evaluate if the commercial ACL has been met. If the ACL is not met, the season could be reopened.

Monitoring recreational landings from private recreational and for-hire fishermen (charterboat and headboat vessels) offers additional challenges compared to monitoring the commercial landings. Headboat information is collected through headboat logbooks. Fishery managers estimate catch and effort from charterboats and private anglers through Marine Recreational Information Program (MRIP). It is inevitable that there would be some margin of error associated with estimates (as is the case with all surveys), especially due to the relatively short recreational season in 2012. In addition, estimates are collected in two-month time-periods and are not immediately available after the conclusion of the two-month time-period. Due to the constraints with the monitoring program, NOAA Fisheries and state partners are investigating whether the following methods may be used to supplement MRIP: (1) Additional phone calls to charterboat vessels, independent of MRIP, requesting catch and effort information; (2) The addition of a question to the charter phone survey asking how many red snapper caught on each trip; (3) sampling effort at the mouths of inlets; (4) distributing surveys to fishermen at boat ramps and marinas prior to a fishing trip.

6.4 Collection of Biological Information

Fishery-independent and fishery-dependent data comprise a significant portion of information used in stock assessments. Fishery-independent data for red snapper are being collected through the Southeast Fishery Information Survey and the Marine Resources Monitoring Assessment and Prediction Program. The prohibition on harvest and possession of red snapper beginning in early 2010 reduced the collection of fishery-dependent data. The lack of this information has hindered the ability to assess the stock status of the red snapper population and the progress towards rebuilding to target levels. The retention of red snapper will create an opportunity to collect important life history information that fishery scientists could use in the 2014 SEDAR stock assessment. Fishery scientists will collect information such as age (from otoliths), length, and weight of red snapper. Freezers and drop off points will be available for fishermen to leave red snapper carcasses during the reopening. State and federal officials will also collect carcasses during dockside surveys of recreational fishermen (including for-hire vessels). Commercially caught fish will be collected at seafood dealers by port samplers. Commercial catches will be monitored through the NOAA Fisheries Service quota monitoring program. Landings data for headboats will be collected through the Southeast Fisheries Logbook System. NOAA Fisheries Service is currently coordinating with the Florida Fish and Wildlife Conservation Commission and other state agencies to develop enhanced methods for monitoring the for-hire and private catch. Any enhancements would be independent of current MRIP sampling methodologies. After publication of the final rule, the state agencies, South Atlantic Council, and NOAA Fisheries will inform the public through fishery bulletins and electronic social formats of sampling activities that will be occurring during the reopening.

Chapter 7. Cumulative Effects

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.

7.1 Biological

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

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

I. The direct and indirect effects of the proposed actions **(Chapter 4)**;

II. Which resources, ecosystems, and human communities are affected **(Chapter 3)**; and

III. Which effects are important from a cumulative effects perspective **(information revealed in this Cumulative Effects Analysis (CEA)**

2. Establish the geographic scope of the analysis.

The immediate impact area 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. The ranges of affected species are described in **Sections 3.2.2**. **Section 3.1.1** describes the essential fish habitat designation and requirements for species affected by this amendment.

3. Establish the timeframe for the analysis.

Establishing a timeframe for the CEA is important when the past, present, and reasonably foreseeable future actions are discussed. It would be advantageous to go back to a time when there was a natural, or some modified (but ecologically sustainable) condition. However, data collection for many fisheries began when species were already fully exploited. Therefore, the timeframe for analyses should be initiated when data collection began for the various fisheries. In determining how far into the future to analyze cumulative effects, the length of the effects will depend on the species and the alternatives chosen. Long-term evaluation is needed to determine if management measures have the intended effect of improving stock status. Therefore, analyses of effects should extend beyond the time when these overfished stocks are rebuilt. The South Atlantic Council chose a 35-year rebuilding schedule with management measures that would reduce harvest of red snapper in order to rebuild the stock within the preferred timeframe in Amendment 17A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) (Amendment 17A; SAFMC 2010a). A complete description of openings and closures, as well as monitoring methods that would be employed under this temporary action appears in **Chapter 6** of this document.

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 red snapper and co-occurring species (gag, golden tilefish, gray triggerfish, greater amberjack, red grouper, scamp, snowy grouper, and vermilion snapper).

A. Past

The reader is referred to **Section 1.8** of this document and **Appendix C** (History of Management**)** of Amendment 17A for past regulatory activity for the fish species. These include bag and size limits, spawning season closures, commercial quotas, gear prohibitions and limitations, area closures, and a commercial limited access system.

Amendment 13C to the Snapper Grouper FMP (Amendment 13C; SAFMC 2006) addressed overfishing for golden tilefish, snowy grouper, black sea bass and vermilion snapper. Analysis found in **Appendix E** of Amendment 17A showed minimal reductions (< 2%) in commercial red snapper removals resulting from Amendment 13C. Therefore, ancillary effort reductions in the red snapper fishery due to management measures in Amendment 13C would not result in any significant reduction in harvest of red snapper that could be counted toward the overall harvest reductions needed to end overfishing of the species. The South Atlantic Council approved Amendment 13C at their December 2005 meeting. The final rule published in the *Federal Register* on September 12, 2006, and became effective on October 23, 2006.

Amendment 14 to the Snapper Grouper FMP (Amendment 14; SAFMC 2007) was implemented on February 12, 2009. Amendment 14 established eight Type II marine protected areas (MPAs) where fishing for and retention of snapper-grouper species would be prohibited (as would the use of shark bottom longlines), but trolling for pelagic species such as tuna, dolphin, and billfish would be allowed. The intent was to achieve a more natural sex ratio, age, and size structure of all species within the MPAs, while minimizing adverse social and economic effects. Because of the small sizes of the MPAs, it is unlikely that any significant reductions in overall mortality of species also affected by Amendment 17A would occur. The South Atlantic Council approved Amendment 14 at their June 2007 meeting. The final rule published in the *Federal Register* on January 13, 2009, and became effective on February 12, 2009.

Amendment 15B to the Snapper Grouper FMP (Amendment 15B; SAFMC 2008b) became effective on December 16, 2009. Management measures in Amendment 15B include prohibition of the sale of bag limit caught snapper grouper species for fishermen not holding a federal commercial permit for South Atlantic snapper grouper, an action to adopt, when implemented, the Atlantic Coastal Cooperative Statistics Program release, discard and protected species module to assess and monitor bycatch, allocations for snowy grouper, and management reference points for golden tilefish. Biological benefits from Amendment 15B are not expected to result in a significant cumulative biological effect when added to anticipated biological impacts under this amendment. The South Atlantic Council approved Amendment 14 at their June 2007 meeting. The final rule published in the *Federal Register* on January 13, 2009, and became effective on February 12, 2009.

Amendment 17B to the Snapper Grouper FMP (Amendment 17B; SAFMC 2010b), which was implemented on January 31, 2011 established annual catch limits (ACL), annual catch targets, and accountability measures (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. The South Atlantic Council approved Amendment 15B at their June 2008 meeting. The final rule published in the *Federal Register* on November 16, 2009, and became effective on December 16, 2009.

The Comprehensive ACL Amendment (SAFMC 2011b) includes ACLs and AMs for federally managed species not undergoing overfishing in four FMPs (Snapper Grouper, Dolphin Wahoo, Golden Crab, and *Sargassum*). Actions contained within the Comprehensive ACL Amendment include: (1) Removal of species from the snapper grouper fishery management unit; (2) designation of ecosystem component species; (3) allocations; (4) management measures to limit recreational and commercial sectors to their ACLs; (5) AMs; and (6) any necessary modifications to the range of regulations. The South Atlantic Council approved the Comprehensive ACL Amendment in September 2011. The final rule published in the *Federal Register* on March 16, 2012, and became effective on April 16, 2012.

Regulatory Amendment 11 to the Snapper Grouper FMP (Regulatory Amendment 11; SAFMC 2011c) was approved by the South Atlantic Council at their August 9, 2011, meeting. The amendment implemented regulations to remove the deepwater closure beyond 240 ft for six deepwater snapper grouper species that was approved in Amendment 17B. The South Atlantic Council approved Regulatory Amendment 11 at their August 2011 meeting. The final rule published in the *Federal Register* on May 12, 2012, and became effective on same day.

Amendment 18A to the Snapper Grouper FMP (Amendment 18A; SAFMC 2011d) contains measures to limit participation and effort for black sea bass. Amendment 18A established an endorsement program than enables snapper grouper fishermen with a certain catch history to harvest black sea bass with pots. In addition Amendment 18A includes measures to reduce bycatch in the black sea bass pot fishery, modify the rebuilding strategy, and other necessary changes to management of black sea bass as a result of a 2011 stock assessment. The South Atlantic Council approved Amendment 18A in December 2011. The amendment was partially approved and the final rule published in the *Federal Register* on June 1, 2012, and became effective on July 1, 2012.

Amendment 24 to the Snapper Grouper FMP (Amendment 24; SAFMC 2011e) implemented a rebuilding plan for red grouper, which is overfished and undergoing overfishing. The South Atlantic Council approved Amendment 24 in December 2011. The final rule published in the *Federal Register* on June 11, 2012, and became effective on July 11, 2012.

B. Present

In addition to snapper grouper fishery management issues being addressed in this amendment, several other snapper grouper amendments have been developed concurrently and are in the process of approval and implementation. Not all of these amendments directly affect red snapper.

Amendment 20A to the Snapper Grouper FMP (Amendment 20A; SAFMC 2011g) would distribute shares from inactive participants in the wreckfish individual transferable quota (ITQ) to active shareholders. The South Atlantic Council approved Amendment 20A in December 2011. The proposed

rule for Amendment 20A published in the *Federal Register* on March 20, 2012, and the comment period ended on April 30, 2012.

Regulatory Amendment 12 to the Snapper Grouper FMP (Regulatory Amendment 12; SAFMC 2012) includes alternatives to adjust the golden tilefish ACL based on the results of a new assessment, which indicates golden tilefish are no longer experiencing overfishing and are not overfished. Regulatory Amendment 12 also includes an action to adjust the recreational AM. Regulatory Amendment 12 was approved for submission to the Secretary of Commerce by the South Atlantic Council at their March 2012 meeting.

In a letter dated June 19, 2012, the South Atlantic Council requested NOAA Fisheries to allow harvest and possession of red snapper in 2012 through emergency regulations. At their June 11-15, 2012, meeting, the South Atlantic Council reviewed new information in the form of red snapper rebuilding projections, 2012 acceptable biological catch levels, and 2012 discard mortality levels. After accounting for the 2012 discard mortalities, the South Atlantic Council determined that directed harvest could be allowed without compromising the rebuilding of the stock to target levels.

The South Atlantic Council has recently completed and is developing amendments for coastal migratory pelagic species, spiny lobster, golden crab, dolphin-wahoo, shrimp, and octocorals. See the South Atlantic Council's Web site at http://www.safmc.net/ for further information on South Atlantic Council managed species.

C. Reasonably Foreseeable Future

Amendment 20B to the Snapper Grouper FMP is currently under development. The amendment will include a formal review of the current wreckfish individual transferable quota (ITQ) program, and will update/modify that program according to recommendations gleaned from the review.

Amendment 18B to the Snapper Grouper FMP was approved by the South Atlantic Council at their June 2012 meeting and considers alternatives addressing golden tilefish. Specifically, actions could establish initial eligibility requirements and address trip limits for a golden tilefish longline endorsement program, allocate golden tilefish quota among gear groups, adjust the golden tilefish fishing year, and establish an appeals process.

At their June 2012 meeting the South Atlantic Council further discussed Amendment 22 to the Snapper Grouper FMP to consider measures such as a tagging program to allow harvest of red snapper as the stock rebuilds. Scoping of Amendment 22 was conducted during January and February 2011.

At their March 2012 meeting, the South Atlantic Council requested the development of a new regulatory amendment to allow for adjustment of allocations and ACLs based on the new landings information from the Marine Recreational Information Program.

At their June 2012 meeting the South Atlantic Council requested development of a regulatory amendment to adjust management measures for greater amberjack, vermilion snapper, black sea bass, gray triggerfish, and vermilion snapper.

II. Non-Council and other non-fishery related actions, including natural events affecting red snapper.

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 when regulated since they will be incidentally caught when fishermen target other co-occurring species. Red snapper recruitment has been measured from the 1950's to the present time and shows a decline from the earliest years to a low in the mid-1900s. Since then there have been several moderately good year classes in 1998, 1999, and 2000, and then another decline through 2003, with an apparent strong year class occurring in 2006. These moderately good year classes have grown and entered the fishery over the past couple years and are likely responsible for the higher catches being reported by recreational and commercial fishermen. 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 red snapper component of 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 was not been detected in the South Atlantic region, and did not likely to pose a threat to the South Atlantic red snapper.

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.

The species most likely to be impacted by alternatives considered in the temporary measures through this emergency action is red snapper, *Lutjanus campechanus*. Trends in the condition of red snapper are determined through the Southeast Data, Assessment and Review (SEDAR) process. In 2010, red snapper was assessed in SEDAR 24, using landings, age, length, and abundance index data through 2009. SEDAR 24 (2010) determined the red snapper stock to be undergoing overfishing and overfished **(**see **Table 3-1** in **Chapter 3)**. More information on the SEDAR Assessments for red snapper can be found in **Section 3.2.3**.

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 snapper grouper 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

Numeric values of overfishing and overfished thresholds were updated in Amendment 17A for red snapper. These values includes maximum sustainable yield (MSY), the fishing mortality rate that produces MSY (F_{MSY}), the biomass or biomass proxy that supports MSY (B_{MSY}), the minimum stock size threshold below which a stock is considered to be overfished (MSST), the maximum fishing mortality threshold above which a stock is considered to be undergoing overfishing (MFMT), and optimum yield (OY).

Definitions of overfishing and overfished for red snapper can be found in the most recent stock assessment sources included in **Table 3.1** of this document. Applicable stock assessment sources for red snapper include SEDAR 24 (2010) and SEDAR 15 (2008), both of which determined the red snapper stock to be undergoing overfishing and overfished.

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. The SEDAR assessments show trends in biomass, fishing mortality, fish weight, and fish length going back to the earliest periods of data collection. For some species such as snowy grouper, assessments reflect initial periods when the stock was above B_{MSY} and fishing mortality was fairly low. However, some species were heavily exploited or possibly overfished when data were first collected. As a result, the assessment must make an assumption of the biomass at the start of the assessment period thus modeling the baseline reference points for the species.

For a detailed discussion of the baseline conditions of red snapper, the reader is referred to those stock assessment and stock information sources referenced in **Item Number 6** of this CEA.

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

Table 7-1. 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;	Reduce mortality of snapper grouper species.

Time period/dates	Cause	Observed and/or Expected Effects
	aggregate grouper bag limit of 5/person/day; and 20" TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991).	
Pre-June 27, 1994	Damage to *Oculina* habitat.	Noticeable decrease in numbers and species diversity in areas of *Oculina* off FL
July 1994	Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993)	Initiated the recovery of snapper grouper species in OECA.
1992-1999	Declining trends in biomass and overfishing continue for a number of snapper grouper species including golden tilefish.	Spawning potential ratio for golden tilefish is less than 30% indicating that they are overfished.
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.

Time period/dates	Cause	Observed and/or Expected Effects
Effective Date July 29, 2009	Snapper grouper FMP Amendment 16 (SAFMC 2009a)	Protect spawning aggregations and snapper grouper in spawning condition by increasing the length of the spawning season closure, decrease discard mortality by requiring the use of dehooking tools, reduce overall harvest of gag and vermilion snapper to 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).	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 June 1, 2011	Regulatory Amendment 10 (SAFMC 2011h)	Removal of snapper grouper area closure approved in Amendment 17A.
Effective Date January 31, 2011	Snapper Grouper Amendment 17B (SAFMC 2010b)	ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; AMs, for species undergoing overfishing. Established a harvest prohibition of six snapper grouper species in depths greater than 240 feet.
Effective Date July 1, 2012	Snapper Grouper FMP Amendment 18A (SAFMC 2011d)	Prevent overexploitation in the black sea bass fishery.
Effective Date April 16, 2012	Comprehensive ACL Amendment (SAFMC 2011b)	ACLs ACTs, and AMs for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs.

Time period/dates	Cause	Observed and/or Expected Effects
Effective Date July 15, 2011	Regulatory Amendment 9 (SAFMC 2011f)	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 2011c)	Removed the harvest prohibition of six deepwater snapper grouper species implemented in Amendment 17B.
Target 2012	Amendment 18A Transferability Amendment	Reconsider action to allow for transfer of black sea bass pot endorsements that was disapproved in Amendment 18A.
Target 2012	Amendment 20A (Wreckfish) (SAFMC 2011g)	Redistribute inactive wreckfish shares.
July 11, 2012	Amendment 24 (Red Grouper) (SAFMC 2011e)	Establishes a rebuilding plan for red grouper, specifies ABC, and establishes ACL, ACT and revises AMs for the commercial and recreational sectors.
Target 2012	Regulatory Amendment 12 (SAFMC 2012)	Adjusts the golden tilefish ACL based on the results of a new stock assessment and modifies the recreational golden tilefish AM.
Target 2013	Snapper Grouper Amendment 18B (under dev)	Develop a long-term management program for red snapper in the South Atlantic.
Target 2013	Snapper Grouper Amendment 22 (under dev)	Develop a long-term management program for red snapper in the South Atlantic.

9. Determine the magnitude and significance of cumulative effects.

Amendment 17A established ACLs and AMs and established management measures to end red snapper overfishing and are expected to have a beneficial, cumulative effect on the biophysical environment. Proposed management actions in Amendment 17A, and the magnitude and significance of the preferred alternatives as summarized in **Sections 2 and 4** of that amendment and are hereby incorporated by reference. These management actions are expected to protect and increase stock biomass, which may affect other stocks.

When species in the snapper grouper fishery management unit (FMU) are assessed, stock status may change as new information becomes available. In addition, changes in management regulations, fishing techniques, social/economic structure, etc. can result in shifts in the percentage of harvest between user groups over time. As such, the South Atlantic Council has determined that certain aspects of the current management system remain inappropriate and should be restructured. **The South Atlantic Council and NOAA Fisheries determined that retention of a limited number of red snapper in 2012, along with appropriate management controls, would not jeopardize the rebuilding of the red snapper stock. Fishery managers made this determination following a comparison of the allowable mortality for red snapper in 2012 with recent discards levels. The method is described in more detail in Section 1.6 and Appendix C.** Furthermore, **Chapters 2** and **4** of this document, which considers reopening

harvest of red snapper for a limited time, describe the magnitude and significance of effects of the alternatives considered, in detail.

The red snapper rebuilding plan and management measures implemented by Amendment 17A would result in a slow rebuilding of the stock over the course of many years. One ancillary benefit of restricting red snapper harvest is reductions in fishing related mortality of other species associated with red snapper. However, it is not possible to eliminate incidental mortality of red snapper, since it is part of a multi-species complex, without prohibiting fishermen from targeting all associated species wherever red snapper occur (see **Appendix E** for the bycatch practicability analysis).

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 NOAA Fisheries, states, stock assessments and stock assessment updates, life history studies, and other scientific observations. **Section 6.3** of this document explains how the limited harvest of red snapper in 2012 will be monitored.

7.2 Socioeconomic

A description of the human environment, including a description of commercial and recreational red snapper fisheries and associated key fishing communities is contained in **Chapter 3**. A description of the history of management of the red snapper fishery is contained in **Chapter 1**.

Participation in and the economic performance of the snapper grouper fishery, which includes red snapper, 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 OY 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**. Current and future amendments are expected to add to this cumulative effect. Amendment 15B prohibited the sale of bag-limit caught snapper grouper species for those who do not hold a federal commercial permit for snapper grouper. This eliminates the ability of the recreational angler to subsidize the cost of a fishing trip through the sales of snapper grouper and may, therefore, decrease recreational demand. This action has a more pronounced effect on the for-hire sector, which often uses the sale of bag-limit caught fish to pay crewmembers.

Amendment 16 to the Snapper Grouper FMP (Amendment 16; SAFMC 2009) 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 17A addressed the overfishing and overfished status of red snapper. Red snapper is, in general and compared to other snapper grouper species, not a significant commercial species, it has greater importance as a target species to the recreational sector, especially the for-hire sector in certain areas of the South Atlantic.

Amendment 17B 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, 17A, and 17B 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 and 17B have been estimated and are contained in Amendment 17A. The impacts from the three amendments will likely result in commercial and for-hire vessel exit and loss of fishery infrastructure as a result.

Other amendments are expected to or have been implemented during 2012, which could further affect harvest of snapper grouper species. The Comprehensive ACL Amendment, implemented on April 16, 2012, specified ACLs for snapper grouper species not undergoing overfishing, and also specified allocations for red snapper. Amendment 18A, which was implemented on July 1, 2012, contains measures to limit participation and effort in the black sea bass fishery, reduce bycatch in the black sea bass pot sector, changes to the rebuilding strategy and other necessary changes to the management of black sea bass as a result of the 2011 stock assessment. Regulatory Amendment 11 to the Snapper Grouper FMP became effective on May 10, 2012 and removed the deepwater closure beyond 240 ft for

six deepwater snapper grouper species. Amendment 20A to the Snapper Grouper FMP would distribute shares from inactive participants in the wreckfish individual transferable quota system to active shareholders. Amendment 24 to the Snapper Grouper FMP, which became effective on July 11, 2012, implemented a rebuilding plan for red grouper, which is overfished and undergoing overfishing. Regulatory Amendment 12 to the Snapper Grouper FMP (Regulatory Amendment 12) includes alternatives to increase the ACL for golden tilefish based on the results of a new stock assessment. The South Atlantic Council approved Regulatory Amendment 12 at their March 2012 meeting for review by the Secretary of Commerce.

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 decline in the space industry may lessen the pace of waterfront development and associated adverse social and economic pressures on fishery infrastructure.

The overall cumulative social effects of the actions within the temporary rule should be positive. While some alternatives have the potential to increase the chances for negative social effects like derby fishing and high grading, with the selected preferred alternatives many of the negative effects can be ameliorated. It is assumed that those communities identified in **Section 3.3.1** will benefit from the positive social effects of the regulatory actions. It is unlikely that there would be any negative social effects to other communities as a result. While these cumulative impacts are positive, they are also short term as the temporary rule is for a short period of time during the 2012 fishing year. The long term benefits of the actions contained within this EA, will need to be assessed with regard to the impact upon the stock status of the fishery and social environment overall. Changes in fishing behavior which may have short term positive impacts for one sector or fishery, can have differing impacts in others and therefore may have different long term impacts overall. While we assume these regulatory changes should have short term positive social impacts like improving fishing opportunities for both the recreational and commercial sectors and the associated socioeconomic benefits that follow, we will not know the long term impacts until we have a better understanding of how behaviors are modified by these actions. With the temporary opening, it is unlikely that any substantial long term negative impacts should occur as long as harvest for both sectors is monitored in a timely manner and ACLs are not exceeded. Overall perception of both the South Atlantic Council and NOAA Fisheries should benefit from the temporary rule that takes into consideration some of the socioeconomic concerns that stakeholders expressed during previous regulatory action. This may have positive social effects of improving compliance and cooperation in future management.

Chapter 8. List of Preparers

Table 8-1. List of preparers of the document.

Name	SAFMC	Title
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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 8-2. List of interdisciplinary plan team members for the document.

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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 9. Agencies and Persons Consulted

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

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Appendix A. Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

Discards: Fish captured, but released at sea.

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

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

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

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

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

F: Fishing mortality.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

South Atlantic Red Snapper:

Estimated mortalities in 2010 and 2011

Prepared by
National Marine Fisheries Service
Southeast Fisheries Science Center

May 2012

Background

In a memorandum dated 7 April 2012, from Bob Mahood to Dr. Bonnie Ponwith, the South Atlantic Fishery Management Council requested updated 2010-2011 estimates of red snapper mortalities in the South Atlantic (see Appendix). Because red snapper were under a moratorium during these years, most of the mortality is of discarded fish, however some fish were observed in landings and are included here for completeness.

Methods

Mortality estimates were derived from three different sources: commercial logbooks, MRFSS, and the Southeast Region Headboat Survey (SHRS). Any analytical methods used for data preparation were the same as those used in SEDAR-24. Commercial logbook and MRFSS data were queried and analyzed by personnel in the Sustainable Fisheries Division of NMFS-Miami. SHRS data were queried and analyzed by personnel in the Sustainable Fisheries Branch of NMFS-Beaufort.

In those data queries, some landings were observed, despite the moratorium. Thus, landings were separated from released fish for computing total mortalities. All landings were considered killed, and the appropriate fleet-specific discard mortality was applied to the releases only. The release mortality estimates (i.e., proportion of released fish expected to die) were those of SEDAR-24: 0.48 for commercial lines, 0.41 for recreational for-hire, and 0.39 for recreational private. The recreational for-hire fleet consisted of headboats and charterboats.

The numbers of fish killed by each fleet (commercial handlines, for-hire, or private recreational) were summed to compute the total number of red snapper mortalities. These estimates were converted to units of thousand pounds using the average weight of mortalities (landings + dead discards) implied by the projection with $F=0.98\times F30$ and headboat weight $\omega=0.30$. This projection scenario was identified in Table 9C in the April 7 memorandum (see Appendix). The projected average weights were 5.3 lb in 2010, and 6.6 lb in 2011.

Results

Table 1 shows red snapper mortalities by fleet. Table 2 shows total red snapper mortalities estimated in units of number and in weight.

Discussion

The estimates of 2010-2011 red snapper mortalities (Table 2) are similar to those considered in Amendment 17A, as described in Table 1 of the memorandum (See Appendix. Note an apparent error in

the legend of memorandum Table 1, namely that values in the table are in pounds, rather than thousands of pounds). Differences between actual mortalities and projected mortalities could occur for many reasons. For example, recruitment in recent years may have been higher than expected, such that discards would exceed expectation even under stable or decreased levels of fishing effort. Conversely, recruitment may have been lower than expected, resulting in fewer discards regardless of effort.

The estimates of landings and discards tabulated here derive from self-reported data, and come with an unknown degree of uncertainty and possible bias. In most cases, we do not have the necessary data to address reporting bias, however we were able to examine the level of agreement, at the trip level, between presence of red snapper in the MRFSS headboat at-sea observer program and in the SRHS. In 2010, 56.4% of the at-sea observed red snapper trips were matched to SRHS-reported trips, and in 2011, 70.0% were matched. These matched trips showed 100% agreement with the presence of red snapper reported as discards. Unfortunately, this analysis could only be done on the basis of presence/absence, as total discard estimates are not available from at-sea observed trips. This analysis is somewhat reassuring, but it does not guarantee that estimates are unbiased. In other words, the strong agreement is a necessary, but not sufficient, condition for accurate estimates.

Table 1. Total mortalities by fleet (units=number of fish). A and B1 refers to MRFSS notation for fish known to be killed. Discard mortalities are equal to total estimated releases multiplied by the fleet-specific release mortality rate.

	For-hire (charter+headboats)		Private recreational		Commercial handlines	
YEAR	Landed (A+B1)	Discard mortalities	Landed (A+B1)	Discard mortalities	Landed	Discard mortalities
2010	971	20569	0	31561	0	18293
2011	1950	22131	0	16156	0	21169

Table 2. Estimates of total red snapper mortalities (landings and discards) summed across fleets, in units of numbers (fish) and in weight (1000 lb).

YEAR	Total mortalities (fish)	Total mortalities (1000 lb)
2010	71394	378.387
2011	61405	405.276

Appendix

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 Faber Place Drive, Suite 201
North Charleston, SC 29405
TEL 843/571-4366 FAX 843/769-4520
Toll Free: 1-866-SAFMC-10
Email: safmc@safmc.net Web site: www.safmc.net

April 7, 2012

MEMORANDUM

TO: Bonnie Ponwith
FROM: Bob Mahood RKM
SUBJECT: Data Request

At our June 2012 meeting the Council may address the possibility of allowing some level of harvest of red snapper in the near future. To aid in that decision we are requesting that the SEFSC provide bycatch mortality estimates (all sectors) to evaluate the actual and estimated level of mortality relative to the previously projected mortality levels. Would you please provide the estimates of bycatch mortality as highlighted in yellow in the Table 1. (below) for the years 2010 through 2011. The information should be provided on or before noon on May 21, 2012 to be included in the June 2012 briefing book.

Table 1. Projection levels (thousand pounds whole weight) for red snapper and actual/estimated discard levels taken from Table 9c. (memo-page 2).

Projections				**Actual & Estimated**	**Amount**
	Discards	**Landings**	**Total**	**Discards**	**Available**
2010	346,000		346,000		
2011	56,000	365,000	421,000		

2012	77,000	464,000	541,000		

In Amendment 17A, the Council used the projections in Table 9c. (below) in determining that the appropriate management approach for red snapper was to continue the total prohibition on harvest and possession. Table 9c was part of SEDAR-24 (South Atlantic Red Snapper) and contains the management quantities and projections that had been requested by the SSC and SERO. The table was prepared in November 2010 by the Sustainable Fisheries Branch, Southeast Fisheries Science Center, Beaufort, NC.

Table 9c. Projection results (expected values) with F=0.98×F30, extended from assessment model configuration with component weights as in the AW report, but headboat index weight increased to $\omega = 0.30$. F is fishing mortality rate (per yr), SSB is mid-year spawning stock (mt), R is recruits (1000 age-1 fish), D is discard mortalities (1000 fish or 1000 lb whole weight), L is landings (1000 fish or 1000 lb whole weight), and sum L is cumulative landings.

Year	F	SSB(mt)	R(1000)	D(1000)	D(klb)	L(1000)	L(klb)	Sum L(klb)
2010	0.32	22.67	325	65	346	0	0	0
2011	0.199	27.74	338	33	56	31	365	365
2012	0.199	31.29	373	41	77	45	464	829
2013	0.199	35.14	394	44	86	52	525	1354
2014	0.199	39.3	414	47	92	59	589	1942
2015	0.199	43.79	432	50	96	64	649	2592
2016	0.199	48.58	449	52	101	69	710	3302
2017	0.199	53.72	466	54	105	74	772	4074
2018	0.199	59.15	481	56	109	79	835	4909
2019	0.199	64.76	495	58	112	84	898	5807

Thank you for your consideration of this request. If you have any questions, please contact John Carmichael or me.

cc: Roy Crabtree

David Cupka

Gregg Waugh

John Carmichael

Myra Brouwer

South Atlantic Red Snapper Reopening
Southeast Regional Office
SERO-LAPP-2012-04
July 6, 2012; addendum added July 30, 2012

Abstract

South Atlantic red snapper has been closed to harvest since January 2010. At the June 2012 South Atlantic Fishery Management Council meeting, the Council reviewed red snapper mortality estimates for 2010 and 2011 and projected mortality estimates for 2012. Estimated mortalities for 2012 were less than projected mortalities and the Council recommended reopening red snapper to harvest in 2012. This report evaluates the amount of fish that could be landed during the reopening and estimates the length of the recreational and commercial fishing seasons. Recreational catch rates for 2012 were predicted using a Seasonal Autoregressive Integrated Moving Average Model, which uses historical monthly landings and projected changes in exploitable abundance to predict future monthly landings. Commercial season lengths were estimated by imposing trip limits of 25 to 100 pounds gutted weight on 2009 logbook data. Both methods do not account for potential increases in fishing effort that may occur due to a short reopening and therefore likely overestimate the length of the season. Allowable landings for 2012 ranged from 2,121 to 19,600 fish. Season lengths were contingent on the amount of fish allowed for harvest. Based on the Council's recommended ACL of 13,067 fish (9,399 recreational/3,668 commercial), recreational fishing season lengths ranged from 11-25 days depending on the month reopened and monthly catch. For the commercial sector, season lengths ranged from 16-175 days depending on the trip limit chosen and start date of the reopening. Given the uncertainties in estimating season length, as well as discard mortalities, and the Council's recommendation to reopen weekends only, it is recommended that the recreational season be reopened no more than 2-3 consecutive three day weekends. For the commercial sector, landings will be monitored in season through the SEFSC's quota monitoring program. Lower trip limits will provide longer seasons and deter targeting of red snapper, while higher trip limits may result in more trips targeting red snapper compared to historic and current effort levels.

Background

The South Atlantic Fishery Management Council (Council) manages red snapper (*Lutjanus campechanus*) in U.S. Atlantic Ocean waters from the Virginia/North Carolina border through the Florida Keys. The SEDAR-24 (2010) benchmark stock assessment of U.S. South Atlantic red snapper determined the stock was undergoing overfishing and was severely overfished (SEDAR-24 2010). On January 4, 2010, NOAA Fisheries Service implemented interim regulations at the request of the Council to close the red snapper segment of the Snapper-Grouper fishery. Interim regulations were implemented to address overfishing until the Council could establish more permanent regulations through Amendment 17A and Regulatory Amendment 10 to the Snapper-Grouper Fishery Management Plan. A complete prohibition of red snapper harvest was necessary to end overfishing and rebuild the stock.

Red snapper has been closed for two and a half years. In April 2012, the Council requested NOAA Fisheries Service's Southeast Fisheries Science Center (SEFSC) provide estimates of mortalities during 2010 and 2011 to determine if red snapper could be reopened. Results were compared to projected mortalities from the SEDAR-24 (2010) stock assessment. At the June 2012 Council meeting, the Council reviewed the mortality data and requested NOAA Fisheries Service implement an emergency rule to

reopen red snapper during 2012. This report evaluates the amount of fish that could be landed during the reopening and provides estimates of how long the recreational and commercial fishing seasons may be open to harvest. Commercial trip limits for reducing the rate of harvest are also evaluated.

Methods

2012 Mortality Estimates

Red snapper discard mortality estimates for 2010 and 2011 were obtained from SEFSC (2012). Results were compared to projected mortalities summarized in Table 9c of SEFSC (2010). Projections summarized in Table 9c were used as the basis for management decisions in Regulatory Amendment 10. Under current data collection protocols, discard mortalities cannot be calculated in-season; thus, discard mortality estimates for 2012 were predicted using four methods:

1. The average of 2010 and 2011 estimated mortalities;
2. The average of 2010 and 2011 estimated mortalities and 2012 projected mortalities;
3. Estimated mortalities for 2011 increased by the change in exploitable abundance projected for 2011 to 2012 and decreased by the change in fishing effort from 2010 to 2011; and,
4. Estimated mortalities for 2011 increased by the change in exploitable abundance projected for 2011 to 2012.

The change in exploitable abundance was obtained from SEDAR-24 (2010) projections (K. Shertzer, SEFSC, personal communication; Figure 1). Projections described in Table 9c of SEFSC (2010) indicate exploitable abundance will increase by 36.6% from 2011 to 2012. Changes in fishing effort were obtained from the Marine Recreational Information Program (MRIP) and from commercial coastal logbook records (Figures 2 and 3). MRIP summarizes effort as angler trips, while commercial logbooks provide days away from port and number of trips. Only recreational fishing effort occurring in the federal economic exclusive zone was used to determine the reduction in fishing effort from 2010 to 2011. Commercial effort was based on trips harvesting any stocks in the Snapper-Grouper Fishery Management Unit. From 2010 to 2011, there was a 7.7% reduction in recreational fishing effort and a 9.1% reduction in the number of days fished by commercial vessels. Reductions in fishing effort (see method 3 above) were applied to sector specific mortality estimates summarized in SEFSC (2012) then increased by the change in exploitable abundance from 2011 to 2012.

The mortality estimates generated from each of the four methods described above were subtracted from the projected mortalities in Table 9c of SEFSC (2010) to determine the number of fish that could be allowed for harvest in 2012. Projected mortalities in 2012 are estimated to equal 86,000 fish (SEFSC 2010). The difference in projected versus estimated mortalities is equivalent to an annual catch limit (ACL) specified in numbers of fish landed. Calculated ACLs in numbers of fish were further allocated 71.93% to the recreational sector and 28.07% to the commercial sector based on the allocation specified in the Council's Comprehensive ACL Amendment (2011). To calculate the commercial ACL in pounds gutted weight, the commercial ACL in numbers of fish was multiplied by the projected average weight of mortalities (in gutted pounds) from Table 9c in SEFSC (2010).

Estimation of Recreational Fishing Season Length

Red snapper landings (in numbers) for 2012 were forecast using a SARIMA model (Box and Jenkins 1976). A SARIMA model analyzes and forecasts equally-spaced univariate time series data, predicting values in a response time series as a linear combination of its own past values, past errors, and past, current, and projected future values of other time series. Because the time series of red snapper recreational catch per month shows strong seasonality, a SARIMA (p,d,q)*(P,D,Q) model was used. The auto-regressive component, designated as p, represents the lingering effects of previous observations. The integrated component, designated as d, represents trends, including seasonality. The moving average component, designated as q, represents lingering effects of previous random shocks (or error). In the SARIMA model, monthly catch (in numbers) of recreational red snapper was projected as a linear combination of past values. The SARIMA model used 2001-2010 red snapper landings. Landings were obtained from the SEFSC's ACL database and aggregated across all modes. Headboat landings are reported on a monthly basis, but Marine Recreational Fisheries Statistical Survey landings are reported by two-month wave. Landings for MRFSS were converted from wave to monthly landings by multiplying wave landings by the ratio of days in a month to total days in the wave.

Exploitable abundance at age was used as a predictive co-variate to account for increasing fish abundance as the stock rebuilds. Abundance at age data were obtained from the most recent red snapper stock assessment and projections (K. Shertzer, SEFSC, pers. comm.) and converted to exploitable abundance using selectivity at age (Figure 1). Projected values of exploitable abundance from projections summarized in Table 9c of SEFSC 2010 ($F=F_{rebuild}$) were used to seed the forecast of the final SARIMA model (K. Shertzer, SEFSC, pers. comm.). It should be noted that the assessment model estimated large increases in exploitable abundance in 2007-2008 due high recruitment progressing through the fishery. Exploitable abundance was estimated to decline from 2008 through 2010 before increasing at a rapid rate beginning in 2011.

The SARIMA model was implemented using Proc ARIMA in SAS v9.2 for Windows (SAS Institute, Inc., Cary, NC). SARIMA model selection was guided by examination of autocorrelations, inverse autocorrelations, partial autocorrelations, and cross-correlations. Stationarity tests were used to guide differencing selection. Residual diagnostics and Akaike Information Criterion (AIC) values were used to select the final model, which was specified as a SARIMA(0,0,1)X(0,1,1)s model where s=12 months, with model fit using conditional least squares. The final model incorporated exploitable abundance as a predictor and explained 66% of the variability in non-seasonal and seasonal trends in monthly catch using an MA(1,1) model (Moving Average Operator: 1 + 0.93028 B**(1)), an SMA(2,1) model at a 12 month lag (Moving Average Operator: 1 - 0.75416 B**(12)), and a predictor term for exploitable abundance (Regression Factor: 0.012651).

Monthly catches predicted by the SARIMA model were then converted to daily catches by dividing the monthly catches by the number of days in the month. Because predictions of catch are highly uncertain and effort may be substantially higher than historic levels if the season is opened for only a short period of time, monthly catches using the upper 95% confidence limit were also generated. A cumulative sum of consecutive daily catch rates was then used to predict how many days it would take to catch the 2012 annual catch limit (ACL). Estimates were generated based on starting the season at the beginning of each month to take into account seasonal changes in landings and fishing effort.

Season lengths were estimated for each of the 2012 ACLs estimated above.

Commercial Trip Limits and Season Length

SEFSC commercial logbook records were used to evaluate how long the commercial fishing season would remain open if various trip limits were imposed. Trip limits were imposed on logbook landings data from 2009, the last year the red snapper commercial sector was open. Trip limits considered ranged from 25 to 100 pounds gutted weight. If a trip reported landing red snapper above a specified trip limit, then landings were reduced to the trip limit. All trips landing quantities of red snapper below the trip limit were increased to the trip limit. Not adjusting landings below a trip limit was considered, but because the Council recommended during their June 2012 meeting to eliminate the minimum size limit, it was presumed that trips previously not catching the trip limit would have a much higher probability of catching the trip limit if the size limit is eliminated. The size limit and geographic availability of red snapper are limiting factors in catching red snapper. By eliminating the size limit, the likelihood of catching the trip limit will increase, especially in the areas of highest abundance, as fish will no longer be discarded due to regulations. Although this might overestimate the amount of fish landed on trips previously occurring, effort may also be underestimated if additional trips occur due to red snapper being reopened.

Results

2012 Mortality Estimates

Red snapper mortality estimates for 2010 and 2011 were comparable to projected mortalities (Figure 4). In 2010, 71,394 red snapper were estimated to be killed (SEFSC 2012). In 2011, 61,405 red snapper were estimated to be killed (SEFSC 2012). Projected mortalities for 2010 and 2011 were 65,000 and 64,000 red snapper, respectively. In 2012, mortalities are projected to increase to 86,000 fish. Estimated mortalities for 2012 ranged from 66,400 to 83,879 fish (Table 1) and varied based on assumed changes in fishing effort, exploitable abundance, and years used to approximate mortalities. Based on the range of projected mortalities, possible ACLs ranged from 2,121 to 19,600 fish (Table 1). The lowest estimate of allowable landings for 2012 assumed mortalities from 2011 to 2012 would increase at the same rate as projected exploitable abundance. The highest estimate of allowable landings assumed mortalities would be on average similar to 2010 and 2011 mortalities.

Estimation of Recreational Fishing Season Length

The SARIMA model explained 66% of the variability in seasonal and non-seasonal monthly catch trends. Model fit was generally very good with the exception of the last four months of 2009, which were overestimated by the model (Figure 5). Estimated mean monthly landings ranged from 11,666-17,591 fish. The upper 95% confidence limit projection estimated monthly landings ranging from 20,177-26,102 fish. Monthly landings were highest during late spring and early summer and lowest during fall and winter.

Projected recreational season lengths for each of the recreational ACLs are summarized in Tables 2 and 3. Based on the mean projected landings from the SARIMA model, the season length ranged from 3-4 days for an ACL = 1,526 fish, 11-17 days for an ACL = 6,462 fish, 16-25 days for an ACL = 9,399 fish, and 24-36 days for an ACL = 14,098 fish. Based on the 95% upper confidence limit projected landings from the SARIMA model, the season length was 2 days for an ACL = 1,526 fish, 7-10 days for an ACL = 6,462

fish, 11-14 days for an ACL = 9,399 fish, and 16-21 days for an ACL = 14,098 fish. Season lengths were longer during fall and winter than spring and summer.

Commercial Trip Limits and Season Length

Tables 4-8 summarize projected commercial red snapper season lengths for various trip limits. As expected, season lengths were longest for lower trip limits and shortest if no trip limit was imposed. Season lengths ranged from as few as 3 days up to 244 days depending on the trip limit and ACL chosen

Discussion

During the June 2012 South Atlantic Council meeting, the Council recommended NOAA Fisheries Service implement emergency regulations to reopen the red snapper segment of the snapper-grouper fishery. Given harvest has been prohibited since January 2010, predicting recreational and commercial fishing season lengths for a limited opening in 2012 is difficult. The Council recommended the following management actions for reopening red snapper:

- Set the 2012 Annual Catch Limit (ACL) for red snapper = 13,067 fish;
- Set the 2012 recreational allocation at 71.93% of the ACL = 9,399 fish;
- Set the 2012 commercial allocation at 28.07% of the ACL = 3,668 fish or 20,818 pounds gutted weight;
- Establish Recreational Accountability Measures (AMs) = track recreational landings and close the recreational sector when the recreational ACL is met or projected to be met;
- Establish Commercial Accountability Measures (AMs) = track commercial landings and close the commercial sector when the commercial ACL is met or projected to be met;
- Allow for the recreational ACL to be landed during 3-day weekends (Fri-Sun) the number of which would be determined by the agency and the opening dates would be subject to modification based on weather conditions;
- Open the season as soon as possible;
- Set the recreational bag limit at 1 fish per person per day with no size limit;
- Open the commercial season in 7-day mini-season increments subject to the remaining quota; and,
- Allow for the commercial ACL to be landed under a 50-pound trip limit with no size limit.

Predicting changes in angler behavior in response to a reopening is difficult. Many factors can influence fishing activity including: fuel costs and trip expenses, weather (Figure 6, SERO 2012a), changes in regulations, changes in fishing behavior, and conflicting activities (e.g., family activities, sporting events on weekends). It is difficult to predict how South Atlantic fishermen will respond to a 'derby-style' opening of red snapper. Although the recreational red snapper sector in the Gulf of Mexico has never been completely closed, the fishing season has been shortened in each of the last five fishing years. Despite reductions in the fishing season length, the average catch-per-day has increased at a linear rate (Figure 7), due in large part to increases in stock abundance, increases in the average size of fish caught, and effort compensation (SERO 2012b). During 2011, recreational anglers landed approximately the same amount of red snapper in 48 days (in pounds) as they did during 2006 and prior when the season was 194 days.

In this analysis, historical South Atlantic red snapper landings data were forward-projected based on increases in exploitable abundance and used to estimate future monthly recreational catch rates. Although this approach accounts for changes in underlying stock size and seasonal dynamics in fishing pressure, it does not factor in changes in fishing pressure likely from a shortened season. However, even this approach may underestimate fishing effort and landings resulting from a short 'derby-style' reopening of red snapper. If effort is underestimated, then season lengths predicted in this report would be too long and would result in an overage of the ACL.

Maximum recreational season lengths ranged from 11-25 consecutive days based on the Council's recommended ACL of 13,067 fish. As the majority of private recreational fishing pressure occurs on weekends, the number of weekend days available would be much less than the 11-25 consecutive days projected. For example, 11-25 consecutive days is the equivalent of 1.6-3.6 weeks. Assuming 75% of a week's recreational landings are landed over the three-day weekend, 2.1-4.8 three-day weekends would be the equivalent of 11-25 consecutive days. Given uncertainties in estimated discard mortalities for 2012, and the potential for large shifts in fishing effort, it is recommended that the recreational fishing season be no longer than 2-3 consecutive three-day weekends.

For the commercial sector, fishing season lengths were highly variable and contingent on the trip limits chosen and the amount of trips made during a week/month. Lower trip limits would result in the longest fishing season and would limit direct targeting of red snapper while reducing wasteful dead discards. Higher trip limits would result in more trips directly targeting red snapper. Based on the Council's preferred commercial ACL (3,668 fish or 20,818 gutted pounds) and trip limit (50 pounds gutted weight), it is estimated the season length could be 2-3 months. This assumes effort is comparable to 2009 levels. In 2009, 1,997 logbook trips reported landing red snapper. Trips per month ranged from 113-235, or approximately 30-60 per week. During 2009, the maximum amount of pounds landed during a week was 21,423 pounds gutted weight between October 3-9, 2009. This amount was landed by 44 vessels taking 60 trips. Logbook records indicate there were 107 vessels fishing in statistical zones from Central-east Florida (Fort Pierce/Cape Canaveral) through Georgia in 2011 that landed species commonly associated with red snapper (i.e., vermilion snapper, scamp, red porgy, black grouper, gag, red grouper, gray triggerfish, and greater amberjack). Most trips occurred off Florida and averaged 2-3 days (Figure 8). If each of these vessels made two trips per week and caught a 50 pound trip limit, then the season would be open 14 days. If these vessels each made three trips per week and caught a 50 pound trip limit, then the season would be open 9 days. Given that vessels off South Carolina and North Carolina will also be catching some red snapper, it is likely the season could be even shorter than 9-14 days.

Quota monitoring by the SEFSC will allow commercial landings to be monitored during and after the 7-day opening(s). Once landings have been reported for the first seven-day commercial opening, the SEFSC will evaluate if the ACL has been met. If the ACL is not met, the season will be reopened for an additional 7 days or less if the quota is met sooner. Given the potential for large shifts in fishing effort, lower trip limits will reduce the risk of exceeding the ACL during these 7-day mini-season openings.

References

SAFMC. 2011. Comprehensive annual catch limit amendment for the South Atlantic region. South Atlantic Fishery Management Council, Charleston, SC. 755 pp.

SEDAR-24. 2010. Stock Assessment Report: South Atlantic red snapper. Southeast Data, Assessment, and Review, Charleston, SC. 524 pp.

SEFSC. 2010. SEDAR-24 South Atlantic red snapper: Management quantities and projections requested by the SSC and SERO. NOAA Fisheries Service, Southeast Fisheries Science Center, Beaufort, NC. 15 pp.

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SERO. 2012a. Extension of the Gulf of Mexico recreational red snapper fishing season. NOAA Fisheries Service, Southeast Regional Office, St. Petersburg, FL. 13 pp.

SERO. 2012b. 2012 Recreational red snapper quota closure analysis. NOAA Fisheries Service, Southeast Regional Office, St. Petersburg, FL. 17 pp.

Table 1. Estimated discard mortalities for 2012 and potential allowable landings allocated to each sector.

Method for Estimating 2012 Discard Mortalities	**2012 Discard Mortalities (n)**		**Potential Allowable Landings (n) / ACL**
	Projected	**Estimated**	
2010-11 average mortalities	86,000	66,400	19,600 rec = 14,098 comm = 5,502 or 31,226 lbs gw
Average of 2010-11 estimated mortalities and 2012 projected mortalities	86,000	72,933	13,067 rec = 9,399 comm = 3,668 or 20,818 lbs gw
2011 mortalities increased by Δ in 2011-2012 exploitable abundance and decreased by Δ in 2010-2011 fishing effort	86,000	77,016	8,984 rec = 6,462 comm = 2,522 or 14,313 lbs gw
2011 increased by Δ in 2011-2012 exploitable abundance (36.6%)	86,000	83,879	2,121 rec = 1,526 comm = 595 or 3,379 lbs gw

Table 2. Estimated recreational red snapper fishing season length based on mean monthly 2012 landings projected by the SARIMA model. 'Month' refers to when the season would be reopened.

	Estimated Recreational Season Length (SARIMA mean)			
Month	**ACL = 1,526**	**ACL = 6,462**	**ACL = 9,399**	**ACL = 14,098**
Jan	3	14	20	31
Feb	3	11	16	24
Mar	3	12	17	26
Apr	3	12	17	25
May	3	11	17	25
Jun	3	11	16	24
Jul	3	14	20	30
Aug	3	14	21	31
Sep	4	17	24	36
Oct	4	17	25	36
Nov	4	16	23	34
Dec	4	16	23	34

Table 3. Estimated recreational red snapper fishing season lengths based on 95 percent upper confidence limit of monthly 2012 landings projected by the SARIMA model. ACLs are in numbers of fish and are based on results summarized in Table 1. 'Month' refers to when the season would be reopened.

	Estimated Recreational Season Length (SARIMA 95% CL)			
Month	**ACL = 1,526**	**ACL = 6,462**	**ACL = 9,399**	**ACL = 14,098**
Jan	2	9	13	19
Feb	2	7	11	16
Mar	2	8	11	17
Apr	2	8	11	17
May	2	8	11	17
Jun	2	7	11	16
Jul	2	9	13	19
Aug	2	9	13	19
Sep	2	10	14	21
Oct	2	10	14	22
Nov	2	9	13	20
Dec	2	10	14	21

Table 4. Estimated commercial red snapper fishing season lengths based on 2009 logbook landings data and a 25-pound gutted weight trip limit. ACLs are in gutted pounds and are based on results summarized in Table 1. 'Month' refers to when the season would be reopened.

	Estimated Season Length (25 lb gw trip limit)			
Month	**ACL = 3,379**	**ACL = 14,313**	**ACL = 20,818**	**ACL = 31,226**
Jan	26	122	162	229
Feb	25	118	152	227
Mar	36	105	150	223
Apr	30	94	141	210
May	22	86	135	198
Jun	17	92	135	214
Jul	23	100	143	229
Aug	27	99	152	240
Sep	22	96	152	244
Oct	22	107	156	244
Nov	23	112	175	237
Dec	33	126	175	236

Table 5. Estimated commercial red snapper fishing season lengths based on 2009 logbook landings data and a 50-pound gutted weight trip limit. ACLs are in gutted pounds and are based on results summarized in Table 1. 'Month' refers to when the season would be reopened.

	Estimated Season Length (50 lb gw trip limit)			
Month	**ACL = 3,379**	**ACL = 14,313**	**ACL = 20,818**	**ACL = 31,226**
Jan	13	54	88	131
Feb	13	64	92	125
Mar	19	67	89	116
Apr	15	55	73	102
May	11	43	60	96
Jun	9	39	61	101
Jul	12	52	75	109
Aug	13	52	73	108
Sep	11	47	68	109
Oct	11	47	73	117
Nov	11	57	83	123
Dec	17	62	86	138

Table 6. Estimated commercial red snapper fishing season lengths based on 2009 logbook landings data and a 75-pound gutted weight trip limit. ACLs are in gutted pounds and are based on results summarized in Table 1. 'Month' refers to when the season would be reopened.

	Estimated Season Length (75 lb gw trip limit)			
Month	**ACL = 3,379**	**ACL = 14,313**	**ACL = 20,818**	**ACL = 31,226**
Jan	9	37	53	88
Feb	8	39	62	92
Mar	12	48	66	89
Apr	10	39	54	73
May	7	31	42	60
Jun	6	22	37	61
Jul	8	33	50	75
Aug	9	37	51	73
Sep	7	31	45	68
Oct	7	31	46	73
Nov	8	33	55	83
Dec	11	44	60	86

Table 7. Estimated commercial red snapper fishing season lengths based on 2009 logbook landings data and a 100-pound gutted weight trip limit. ACLs are in gutted pounds and are based on results summarized in Table 1. 'Month' refers to when the season would be reopened.

	Estimated Season Length (100 lb gw trip limit)			
Month	**ACL = 3,379**	**ACL = 14,313**	**ACL = 20,818**	**ACL = 31,226**
Jan	7	28	40	59
Feb	6	26	44	70
Mar	9	38	52	72
Apr	8	31	42	59
May	6	25	33	47
Jun	4	14	27	43
Jul	6	24	37	57
Aug	7	29	40	56
Sep	6	23	34	51
Oct	5	23	34	51
Nov	6	22	38	63
Dec	8	34	47	67

Table 8. Estimated commercial red snapper fishing season lengths based on 2009 logbook landings data and no trip limit. ACLs are in gutted pounds and are based on results summarized in Table 1. 'Month' refers to when the season would be reopened.

	Estimated Season Length (no trip limit)			
Month	**ACL = 3,379**	**ACL = 14,313**	**ACL = 20,818**	**ACL = 31,226**
Jan	4	16	24	36
Feb	4	17	25	40
Mar	5	22	32	45
Apr	4	18	26	39
May	4	19	27	39
Jun	4	15	22	33
Jul	3	13	20	29
Aug	6	24	35	46
Sep	4	18	26	35
Oct	3	11	16	25
Nov	4	16	24	36
Dec	4	18	26	39

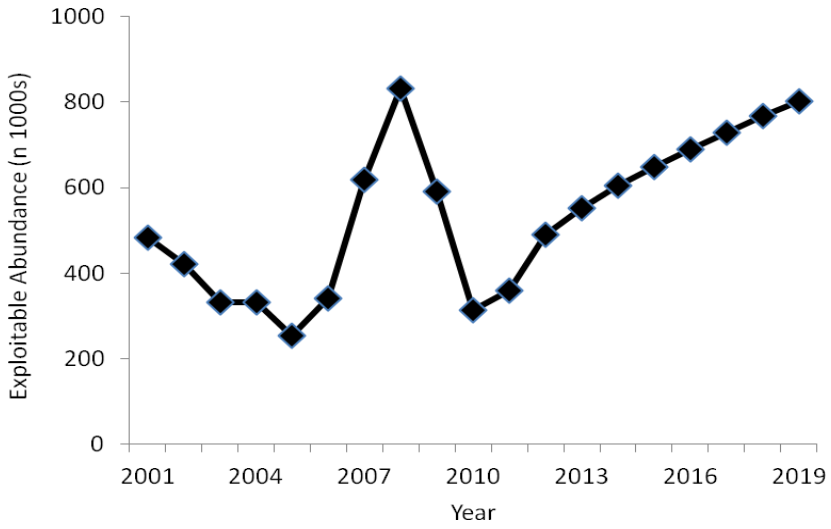

Figure 1. Red snapper exploitable abundance (thousands o f fish), 2001-2019.

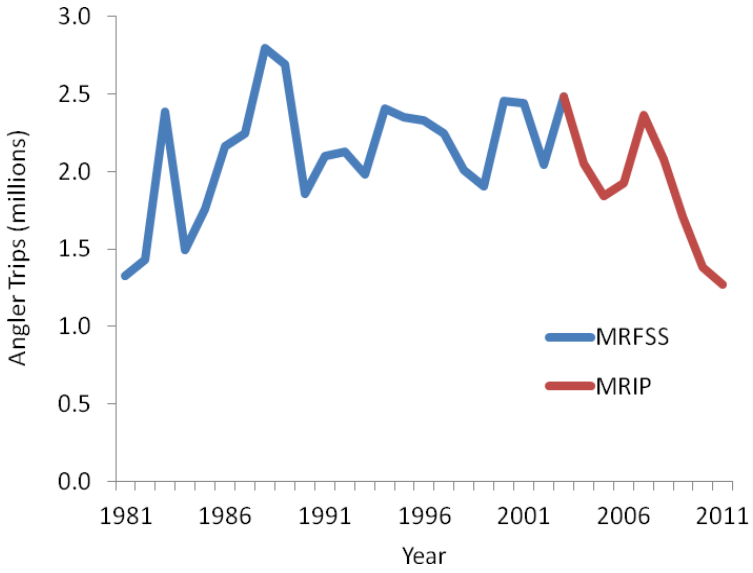

Figure 2. Recreational angler trips in federal waters of the South Atlantic, 1981-2011. Angler trips were estimated using the Marine Recreational Fisheries Statistics Survey from 1981-2003. From 2004-2011, angler trips are estimated based on Marine Recreational Information Program methods.

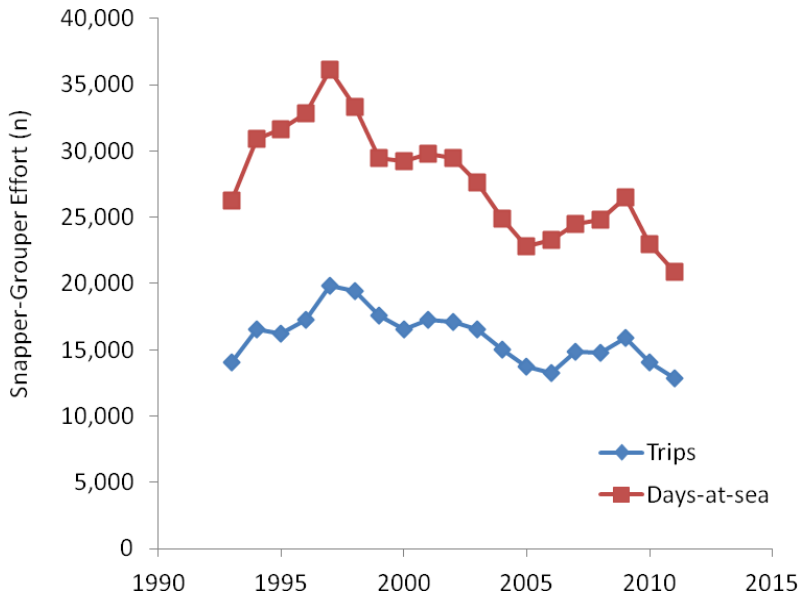

Figure 3. Snapper-grouper commercial fishing trips and days-at-sea, 1993-2011. Source: Coastal logbook records.

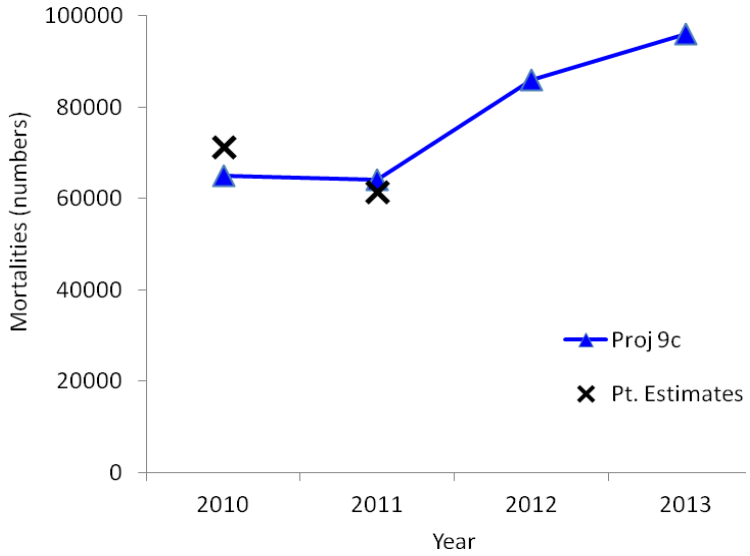

Figure 4. Projected (blue triangles) and estimated (black x) red snapper mortalities, 2010-2013. Projected mortalities are from Table 9c in SEFSC (2010). Estimated mortalities are from SEFSC (2012).

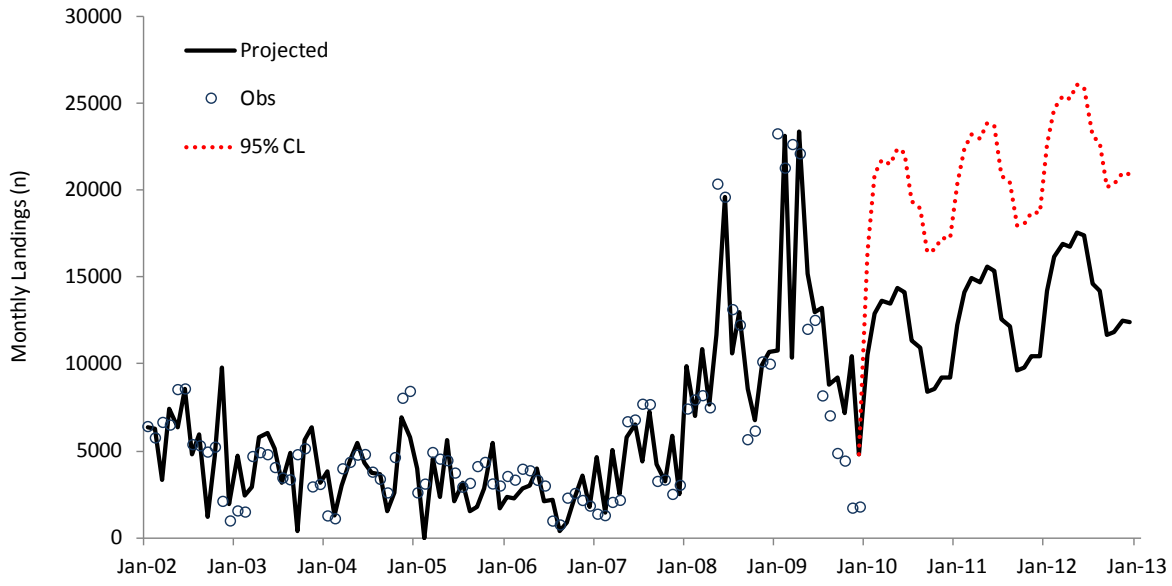

Figure 5. SARIMA model fit to recreational landings-per-month (in numbers). Red dashed line represents 95% upper confidence limit. Monthly landings are projected for 2010 through 2012.

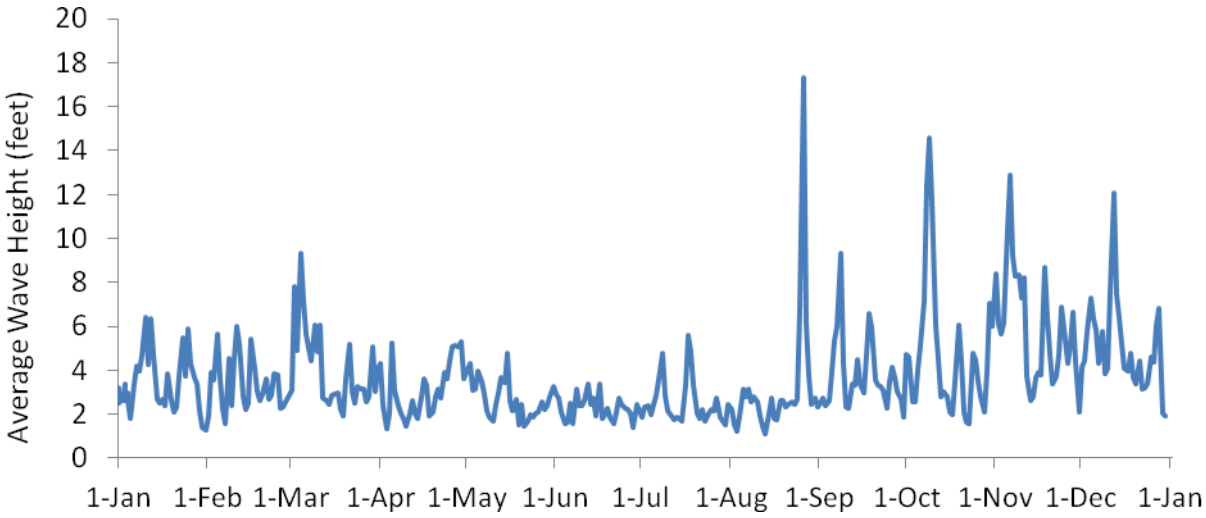

Figure 6. Average daily wave heights (feet) during 2011 at buoy 41012, east of St. Augustine, Florida. Source: www.ndbc.noaa.gov

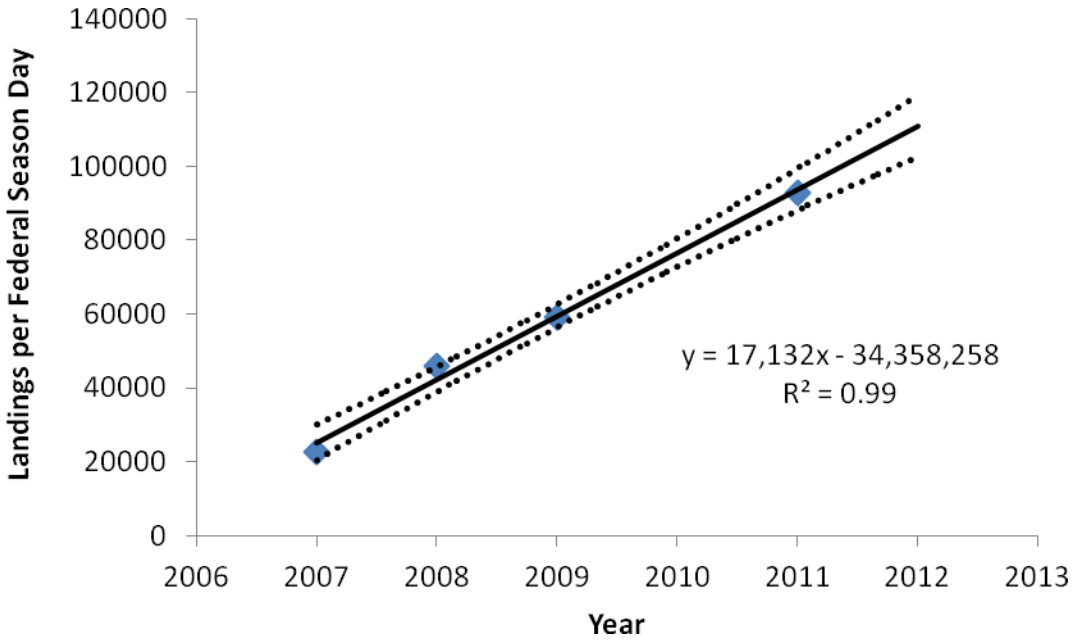

Figure 7. Linear regression (± 80% confidence limits) of Gulf of Mexico red snapper landings per federal season day versus year, 2007-2011 (excluding 2010 due to Deepwater Horizon oil spill).

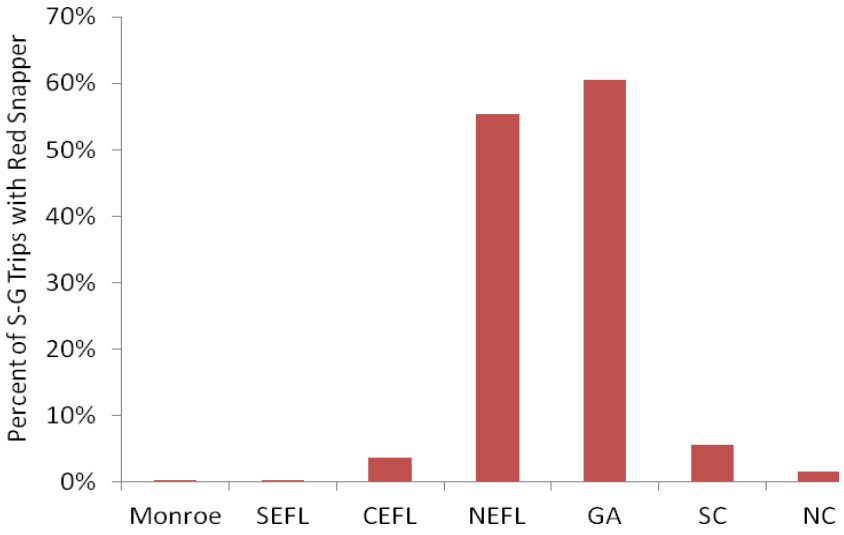

Figure 8. Percentage of snapper-grouper fishing trips in 2009 landing red snapper by state/region. Monroe = Florida Keys, SEFL = West Palm Beach-Miami, CEFL = Cape Canaveral – Fort Pierce, NEFL = Jacksonville – St. Augustine)

ADDENDUM

At the June 2012 South Atlantic Fishery Management Council (Council) meeting, the Council reviewed estimated 2012 red snapper mortalities summarized in Table 1 of this report. The Council selected an annual catch limit (ACL) for red snapper of 13,067 fish. This ACL was based on the difference in projected 2012 mortalities from Table 9c of SEFSC (2010) relative to the average of 2010-11 estimated mortalities and 2012 projected mortalities. Since the June Council meeting, the Southeast Regional Office and Southeast Fisheries Science Center have reviewed additional discard and effort data for 2012 to further evaluate whether or not discard mortalities in 2012 will be less than projected mortalities to determine if reopening the red snapper segment of the snapper-grouper fishery is justified.

Red snapper discard estimates from the Marine Recreational Information Program (MRIP) and Marine Recreational Fisheries Statistics Survey (MRFSS) were obtained for waves 1-2 (January-April) in 2010-2012 (Table A1). Discards estimated through the shore mode were excluded consistent with SEDAR-24 (2010). Dead discards were calculated by multiplying discards by mode-specific mortality rates from SEDAR-24 (i.e., 0.39 for private/rental and 0.41 for charter). No data were available to evaluate commercial or headboat red snapper mortalities for 2012.

Table A1. Discard and dead discard estimates from MRIP and MRFSS waves 1-2, 2010-2012.

	MRFSS (waves 1-2)		MRIP (waves 1-2)	
Year	Discards (n)	Dead Discards (n)	Discards (n)	Dead Discards (n)
2010	21,312	8,315	24,536	9,577
2011	3,186	1,259	5,842	2,294
2012	6,154	2,407	5,707	2,270

MRFSS discard estimates were higher than 2011 estimates but well below discard estimates for 2010. MRIP discard and dead discard estimates were comparable to 2011 estimates and much lower than 2010 estimates. There does not appear to be a significant change in discards for the first four months of 2012. Given that discard estimates are low and in-line with last year using MRIP and slightly higher, but still low under MRFSS, there is no evidence at this time to indicate mortalities will be higher than the amount assumed by the Council when setting the ACL. Even though MRFSS discard estimates are up for 2012 relative to 2011, they are still much lower than 2010. Total mortalities in 2010 and 2011 (see SEFSC 2012; 71,394 fish in 2010 and 61,405 fish in 2011) were both below the assumed level of total mortalities for 2012 (i.e., 72,933) selected by the Council for setting the ACL.

NOAA Fisheries Service also reviewed MRIP effort data to evaluate effort relative to prior years. MRIP estimates angler trips by state, area, wave, and mode. Angler trips for the South Atlantic Exclusive Economic Zone (EEZ) were extracted for waves 1-2, 1983-2012, and for waves 1-6, 1983-2011 (Figure A1). Effort in the South Atlantic EEZ generally declined from 2003-2011. Total and wave 1-2 EEZ angler trips in 2011 were the lowest on record. In 2012, wave 1-2 EEZ angler trips were the third lowest since 1983. Angler trips in waves 1-2 increased in 2012 relative to both 2010 and 2011 angler trips. Angler trips during the first two waves in 2012 were 47.7% higher than 2011 and 18.9% higher than 2010. Charter angler trips for waves 1-2 in 2012 were lower than 2010 and 2011 levels (23,255 trips vs. 30,060

in 2010 and 17,498 in 2011), while private angler trips were higher than 2010 and 2011 levels (316,384 trips vs. 257,387 in 2010 and 195,961 in 2011).

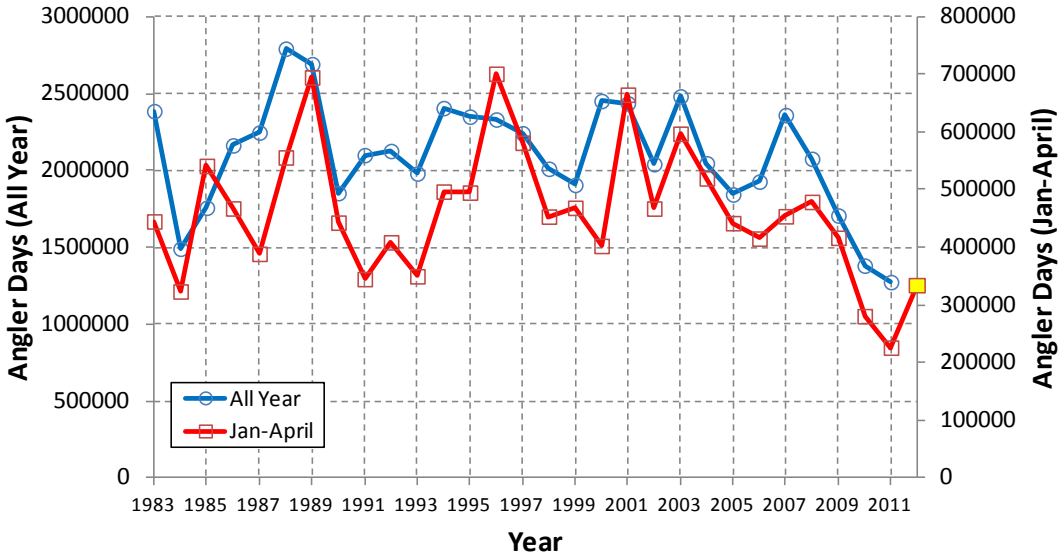

Figure A1. MRIP angler trips in South Atlantic federal waters.

In conclusion, discard estimates for waves 1-2, 2012, are comparable to previous estimates in 2010 and 2011. There appears to be no evidence based on data through April that discards are increasing in 2012. Despite increases in private fishing effort during waves 1-2, 2012, discards have remained low and comparable to previous years. Several reasons may explain the low number of discards including, but not limited to: 1) fishermen avoiding red snapper and other snapper-grouper due to regulatory restrictions, 2) discards being underreported or underestimated by MRFSS and MRIP, 3) effort being overestimated by MRIP, or 4) increases in exploitable abundance being lower than previously projected.

Appendix D.

1 Bycatch Practicability Analysis (BPA)

1.1 Population Effects for the Bycatch Species

Background

In 2008, a stock assessment for red snapper indicated the red snapper stock was overfished and undergoing overfishing (Southeast Data, Assessment, and Review (SEDAR) 15; 2008a). Consequently, an interim rule was published on December 4, 2009 (NOAA's National Marine Fisheries Service (NMFS) 2010), which prohibited harvest and possession of red snapper beginning on January 4, 2010. That rule was extended for 186 days. Amendment 17A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) (Amendment 17A; SAFMC 2010a), effective December 3, 2010, continued the harvest and possession prohibition of red snapper to end overfishing and also implemented a rebuilding plan. **Appendix R** of Amendment 17A contains the BPA conducted for that amendment, and is incorporated herein by reference. At their June 2012 meeting, the South Atlantic Fishery Management Council (South Atlantic Council) reviewed red snapper discard mortality estimates and compared them to the 2012 acceptable biological catch (ABC) from the rebuilding projection. The estimated mortalities for 2012 are less than the ABC for 2012 suggesting some minimal level of harvest of red snapper can occur without negatively affecting the stock (**Appendix B**). As a result, the South Atlantic Council recommended reopening red snapper to a small amount of harvest in 2012.

Harvest of red snapper in federal waters has been prohibited since January 4, 2010. There has been some very small harvest of red snapper in Florida state waters since they did not adopt compatible regulations. However, most of the mortality, in the form of dead discards, has occurred as incidental catch of red snapper from fishermen targeting co-occurring species. Amendment 17A indicates the top co-occurring species with red snapper are vermilion snapper, gag, scamp, greater amberjack, gray triggerfish, black sea bass, and red grouper. The Southeast Fisheries Science Center (SEFSC) has provided a report on the level of harvest and dead discards of red snapper in 2010 and 2011, which is contained in **Appendix B**.

The directed commercial fishery top co-occurring species with red snapper (vermilion snapper, gag, scamp, greater amberjack, gray triggerfish, black sea bass, and red grouper) is executed primarily with hook and line gear (Table 1). Table 1 from **Appendix R** of the Amendment 17A BPA indicates red snapper were also taken primarily with hook and line gear (93%) during 2005-2008 before the harvest prohibition. Black sea bass are predominantly taken with pots.

Table 1. Mean percentage of commercial landings by gear (2010-2011).

Species	Diving	Hook&Line	Longline	Pot	Other
Gag	25.49%	74.47%	0.02%	0.04%	0.00%
Black sea bass	0.08%	12.58%	0.03%	87.21%	0.11%
Vermilion snapper	0.00%	99.97%	0.00%	0.04%	0.00%
Red grouper	2.86%	97.08%	0.01%	0.07%	0.00%
Scamp	11.97%	88.03%	0.01%	0.00%	0.00%
Greater amberjack	6.44%	93.34%	0.21%	0.00%	0.02%
Gray triggerfish	1.70%	93.79%	2.52%	1.56%	0.44%

Source: NOAA's National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) commercial logbook (April 2012).

During 2010 and 2011, black sea bass were most abundantly captured by the recreational sector, and gray triggerfish landings were evenly divided between the commercial and recreational sectors (Table 2). The commercial sector dominated landings of other species, which commonly occur with red snapper. **Appendix R** from Amendment 17A indicates the recreational sector took approximately 83% of the red snapper landings during 2005-2008.

Table 2. Mean commercial and recreational landings (pounds whole weight) during 2010-2011. Commercial landings include all of Monroe County, Florida; MRFSS landings do not include Monroe County, Florida; Headboat landings include Monroe County, Florida for Atlantic-based vessels.

Species	Headboat	MRFSS	Recreational	Commercial	Percent Recreational	Percent Commercial
Gag	31,241	168,256	199,497	425,328	32%	68%
Black sea bass	260,900	503,973	764,873	400,080	66%	34%
Vermilion snapper	160,467	92,584	253,050	929,001	21%	79%
Red grouper	9,836	97,420	107,256	254,231	30%	70%
Scamp	21,300	34,960	56,261	183,007	24%	76%
Greater amberjack	55,429	609,787	665,216	947,443	41%	59%
Gray triggerfish	139,080	336,044	475,124	423,208	53%	47%

Source: SEFSC commercial annual catch limit (ACL) data (July 2012);
Recreational ACL data (July 2012).

Commercial Sector

During 2010 and 2011, approximately 20% of snapper grouper permitted vessels from the Gulf of Mexico and South Atlantic were randomly selected to fill out supplementary logbooks. The

average number of trips per year during 2010 and 2011 was 21,318; and fishermen spent an average of 1.66 days at sea per trip (Table 3).

Table 3. Snapper grouper fishery effort for South Atlantic.

Year	Trips	Days	Days per Trip
2010	13,387	22,347	1.67
2011	12,253	20,289	1.66
Mean	12,820	21,318	1.66

Source: NMFS SEFSC logbook program.

Among red snapper and co-occurring species during 2010-2011, the average percentage of trips that reported discards was greatest for vermilion snapper and red snapper (25% and 24%,respectively), followed by black sea bass (20%), scamp (13%), and gag (12%) (Table 4). Species with the greatest number of individuals discarded during 2010-2011 were vermilion snapper (44,155), red snapper (41,106), and black sea bass (32,548) (Table 4).

Since the discard logbook database represents a sample, data were expanded to estimate the number of discarded fish (Table 4). The formula used for expansion was: "discard per unit effort from discard logbook database * total effort from commercial logbook." Release mortality estimates for the commercial sector compiled from the most recent stock assessments (as available) using SEFSC's SEDAR process are: 48% red snapper (SEDAR 24; 2010b); 40% gag (SEDAR 10; 2006b); 1% black sea bass (SEDAR 25; 2011); 38% vermilion snapper (SEDAR 17; 2008b); 20% red grouper and 20% black grouper (SEDAR 19; 2010a); 20% greater amberjack (SEDAR 15; 2008a); and 0% gray triggerfish (Gulf of Mexico SEDAR 9; 2006a) (Table 4). Dead discards were estimated by applying the release mortality rates to the total discards. Discard mortality was highest for red snapper (19,731), followed by vermilion snapper (16,779) (Table 4). See the "Finfish Bycatch Mortality" and "Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality" sections of this BPA for more details.

Table 4. Percentage of trips that discarded species; and expanded commercial discards of red snapper and co-occurring species from 2010-2011.

Species	Percentage of trips that discarded species	Total discards	Release Mortality	Dead discards
Red snapper	24.17%	41,106	48%	19,731*
Gag	12.35%	7,913	40%	3,165
Black sea bass	20.43%	32,548	1%	325
Vermilion snapper	24.99%	44,155	38%	16,779
Red grouper	7.47%	2,447	20%	489
Scamp	13.10%	1,416	Unknown	Unknown
Greater Amberjack	6.11%	3,164	20%	633
Gray triggerfish	7.66%	1,845	0%	0

Note: Computed using mean discard rates (2010-2011) from commercial discard logbook applied to overall commercial effort reported to commercial logbook. ***Appendix B** (SEFSC Report, May 2012).

Recreational Sector

For the recreational fishery, estimates of the number of recreational discards are available from Marine Recreational Fisheries Statistical Survey (MRFSS) and the NMFS headboat survey. The MRFSS system classifies recreational catch into three categories:

- Type A - Fishes that were caught, landed whole, and available for identification and enumeration by the interviewers.
- Type B - Fishes that were caught but were either not kept or not available for identification:
    - Type B1 - Fishes that were caught and filleted, released dead, given away, or disposed of in some way other than Types A or B2.
    - Type B2 - Fishes that were caught and released alive.

Recreational harvest for red snapper co-occurring species, was greatest for black sea bass, followed by vermilion snapper, gray triggerfish, and gag (Table 5). There were differences in the amount and variety of species harvested by the private recreational sector and the "for-hire" sectors (charterboats/headboats). During 2010 and 2011, 90% black sea bass, 89% black grouper, and 84% gag were discarded by the private recreational sector (Table 5). During the same period, 87% red grouper and 67% black sea bass were released by fishermen on charterboats, versus 88% red grouper, 83% black grouper, and 68% black sea bass by fishermen on headboats (Table 5).

Release mortality estimates for the recreational sector compiled from the most recent stock assessments using data from SEDAR stock assessments (as available) are: 25% gag (SEDAR 10; 2006b); 7% black sea bass (SEDAR 25; 2011); 38% vermilion snapper (SEDAR 17; 2008b); 20% red grouper and 20% black grouper (SEDAR 19; 2010a); 20% greater amberjack (SEDAR 15; 2008a); and 0% gray triggerfish (Gulf of Mexico SEDAR 9; 2006a) (Table 5). Dead discards were estimated by applying the release mortality rates to the total discards. In 2010 and 2011, discard mortality was highest for black sea bass (207,156), vermilion snapper (19,425), and gag (19,136) for the private recreational sector (Table 5). For the "for-hire" sector (charterboats/headboats), discard mortality was highest for black sea bass (13,051/35,426), followed by vermilion snapper (6,464/35,228), and red grouper (1,381/2,099) (Table 5). Discard mortality was zero for gray triggerfish in 2010 and 2011, for both the private recreational, and "for-hire" sectors (Table 5).

The SEFSC's May 2012 report (**Appendix B**) shows red snapper discard mortalities in the private recreational sector decreasing from 31,561 fish in 2010, to 16,156 fish in 2011. Conversely, the same report reveals red snapper discard mortalities in the "for-hire" sector (charterboats/headboats) increasing from 20,569 fish in 2010, to 22,131 fish in 2011. Release mortality rates for these two sectors are similar, 41% for the "for-hire" sector, and 39% for the private recreational sector (SEDAR 24; 2010b).

Table 5. Mean number (expanded) of MRFSS private, and charterboat and headboat recreational harvests (A+B1) and discards (B2) for the South Atlantic from 2010-2011.

	Private						Charterboat						Headboat					
Species	Total	A+B1	B2	Percent B2	Release Mortality	Dead Discards	Total	A+B1	B2	Percent B2	Release Mortality	Dead Discards	Total	A+B1	B2	% B2	Release Mortality	Dead Discards
Gag	90,715	14,170	76,545	84%	25%	19,136	3,064	1,795	1,269	41%	25%	317	7,295	2,957	4,339	59%	25%	1,085
Black sea bass	3,292,457	333,083	2,959,374	90%	7%	207,156	279,515	93,069	186,446	67%	7%	13,051	744,708	238,625	506,084	68%	7%	35,426
Vermilion snapper	98,756	47,637	51,119	52%	38%	19,425	45,621	28,610	17,012	37%	38%	6,464	228,610	135,904	92,707	41%	38%	35,228
Red grouper	62,765	6,963	55,802	89%	20%	11,160	7,900	996	6,904	87%	20%	1,381	11,914	1,421	10,493	88%	20%	2,099
Black grouper	5,765	2,209	3,556	62%	20%	711	451	253	198	44%	20%	40	1,841	315	1,527	83%	20%	305
Scamp	5,912	2,533	3,379	57%	25%	845	2,774	1,922	852	31%	25%	213	4,963	2,642	2,321	47%	25%	580
Greater amberjack	38,215	18,152	20,063	53%	20%	4,013	14,100	11,366	2,734	19%	20%	547	4,403	2,821	1,582	36%	20%	316
Gray triggerfish	180,375	99,995	80,380	45%	0%	0	44,982	39,513	5,469	12%	0%	0	76,475	61,082	15,393	20%	0%	0

Source: SEFSC Recreational ACL Dataset (July2012), Headboat CRNF files (expanded; July 2012).
Note: The use of MRFSS data has been recommended until ACLs are recomputed using recalibrated MRFSS>MRIP data.

Finfish Bycatch Mortality

SEDAR 24 (2010b) estimated acute release mortality rates of red snapper to be 48% for the commercial sector, 41% for recreational for-hire sector (charterboats and headboats), and 39% for the private recreational sector, in the South Atlantic. This new stock assessment revised the release mortality estimate of 90% for the commercial sector as reported in SEDAR 15 (2008a). There was no significant difference between the two stock assessments regarding the release mortality of red snapper in the recreational sector, which was 40%, as per the findings in SEDAR 15 (2008a). Diamond and Campbell (2009) reported a delayed mortality rate of 64% off Texas. A study by Burns *et al.* (2004) conducted on headboats off Florida in the Atlantic and Gulf of Mexico found a release mortality of 64% for red snapper. The majority of acute mortalities in this study (capture depth of 9–42 m) were attributed to hooking (49%), whereas barotrauma accounted for 13.5%. An earlier study by Burns *et al.* (2002), also conducted in the Atlantic and Gulf of Mexico, had similar results, as J-hook mortality accounted for 56% of the acute mortalities of red snapper on headboats. Using tagging data and cage studies, Burns *et al.* (2002) determined the depth at which 50% of the released red snapper would die is 43.7 m (143 feet). SEDAR 15 (2008a) indicated red snapper were most often caught at depths of 141 to 190 feet by the recreational sector and 141 to 234 feet by the commercial sector. Rummer and Bennett (2005) reported over 70 different overexpansion injuries related to barotrauma in red snapper, and Wilde (2009) observed reduced survival of this species when vented.

SEDAR 17 (2008b) recommended a release mortality rate for vermilion snapper of 38% for both the commercial and recreational sectors. This was based on a mortality study conducted by Ruderhshausen *et al*. (2007) who estimated release mortality rates of 15% for undersized vermilion snapper. Immediate mortality of vermilion snapper was estimated to be 10% at depths of 25-50 m and delayed mortality was estimated to be 45% at the same depths. Rudershausen *et al.* (2007) indicated minimum size limits are moderately effective in shallower water for vermilion snapper. Previously, SEDAR 2 (2003) estimated a release mortality rate of 40% and 25% for vermilion snapper taken by commercial and recreational fishermen, respectively. Release mortality rates from SEDAR 2 (2003) were based on cage studies conducted by Collins (1996) and Collins *et al*. (1999). Burns *et al*. (2002) suggested that release mortality rates of vermilion snapper could be higher than those estimated from cage studies because cages protect the fish from predators. A higher release mortality rate is supported by low recapture rates of vermilion snapper in tagging studies. Burns *et al*. (2002) estimated a 0.7% recapture rate for 825 tagged vermilion snapper; whereas, recapture rates for red grouper, gag, and red snapper ranged from 3.8% to 6.0% (Burns *et al*. 2002). McGovern and Meister (1999) estimated a 1.6% recapture rate for 3,827 tagged vermilion snapper. Alternatively, recapture rates could be low if population size was very high or tagged fish were unavailable to fishing gear. Harris and Stephen (2005) indicated approximately 50% of released vermilion snapper caught by one commercial fisherman were unable to return to the bottom. Higher recapture rates were estimated for black sea bass (10.2%), gray triggerfish (4.9%), gag (11%), and greater amberjack (15.1%) (McGovern and Meister 1999; McGovern *et al*. 2005). Burns *et al*. (2002) suggested released vermilion snapper did not survive as well as other species due to predation. Vermilion snapper, which do not have air removed from swim bladders, are subjected to predation at the surface of the water. Individuals with a ruptured swim bladder or those that have air removed from the swim bladder are subject to bottom predators, since fish would not be able to join

schools of other vermilion snapper hovering above the bottom (Burns *et al*. 2002). However, Wilde (2009) reports that venting appears to be increasingly harmful for fish captured from deepwater.

SEDAR 10 (2006b) estimated release mortality rates of 40% and 25% for gag taken by commercial and recreational fishermen, respectively. A tagging study conducted by McGovern *et al.* (2005) indicated recapture rates of gag decreased with increasing depth. The decline in recapture rate was attributed to depth related mortality. Assuming there was no depth related mortality at 0 m, McGovern *et al.* (2005) estimated depth related mortality ranged from 14% at 11 – 20 m (36 – 65 feet) to 85% at 71 – 80 m (233 – 262 feet). Similar trends in depth related mortality were provided by a gag tagging study conducted by Burns *et al.* (2002). Overton *et al.* (2008) reported a post-release mortality for gag as 13.3%. Release mortality rates are not known for other shallow water grouper species, but could be similar to gag since they have a similar depth distribution. Rudershausen *et al.* (2007) estimated release mortality rates of 33% for undersized gag taken with J- hooks in depths of 25-50 m off North Carolina. For other gag caught at depths of 25-50 m, no immediate mortality was observed but delayed mortality was estimated to be 49%. McGovern *et al.* (2005) estimated a release mortality rate of 50% at 50 m, which is similar to the findings of Rudershausen *et al.* (2007). Rudershausen *et al.* (2007) concluded minimum size limits are effective for gag in the shallower portions of their depth range.

Release mortality rates were estimated as 20% for black grouper and red grouper taken by recreational fishermen in SEDAR 19 (2010a) during the data workshop. Wilson and Burns (1996) reported potential mortality rates for released red grouper to be low (0 - 14%) as long as the fish were caught from waters shallower than 44 m. SEDAR 15 (2008a) estimated a 20% release mortality rate for greater amberjack. In the Gulf of Mexico, SEDAR 9 (2006a) assume a 0% release mortality rate for gray triggerfish.

Release mortality of black sea bass is considered to be low (7% for the recreational sector and 1% for the commercial sector) (SEDAR 25; 2011) indicating minimum size limits are probably an effective management tool for black sea bass. McGovern and Meister (1999) report a recapture rate of 10.2% for 10,462 that were tagged during 1993-1998 suggesting that survival of released black sea bass is high. Rudershausen *et al.* (2007) reported a sub-legal discard rate of 12% for black sea bass. Collins *et al.* (1999) reported venting of the swim bladder yielded reductions in release mortality of black sea bass, and the benefits of venting increased with capture depth. The same study was analyzed by Wilde (2009) to suggest that venting increased the survival of black sea bass, although this was an exception to the general findings of Wilde's (2009) study.

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

Vermilion snapper, gag, black sea bass, red grouper, black grouper, and red snapper
The snapper grouper fishery represents many species occupying the same location at the same time such as vermilion snapper, scamp, and gag. Fishermen could harvest one of these species when targeting red snapper and may return them to the water as "regulatory discards" (e.g., if the fish is under the size limit) or if undesirable. A portion of the population would not survive. Species with the greatest number of individuals discarded by the commercial sector during 2010-2011 were vermilion snapper (44,155), red snapper (41,106), and black sea bass (32,548) (Table 4). During 2010-2011, 90% black sea bass, 89% black grouper, and 84% gag were discarded by the private recreational sector (Table 5). During the same period, 87% red grouper and 67% black sea bass were released by fishermen on charterboats, versus 88% red grouper, 83% black grouper, and 68% black sea bass by fishermen on headboats (Table 5).

Although fishery management actions can adversely impact non-target species, the proposed action is not anticipated to significantly increase bycatch of snapper-grouper species. As the increase in the red snapper ACL as proposed by the EA is relatively small (13,067 fish) and the seasons would be relatively short, none of the proposed actions are expected to substantially increase overall fishing effort or the spatial and/or temporal distribution of current fishing effort.

Alternative 1 (no action) would retain the red snapper 20-inch total length (TL) minimum size limit; however, the size limit is currently not in effect due to prohibition on the harvest and possession of red snapper. Under **Alternative 1 (no action),** if the season were to reopen, the minimum size limit would be effective. **Alternative 5 (preferred)** would temporarily suspend the size limit. Both alternatives could have adverse effects to the stock by promoting the discarding of fish to the water of which a portion would not survive. Release mortality rates for red snapper range from 39 to 48 percent depending on the fishing sector (SEDAR 24; 2010b). With a minimum size limit (**Alternative 1/no action)**, fishermen may produce "regulatory discards"; these are fish that are returned to the water because they are below the minimum size limit. These fish may be smaller and younger than a 20-inch TL fish and may have been caught in relatively shallow water. Often, discard mortality rates decrease along with depth that the fish was caught.

Fishery managers could produce adverse effects (additional mortality) from both **Alternative 1 (no action)** and **Alternative 5 (preferred)** through "high-grading" behavior. High-grading is a practice of selectively landing fish so that only the best quality (usually largest) fish are brought ashore. For example, recreational fishermen may discard smaller size fish in order to retain a larger, more desirable red snapper. High-grading can result in many dead discards. Fishermen would most likely high-grade less with no size limit (**Preferred Alternative 5**) as fishermen may cease targeting red snapper after harvesting the bag limit. Therefore, suspension of the 20-inch TL minimum size limit (**Alternative 5 Preferred**) could have a greater biological effect than retaining the minimum size limit (**Alternative 1/no action**) if it resulted in fewer fish being discarded.

Preferred Alternative 7 would establish a one per person per day bag limit. Currently, the harvest and possession of red snapper is prohibited and there is no recreational bag limit. There are a number of shortcomings with bag limits similar to the ones previously mentioned concerning size limits. Once the one per person per day bag limit (**Preferred Alternative 7**) is reached, fishermen may retain larger red snapper and throw smaller, dead red snapper back. In addition, the snapper grouper fishery represents many species occupying the same location at the same time such as vermilion snapper, scamp, and gag. Fishermen could continue to target these other co-occurring species and throw back fish that have bag limits such as red snapper, many of which will die. It would be expected that fishermen would still tend to target the largest, most desirable species. However, the bag limit may reduce discards of red snapper and co-occurring species by discouraging the targeting of red snapper after the bag limited is reached.

Overall, the suspension of the minimum size limit **(Preferred Alternative 5)** and establishment of a one fish bag limit **(Preferred Alternative 7**) could reduce the magnitude of dead discards even if high-grading occurs and have an overall positive biological effect on the stock despite the potential for increased discards.

Seasonal closures of both commercial and recreational fisheries implemented by Amendment 16 to the Snapper Grouper FMP (Amendment 16; SAFMC 2009) could also reduce bycatch mortality of red snapper. Expected harvest reductions for red snapper from Amendment 16 in total kill was estimated to be 16.5% (commercial sector), 1.1 to 7.7% (headboat sector), and 2.3% (private/charter sector). A longer spawning seasonal closure could enhance the reproductive potential of grouper stocks. For example Amendment 16 established a January-April spawning season closure for gag, red grouper, black grouper, and shallow water grouper species. Gag are in spawning condition from December through April each year. There is some evidence spawning aggregations may be in place before and after a spawning season (Gilmore and Jones 1992). When aggregated, gag are extremely susceptible to fishing pressure since the locations are often well known by fishermen. Gilmore and Jones (1992) showed that the largest and oldest gag in aggregations are the most aggressive and first to be removed by fishing gear. Since gag change sex, larger and older males can be selectively removed. As a result, a situation could occur where there are not enough males in an aggregation to spawn with the remaining females. Furthermore, the largest most fecund females could also be selectively removed by fishing gear. Therefore, a spawning season closure for all shallow water grouper species would be expected to protect grouper species when they are most vulnerable to capture, reduce bycatch of co-occurring grouper species, increase the percentage of males in grouper populations, enhance reproductive success, and increase the magnitude of recruitment. Other actions in Amendment 16, which could reduce bycatch of snapper grouper species, include a reduction in the recreational bag limit to 1 gag or black grouper (combined) per day within a grouper aggregate bag limit of 3 fish and the establishment of a commercial quota for gag. When the commercial quota is met, all fishing for or possession of shallow water grouper species will be prohibited.

Unobserved mortality due to predation or trauma associated with capture could be substantial (Burns *et al.* 2002; Rummer and Bennett 2005; St. John and Syers 2005; Parker *et al*. 2006; Rudershausen *et al.* 2007; Hannah *et al.* 2008; Diamond and Campbell 2009). Amendment 16 also included actions that required the use of dehooking devices, which could help reduce

bycatch of vermilion snapper, black sea bass, gag, red grouper, black grouper, and red snapper. Dehooking devices can allow fishermen to remove hooks with greater ease and more quickly from snapper grouper species without removing the fish from the water. If a fish does need to be removed from the water, dehookers could still reduce handling time in removing hooks, thus increasing survival (Cooke *et al.* 2001).

In addition to prohibiting the harvest of red snapper, Amendment 17A implemented regulations requiring the use of non-stainless circle hooks north of 28 degrees N. latitude, effective March 2, 2011**.** Circle hooks are generally thought to reduce discard mortality rate for red snapper (SEDAR 7 2005b; Rummer 2007); however, Burns *et al*. (2004) did not observe decreased discard mortality rate when comparing recapture rates of red snapper caught on circle and J-hooks. Rummer (2007), and Diamond and Campbell (2009) found that a greater differential between the surface and bottom temperature caused a higher discard mortality rate for red snapper. Amendment 17B to the Snapper Grouper FMP (Amendment 17B; SAFMC 2010b) established ACLs and accountability measures (AMs) and addressed overfishing for eight species in the snapper grouper management complex currently listed as undergoing overfishing: golden tilefish, snowy grouper, speckled hind, warsaw grouper, black sea bass, gag, red grouper, and vermilion snapper, in addition to black grouper.

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

Amendment 18A to the Snapper Grouper FMP (Amendment 18A; SAFMC 2011b) contains measures to limit participation and effort for black sea bass, and does not directly affect red snapper. Amendment 18A established an endorsement program than enables snapper grouper fishermen with a certain catch history to harvest black sea bass with pots. In addition, Amendment 18A includes measures to reduce bycatch in the black sea bass pot fishery, modify the rebuilding strategy, and other necessary changes to management of black sea bass as a result of a 2011 stock assessment (SEDAR-25). Amendment 24 to the Snapper Grouper FMP (Amendment 24; SAFMC 2011c) established a rebuilding plan for red grouper, which is overfished and undergoing overfishing. Amendment 24 also established ACLs and AMs for red grouper, which could help to reduce bycatch of red grouper and co-occurring species such as red snapper.

1.2 Ecological Effects Due to Changes in the Bycatch

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing efforts. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level.

Overall fishing effort could increase in the commercial and recreational sectors in response to the limited reopening(s) of red snapper, and therefore, increase the potential for bycatch. However, as stated in **Chapter 2** and analyzed in detail in **Chapter 4**, the reopening(s) will be of short duration (see **Chapter 6** for details), and therefore, the ecological effects due to changes in the bycatch would likely be small (see **Appendix C** (SERO 2012b)) for detailed analysis.

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

The action in this temporary measure for red snapper through emergency action would allow a limited harvest of red snapper in 2012, after two years of harvest prohibition for the species. Thus, ecological changes could occur in the community structure of reef ecosystems through the proposed action, due to increased fishing pressure on co-occurring species that could be caught as bycatch. These ecological changes could affect the nature and magnitude of bycatch over time. However, as stated in **Chapters 2** and **4**, the allowed harvest of red snapper in 2012 is relatively limited in scope, and changes in the bycatch of other fish species and resulting population and ecosystem effects could be minimal in nature. Quota monitoring by the SEFSC would allow commercial landings to be monitored during and after the 7-day opening(s). Once landings have been reported for the first seven-day commercial opening, the SEFSC would evaluate if the ACL has been met. If the ACL is not met, the season could be reopened for an additional time period. Trip limits could reduce the risk of exceeding the ACL during the 7-day season opening (see **Chapter 4**, **Appendix C** (SERO 2012b), for more details). **Chapter 6** includes details on openings and closures, as well as data collection procedures.

1.4 Effects on Marine Mammals and Birds

Under Section 118 of the Marine Mammal Protection Act (MMPA), NMFS must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishery. Of the gear utilized within the snapper-grouper fishery, only the black sea bass pot is considered to pose an entanglement risk to marine mammals. The southeast U.S. Atlantic black sea bass pot fishery is included in the grouping of the Atlantic mixed species trap/pot fisheries, which the 2012 LOF classifies as a Category II (76 FR 73912; November 26, 2011). Gear types used in these fisheries are determined to have occasional incidental mortality and serious injury of marine mammals. For the South Atlantic snapper grouper fishery, the best available data on protected species interactions are from the SEFSC Supplementary Discard Data Program (SDDP) initiated in July of 200. The SDDP sub-samples 20% of the vessels with an active permit. Since August 2001, only three interactions with marine mammals have been

documented; each was taken by handline gear and each released alive (McCarthy SEFSC database). The longline and hook-and-line gear components of the snapper-grouper in the South Atlantic are classified in the 2012 LOF (76 FR 73912; November 26, 2011) as Category III fisheries.

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

North Atlantic right and humpback whales may overlap both spatially and temporally with the black sea bass pot fishery. Revisions to the Atlantic Large Whale Take Reduction Plan folded the Atlantic mixed species trap/pot fisheries into the plan (72 FR 57104; October 5, 2007). The new requirements will help further reduce the likelihood of North Atlantic right and humpback whale entanglement in black sea bass pot gear.

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

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

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

Red snapper has been closed since January 2010 for both the commercial and recreational sectors. The action in this temporary measure for red snapper through emergency action would allow a limited harvest of red snapper in 2012. Since red snapper is a desirable species, it is highly likely that all opportunities to harvest this species will be entertained. Therefore, there could be changes to costs associated with the fishing, processing, disposal, and marketing of red snapper. It is likely that all four states (North Carolina, South Carolina, Georgia, and Florida) would be affected by the regulations associated with this action, since fishermen from all the states would be interested in participating in any reopening of the harvest of red snapper.

Additionally, factors such as waterfront property values, availability of less expensive imports, etc. may affect economic decisions made by recreational and commercial fishermen.

The South Atlantic Council has discussed options to enhance current data collection programs in future amendments. This might provide more insight in calculating the changes in fishing, processing, disposal and marketing costs. The states and the SEFSC will work together to collect as much biological information as possible during the limited commercial and recreational openings for red snapper. The emergency action for gathering life history information that may help in assessing the status of the stock in 2014.

1.6 Changes in Fishing Practices and Behavior of Fishermen

Allowing harvest of red snapper could result in a modification of fishing practices by commercial and recreational fishermen, thereby affecting the magnitude of discards. However, as the increase in the red snapper ACL as proposed by the EA is relatively small (13,067 fish) and the seasons would be relatively short, none of the proposed actions are expected to substantially increase overall fishing effort or the spatial and/or temporal distribution of current fishing effort. Red snapper has been closed since January 2010 for both the commercial and recreational sectors. Since red snapper is a desirable species, it is highly likely that all opportunities to harvest this species will be entertained. Predicting changes in angler behavior in response to a reopening is difficult. Many factors can influence fishing activity (see **Chapter 3** for more details) including: fuel costs and trip expenses; weather; changes in regulations; changes in fishing behavior; and conflicting activities (e.g., family activities, sporting events on weekends).

It is difficult to predict how South Atlantic fishermen will respond to a 'derby-style' opening of red snapper. Despite reductions in the fishing season length for Gulf of Mexico red snapper, the average catch-per-day has increased at a linear rate, due in large part to increases in stock abundance, increases in the average size of fish caught, and effort compensation (SERO 2012a). Quota monitoring by the SEFSC would allow commercial landings to be monitored during and after the 7-day opening(s). Once landings have been reported for the first seven-day commercial opening, the SEFSC would evaluate if the ACL has been met. If the ACL is not met, the season could be reopened for an additional time period. Given the potential for large shifts in fishing effort, lower trip limits could reduce the risk of exceeding the ACL during the 7-day season opening (see **Appendix C** (SERO 2012b), for more details).

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

Research and monitoring is needed to understand the effectiveness of proposed management measure and their effect on bycatch. Efforts are underway by the states and the SEFSC to enhance data collection activities during the limited opening for red snapper. In addition, approximately 20% of commercial fishermen are asked to fill out discard information in logbooks; however, a greater percentage of fishermen could be selected with emphasis on

individuals that dominate landings. Recreational discards are obtained from the Marine Recreational Information Program (MRIP) and logbooks from the NMFS headboat program. Additional administrative and enforcement efforts will be needed to implement and enforce these regulations.

Additional data collection activities for the recreational sector are being considered in the Comprehensive Ecosystem-Based Amendment 3 that could allow for a better monitoring of snapper grouper bycatch in the future. The use of electronic logbooks could be enhanced to enable fishery managers to obtain information on species composition, size distribution, geographic range, disposition, and depth of fishes that are released. Some observer information has been provided by Marine Fisheries Initiative and Cooperative Research Programs, but more is needed for the snapper grouper fishery.

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

Preferred alternatives, including those that are likely to increase or decrease discards could result in social and/or economic impacts as discussed in **Chapter 4** of the EA.

1.9 Changes in the Distribution of Benefits and Costs

The ACL for the commercial and recreational sectors proposed in the temporary rule was specified based on allocations established in the Comprehensive ACL Amendment. Management measures proposed in this temporary rule such as the suspension of the minimum size limit and reduction in the bag limit have the potential to reduce bycatch of red snapper during a limited opening of the recreational and commercial sectors. See earlier section titled, "Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality", in this BPA for a list of amendments and a summary of actions within them that could help reduce bycatch and discard mortality in the snapper grouper fishery. The extent to which these management measures will increase or decrease the magnitudes of discards is unknown. However, this depends on if fishermen shift effort to other species, seasons, or fisheries and if effort decreases in response to more restrictive management measures as well as changes in community structure and age/size structures that could result from ending overfishing.

1.10 Social Effects

The social effects of all the alternatives, including those most likely to reduce bycatch, are described in **Chapter 4** of the EA.

1.11 Conclusion

This section evaluates the practicability of taking additional action to minimize bycatch and bycatch mortality in the South Atlantic snapper grouper fishery using the ten factors provided at 50 CFR 600.350(d)(3)(i). In summary, management measures proposed in this temporary rule such as the suspension of the minimum size limit and reduction in the bag limit have the potential to reduce bycatch of red snapper during a limited opening of the recreational and commercial sectors. Seasonal closures for snapper grouper species in Amendment 16, as well as the total prohibition for red snapper in Amendment 17A may contribute to decreases in bycatch of red snapper and co-occurring species. The requirement of dehooking devices, a recreational/commercial seasonal closure for gag, reduction of recreational bag limits, and closing all shallow water groupers when a gag quota is met or during a gag seasonal closure specified in Amendment 16 could also help to reduce bycatch. However, this depends on if fishermen shift effort to other species, seasons, or fisheries and if effort decreases in response to more restrictive management measures as well as changes in community structure and age/size structures that could result from ending overfishing. Furthermore, overall fishing effort could decrease in the commercial and recreational sectors in response to more restrictive management measures, thereby reducing the potential for bycatch.

ACLs and AMs established by Amendment 17B and the Comprehensive ACL Amendment could help reduce bycatch by limiting the amount of harvest, and provide for accountability if the ACL is exceeded. Management measures in Amendment 17B limit harvest of co-occurring species (vermilion snapper, gag, scamp, greater amberjack, gray triggerfish, black sea bass, and red grouper), and could help reduce discard mortality of red snapper.

Amendment 18A contains measures to limit participation and effort for black sea bass, which co-occurs with red snapper. In addition, Amendment 18A includes measures to reduce bycatch in the black sea bass pot fishery, modify the rebuilding strategy, and other necessary changes to management of black sea bass as a result of a 2011 stock assessment (SEDAR 25). Amendment 24 specifies ACLs and AMs for red grouper, which could reduce bycatch of red grouper co-occurring species such as red snapper.

The South Atlantic Council is considering actions in future amendments such as a tagging program in Amendment 22 to the Snapper Grouper FMP (Amendment 22) to allow harvest of red snapper as the stock rebuilds. Scoping of Amendment 22 was conducted during January and February 2011. Additionally, a new regulatory amendment is under development to allow for adjustment of allocations and ACLs based on the new landings information from MRIP. Finally, at their June 2012 meeting the South Atlantic Council requested development of a regulatory amendment to adjust management measures for greater amberjack, vermilion snapper, black sea bass, gray triggerfish, and vermilion snapper, which co-occur with red snapper.

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Appendix E. Other Applicable Laws Including Environmental Justice

Other Applicable Laws

1.1 Administrative Procedure Act (APA)

All federal rulemaking is governed under the provisions of the APA (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. This temporary rule will be effective fifteen days after date of publication in the *Federal Register*. The immediate benefits of implementing a limited commercial and recreational fishing season for red snapper in 2012 outweigh the value of advance notice and public comment. A limited red snapper season must be implemented immediately so as not to open the season too late in the fishing year when poor weather can lead to unsafe fishing conditions, which violates National Standard 10 of the Magnuson-Stevens Fishery Management and Conservation Act (Magnuson-Stevens Act). Also, the public already had a chance to comment on this action at the June 2012 South Atlantic Fishery Management Council (South Atlantic Council) meeting during the Public Comment Session and they strongly favored a fall season. The U.S. Coast Guard advised that a red snapper opening in late 2012 could lead to unnecessary accidents from unsafe fishing conditions. The South Atlantic Council considered this information when they made a motion to request a temporary rule for emergency action.

1.2 Information Quality Act (IQA)

The IQA (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-443)) which took effect October 1, 2002, directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidelines to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with OMB guidelines, and report periodically to OMB on the number and nature of complaints. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the IQA. This document has used the best available information and made a broad presentation thereof. The information contained in this document was developed using best available scientific information. Therefore, this document is in compliance with the IQA.

1.3 Coastal Zone Management Act (CZMA)

Section 307(c)(1) of the federal CZMA of 1972 requires that all
federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. While it is the goal of the South Atlantic Council to have management measures that complement those of the states, federal and state administrative procedures vary and regulatory changes are unlikely to be fully instituted at the same time. The South Atlantic Council believes this document is consistent to the maximum extent practicable with the Coastal Zone Management Plans of Florida, Georgia, South Carolina, and North

Carolina. This determination will be submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management Programs in the States of Florida, South Carolina, Georgia, and North Carolina.

1.4 Endangered Species Act (ESA)

The ESA of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies must ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NOAA Fisheries Service to consult with the appropriate administrative agency (itself for most marine species, and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They are concluded informally when proposed actions may affect but are "not likely to adversely affect" threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" threatened or endangered species or adversely modify designated critical habitat. NOAA Fisheries Service completed a biological opinion (NMFS 2006) in 2006 evaluating the impacts of the continued authorization of the South Atlantic snapper grouper fishery under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) and Amendment 13C to the Snapper Grouper FMP on ESA-listed species (see **Section 3.0**). The opinion stated the fishery was not likely to adversely affect northern right whale critical habitat, seabirds, or marine mammals (see NMFS 2006 for discussion on these species). However, the opinion did state that the snapper grouper fishery would adversely affect sea turtles and smalltooth sawfish, but would not jeopardize their continued existence. An incidental take statement was issued for green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles, as well as smalltooth sawfish. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them. See NMFS (2006) for a full discussion of impacts to smalltooth sawfish.

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

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

Regulations implemented through snapper-grouper Amendment 15B (74 FR 31225; June 30, 2009) required all commercial or charter/headboat vessels with a South Atlantic snapper grouper permit, carrying hook-and-line gear on board, to possess required literature and release gear to aid in the safe release of incidentally caught sea turtles and smalltooth sawfish. These regulations are thought to decrease the mortality associated with accidental interactions with sea turtles and smalltooth sawfish. Subsequent to the June 7, 2006, biological opinion, elkhorn and staghorn coral (*Acropora cervicornis* and *Acropora palmata*) were listed as threatened. In a consultation memorandum dated July 9, 2007, NOAA Fisheries concluded the continued authorization of the South Atlantic snapper-grouper fishery is not likely to adversely affect these *Acropora* species. On November 26, 2008, an *Acropora* critical habitat was designated. In a consultation memorandum dated December 2, 2008, NOAA Fisheries concluded the continued authorization of the snapper-grouper fishery is not likely to adversely affect *Acropora* critical habitat.

Additionally, on September 22, 2011, NOAA Fisheries and the U.S. Fish and Wildlife Service determined the loggerhead sea turtle population consists of nine DPSs (76 FR 58868). Previously, loggerhead sea turtles were listed as threatened species throughout their global range. The snapper-grouper fishery interacts with loggerhead sea turtles from what is now considered the Northwest Atlantic (NWA) DPS, which remains listed as threatened. Five distinct population segments (DPS) of Atlantic sturgeon have been listed (effective April 6, 2012). In a consultation memorandum dated February 15, 2012, NOAA Fisheries concluded the continued authorization of the South Atlantic snapper-grouper fishery is not likely to adversely affect the Atlantic sturgeon. The February 15, 2012, memorandum also stated that because the 2006 biological opinion had evaluated the impacts of the fishery on the loggerhead subpopulations now wholly contained within the NWA DPS, the opinion's conclusion that the fishery is not likely to jeopardize the continued existence of loggerhead sea turtles remains valid.

Table 1-1. Three-year South Atlantic anticipated takes sea turtles by the snapper grouper fishery. Source: NMFS 2006.

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

1.5 Executive Order 12612: Federalism

E.O. 12612 requires agencies to be guided by the fundamental federalism principles when

formulating and implementing policies that have federalism implications. The purpose of the Order is to guarantee the division of governmental responsibilities between the federal government and the states, as intended by the framers of the Constitution. No federalism issues have been identified relative to the actions proposed in this document and associated regulations. Therefore, preparation of a Federalism assessment under E.O. 13132 is not necessary.

1.6 Executive Order 12866: Regulatory Planning and Review

E.O. 12866, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NOAA Fisheries Service prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that implement a new fishery management plan (FMP) or that significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act. A regulation is significant if it is likely to result in an annual effect on the economy of at least $100,000,000 or if it has other major economic effects.

In accordance with E.O. 12866, the following is set forth by the South Atlantic Council: (1) this rule is not likely to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) this rule is not likely to create any serious inconsistencies or otherwise interfere with any action taken or planned by another agency; (3) this rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) this rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order; (5) this rule is not controversial.

1.7 Executive Order 12898: Environmental Justice

E.O. 12898 requires that "to the greatest extent practicable and permitted by law…each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, 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 and possessions…"

The alternatives being considered in this document are not expected to result in any disproportionate adverse human health or environmental effects to minority populations or low-income populations of Florida, North Carolina, South Carolina, or Georgia, rather the impacts would be spread across all participants in the red snapper portion of the snapper grouper fishery regardless of race or income. A

detailed description of the communities impacted by the actions contained in this document and potential socioeconomic impacts of those actions are contained in **Sections 3.0** and **4.0** of this document.

1.8 Executive Order 12962: Recreational Fisheries

E.O. 12962 requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods. Additionally, the Order establishes a seven-member National Recreational Fisheries Coordination Council responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The National Recreational Fisheries Coordination Council also is responsible for developing, in cooperation with federal agencies, states and tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda. Finally, the Order requires NOAA Fisheries Service and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

The alternatives considered in this document are consistent with the directives of E.O. 12962.

1.9 Executive Order 13089: Coral Reef Protection

E.O. 13089, signed by President William Clinton on June 11, 1998, recognizes the ecological, social, and economic values provided by the Nation's coral reefs and ensures that Federal agencies are protecting these ecosystems. More specifically, the Order requires federal agencies to identify actions that may harm U.S. coral reef ecosystems, to utilize their program and authorities to protect and enhance the conditions of such ecosystems, and to ensure that their actions do not degrade the condition of the coral reef ecosystem.

The alternatives considered in this document are consistent with the directives of E.O. 13089.

1.10 Executive Order 13158: Marine Protected Areas

E. O. 13158 was signed on May 26, 2000, to strengthen the protection of U.S. ocean and coastal resources through the use of Marine Protected Areas (MPAs). The E.O. defined MPAs as "any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." It directs federal agencies to work closely with state, local and non- governmental partners to create a comprehensive network of MPAs "representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources".

The alternatives considered in this document are consistent with the directives of E.O. 13158.

1.11 Marine Mammal Protection Act (MMPA)

The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NOAA Fisheries Service) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs. Part of the responsibility that NOAA Fisheries Service has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted." A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

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

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are required to obtain a marine mammal authorization by registering with the Marine Mammal Authorization Program (50 CFR 229.4). They are also required to accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans. The commercial hook-and-line components of the South Atlantic snapper grouper fishery (i.e., bottom longline, bandit gear, and handline), which targets red snapper are listed as part of a Category III fishery (76 FR 37716, June 28, 2011) because there have been no documented interactions between these gear and marine mammals. The black sea bass pot component of the South Atlantic snapper grouper fishery is part of the Atlantic mixed species trap/pot fishery, a Category II fishery, in the 2012 proposed LOF (76 FR 37716, June 28, 2011). The Atlantic mixed species trap/pot fishery designation was created in 2003 (68 FR 41725, July 15, 2003), by combining several separately listed trap/pot fisheries into a single group. This group was designated Category II as a precaution because of known interactions between marine mammals and gears similar to those included in this group. Prior to this consolidation, the black sea bass pot fishery in the South Atlantic was a part of the "U.S. Mid-Atlantic and Southeast U.S. Atlantic Black Sea Bass Trap/Pot" fishery (Category III). There has never been a documented interaction between marine mammals and black sea bass trap/pot gear in the South Atlantic. The actions in this EA are not expected to negatively impact the provisions of the MMPA

1.12 **National Environmental Policy Act** (NEPA)

This document has been written and organized in a manner that meets NEPA requirements, and thus is

a consolidated NEPA document, including an EA, as described in NOAA Administrative Order (NAO) 216- 6, Section 6.03.a.2.

Purpose and Need for Action

The purpose and need for this action are described in **Section 1.0.**

Alternatives

The alternatives for this action are described in **Section 2.0.**

Affected Environment

The affected environment is described in **Section 3.0**.

Impacts of the Alternatives

The impacts of the alternatives on the environment are described in **Section 4.0.**

1.13 National Marine Sanctuaries Act (NMSA)

Under the NMSA (also known as Title III of the Marine Protection, Research and Sanctuaries Act of 1972), as amended, the U.S. Secretary of Commerce is authorized to designate National Marine Sanctuaries to protect distinctive natural and cultural resources whose protection and beneficial use requires comprehensive planning and management. The National Marine Sanctuary Program is administered by the Sanctuaries and Reserves Division of NOAA. The NMSA provides authority for comprehensive and coordinated conservation and management of these marine areas. The National Marine Sanctuary Program currently comprises 13 sanctuaries around the country, including sites in American Samoa and Hawaii. These sites include significant coral reef and kelp forest habitats, and breeding and feeding grounds of whales, sea lions, sharks, and sea turtles. The two main sanctuaries in the South Atlantic exclusive economic zone are Gray's Reef and Florida Keys National Marine Sanctuaries.

The alternatives considered in this document are not expected to have any adverse impacts on the resources managed by the Gray's Reef and Florida Keys National Marine Sanctuaries.

1.14 Paperwork Reduction Act (PRA)

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

public. Actions in this document are not expected to affect PRA.

1.15 Regulatory Flexibility Act (RFA)

The RFA of 1980 (5 U.S.C. 601 et seq.) requires federal agencies to assess the impacts of regulatory actions implemented through notice and comment rulemaking procedures on small businesses, small organizations, and small governmental entities, with the goal of minimizing adverse impacts of burdensome regulations and record-keeping requirements on those entities. Under the RFA, NOAA Fisheries Service must determine whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities. If not, a certification to this effect must be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration. Alternatively, if a regulation is determined to significantly impact a substantial number of small entities, the RFA requires the agency to prepare an initial and final Regulatory Flexibility Analysis to accompany the proposed and final rule, respectively. These analyses, which describe the type and number of small businesses, affected, the nature and size of the impacts, and alternatives that minimize these impacts while accomplishing stated objectives, must be published in the *Federal Register* in full or in summary for public comment and submitted to the chief counsel for advocacy of the Small Business Administration. Changes to the RFA in June 1996 enable small entities to seek court review of an agency's compliance with the RFA's provisions.

AS NOAA Fisheries Service has determined whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities, a certification to this effect will be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration.

1.16 Small Business Act (SBA)

Enacted in 1953, the SBA requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise. The objectives of the SBA are to foster business ownership by individuals who are both socially and economically disadvantaged; and to promote the competitive viability of such firms by providing business development assistance including, but not limited to, management and technical assistance, access to capital and other forms of financial assistance, business training, and counseling, and access to sole source and limited competition federal contract opportunities, to help firms achieve competitive viability. Because most businesses associated with fishing are considered small businesses, NOAA Fisheries Service, in implementing regulations, must make an assessment of how those regulations will affect small businesses.

1.17 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Act to require that a FMP or FMP amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to a fishery for vessels that would be otherwise prevented from participating in the fishery because of safety concerns related to weather or to other ocean conditions. No vessel would be forced to participate in South Atlantic fisheries under adverse weather or ocean conditions as a result of the imposition of management regulations proposed

in this document.

At the June 2012 South Atlantic Council meeting, the U.S. Coast Guard advised that a red snapper opening in late 2012 could lead to unnecessary accidents from unsafe fishing conditions. Openings for red snapper would occur as early as possible in 2012 to avoid poor weather that could lead to unsafe fishing conditions, which violates National Standard 10 of the Magnuson-Stevens Act. The commercial and recreational season openings would be determined by the Southeast Regional Administrator and are contingent on weather conditions.

Appendix F. Regulatory Impact Review

Introduction

The NOAA Fisheries Service requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: (1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; (2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and, (3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR also serves as the basis for determining whether the proposed regulations are a "significant regulatory action" under the criteria provided in Executive Order (E.O.) 12866. This RIR analyzes the expected effects that this action would be expected to have on the commercial and recreational sectors of the snapper grouper fishery, with emphasis on the red snapper segment. Additional details on the expected economic effects of this action are included in **Section 4** and are incorporated herein by reference.

Problems and Objectives

The purpose, need, issues, problems, and objectives of the proposed rule are presented in **Section 1.4**. The purpose of this proposed action is to establish regulations to allow harvest of red snapper in the South Atlantic in 2012. The need for the proposed action is to reduce existing socio-economic adverse impacts to fishermen and fishing communities that utilize the red snapper portion of the snapper grouper fishery. Regulations should minimize (1) safety at sea concerns, (2) probability of overages of the annual catch limit, and (3) discard mortality of red snapper, while maximizing data collection efforts.

Methodology and Framework for Analysis

This RIR assesses management measures from the standpoint of determining the resulting changes in costs and benefits to society. Ideally, the net effects of the proposed measures should be expressed in terms of producer and consumer surplus. Absent the necessary information, the analysis considers mainly the revenue effects on the commercial sector and consumer surplus on the recreational sector of the various measures. It is worth noting, though, that for commercial vessels that would not take additional trips but still catch red snapper in their usual trips, sales from otherwise discarded red snapper would directly add to their net operating revenue. In addition, the public and private costs associated with the process of developing and enforcing regulations on fishing for red snapper in waters of the U.S. South Atlantic are provided.

Description of the Fishery

A description of the South Atlantic snapper grouper fishery, with particular reference to red snapper, is contained in **Chapter 3**.

Effects of Management Measures

Details on the economic effects of all alternatives are found in **Chapter 4**. The following discussion focuses mainly on the expected effects of the preferred alternatives.

The preferred alternative (**Sub-alternative 2c**) for a red snapper allowable catch limit (ACL) may be expected to result in approximately $86,000 (2011 dollars) revenue increase for the commercial sector and CS increases to the recreational sector of approximately $232,000 (2011 dollars) to $724,000 (2011 dollars). In the absence of overages in both sectors, these would be the maximum economic benefits that the two sectors would derive from the re-opening of the red snapper fishing season in 2012. Among the sub-alternatives, this would provide the biggest revenue increase to the commercial sector and CS increase to the recreational sector.

Alternative 3 (Preferred) would establish a 7-day open season for the commercial sector in 2012, with NMFS evaluating the data if any additional days can be open in 2012. While this would increase the likelihood of a derby occurring in the fishery and dampen ex-vessel price and revenues, it would assist in ensuring the commercial ACL is not exceeded. ACL overages would have long-term negative effects on commercial revenues as they would prompt more stringent measures affecting red snapper and other snapper grouper fishermen.

Alternative 4 (Preferred) would establish a two weekend-only (Friday, Saturday, Sunday) opening for the recreational sector, with NMFS evaluating the data to determine if additional days may be open in 2012. To the extent that the recreational ACL would still be fully taken, this measure would mainly affect the distribution of economic benefits among anglers. Anglers and for-hire vessels normally taking trips on weekends would be favored, although some redirection of effort to the weekend could also be done by other anglers and for-hire vessels. This measure could assist in ensuring the recreational ACL is not exceeded. In this sense, the long-term economic implications of this measure would be positive.

Alternative 5 (Preferred) would suspend the commercial and recreational size limit for red snapper during the temporary open season. This measure could lead to the commercial ACL being landed in a short period, resulting in depressed ex-vessel price and revenue. On the other hand, it could also reduce fishing cost if vessels do not have to spend more time to catch legal-sized fish or cull the catch to retain legal-sized fish. Since recreational anglers would be allowed to keep whatever size fish they catch, they would receive higher consumer surplus per trip because consumer surplus is higher for kept fish than for discarded fish. Similar to the commercial sector, the recreational sector may reach its ACL early, resulting in the early end of

the recreational fishing season. However, this would not necessarily result in lower recreational benefits anglers can derive from the recreational ACL.

Alternative 6 (Preferred) would establish a commercial trip limit of 50 pounds gutted weight. This measure would limit a commercial vessel's revenue from red snapper to $218 per trip. At this level, most commercial vessels would unlikely increase their effort to target red snapper. Some vessels, however, could specifically target red snapper but would have to take many trips or redirect their effort to the open season. This alternative would assist in ensuring the commercial sector does not exceed its ACL, thus its long-term economic effects may be considered positive.

Alternative 7 (Preferred) would establish a recreational bag limit of 1 fish per person per day for 2012. While this measure would limit the benefits an angler receives from keeping red snapper to $76.98 per day, it may not be too constraining as to decrease the overall benefits that can be derived from the recreational ACL. This measure would assist in keeping the recreational sector from exceeding its ACL, and this is important because of the difficulty of monitoring recreational harvest on a real time basis. Thus, the long-term economic implications of this alternative would be positive.

Public and Private Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any Federal action involves the expenditure of public and private resources which can be expressed as costs associated with the regulations. Costs associated with this amendment include:

Council costs of document preparation, meetings, public hearings, and information dissemination……...…….. $10,000

NOAA Fisheries administrative costs of document preparation, meetings and review $35,000

Annual law enforcement costs .....unknown

TOTAL $45,000

Law enforcement currently monitors regulatory compliance in these fisheries under routine operations and does not allocate specific budgetary outlays to these fisheries, nor are increased enforcement budgets expected to be requested to address components of this action. In practice, some enhanced enforcement activity might initially occur while the fishery becomes familiar with the new regulations. However, the costs of such enhancements cannot be forecast. Thus, no specific law enforcement costs can be identified.

Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a “significant regulatory action” if it is expected to result in: (1) an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, this regulatory action would not meet the first criterion. Therefore, this regulatory action is determined to not be economically significant for the purposes of E.O. 12866.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

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June 19, 2012

Dr. Roy E. Crabtree
Regional Administrator
NOAA/NMFS Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701

Dear Dr. Crabtree:

Pursuant to Section 305(c)(2)(B) of the Magnuson-Stevens Act as reauthorized, the Council requests measures addressing the red snapper fishery be implemented through emergency regulations. The Council, by a 12 to 1 vote, approved motions at their June 2012 meeting in Orlando, Florida to request that the National Marine Fisheries Service initiate emergency action to:

- Set the 2012 Annual Catch Limit (ACL) for red snapper = 13,067 fish;
- Set the 2012 recreational allocation at 71.93% of the ACL = 9,399 fish;
- Set the 2012 commercial allocation at 28.07% of the ACL = 3,668 fish or 20,818 pounds gutted weight;
- Established Recreational Accountability Measures (AMs) = track recreational landings and close the recreational sector when the recreational ACL is met or projected to be met;
- Established Commercial Accountability Measures (AMs) = track commercial landings and close the commercial sector when the commercial ACL is met or projected to be met;
- Allow for the recreational ACL to be landed during 3-day weekends (Fri-Sun) the number of which would be determined by the agency and the opening dates would be subject to modification based on weather conditions;
- Open the season as soon as possible;
- Set the recreational bag limit at 1 fish per person per day with no size limit;
- Open the commercial season in 7-day mini-season increments subject to the remaining quota; and
- Allow for the commercial ACL to be landed under a 50-pound trip limit and without a size limit.

New information was provided to the Council shortly before the June Council meeting in the form of projections and the value for ABC in 2012. Subsequently, discussions were held between the NMFS SERO/SEFSC staff and Council staff pertaining to this issue. It was determined the ABC for 2012 could allow some directed harvest after accounting for 2012 discard mortalities. NMFS offered to prepare some options for the Council's consideration.

The Council reviewed the "Options for Possible Reopening of South Atlantic Red Snapper" prepared by NOAA Fisheries Service (**attached**) and chose to calculate the number of red snapper available for harvest using the average of 2010-11 estimated mortalities plus 2012 projected mortalities and comparing that number to the projected amount of discard mortalities in 2012. The resulting potential allowable landings were 13,067 fish (86,000 projected 2012 discard mortality – 72,933 estimated 2012 discard mortality). This was acceptable to the Southeast Fisheries Science Center based on their review of the materials and participation during the Council's deliberations.

The Council is requesting this emergency action to address this new information and to provide some regulatory relief and positive social/economic benefits to fishermen in the form of a limited opening in 2012. The Council is also preparing a plan amendment to address long-term management of red snapper in 2013 and future years.

We appreciate your assistance in expediting implementation of this request. If you require any additional information, please do not hesitate to contact Bob Mahood.

Sincerely,

David Cupka

David Cupka
Chairman

cc: Council Members & Staff
Scientific & Statistical Committee
Snapper Grouper Advisory Panel
Bonnie Ponwith, Theo Brainerd & Tom Jamir, SEFSC
Monica Smit-Brunello, NOAA GC
Phil Steele & Jack McGovern, NMFS SERO

APPENDIX H. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Eliminated Sub-Alternative 1

Establish a temporary red snapper annual catch limit (ACL) ACL of 19,600 fish for 2012. Establish a temporary red snapper commercial ACL of 5,502 fish or 31,226 lbs gutted weight for 2012. Establish a temporary red snapper recreational ACL of 14,098 fish for 2012. The sector ACLs were calculated through use of the established allocations for red snapper (28.07% commercial; 71.93% recreational).

Reason for elimination: The method for estimating the ACL of 19,600 fish uses the average mortalities from 2010 and 2011 to calculate the 2012 discard mortalities. This method and resulting ACLs were presented to the South Atlantic Fishery Management Council (South Atlantic Council) at their June 2012 meeting. The analysis is included in **Appendix C** to this environmental assessment. The South Atlantic Council discussed establishing the ACL based on this method, but did not forward this ACL in their request for emergency regulations (**Appendix G**) as the Director of the Southeast Fishery Science Center expressed concerns with the assumptions used in the methodology to determine the ACL of 19,600 fish for 2012.

NOAA Fisheries Service did not evaluate this alternative in detail in this EA due to the unreasonable assumptions discussed at the South Atlantic Council meeting. Setting the ACL equal to 19,600 fish is contingent on fishing effort continuing to decrease as stock abundance increases. Review of preliminary recreational fishing effort data from the Marine Recreational Information Program indicates effort during waves 1-2, 2012, was higher than 2010 and 2011, but lower than effort observed in the previous 20 years. Given that preliminary data indicates effort did not further decrease, it is unreasonable to assume dead discards will remain similar to 2010-2011 average levels (**Appendix C**). Dead discard estimates for waves 1-2, 2012, are comparable or slightly higher than dead discards observed in 2011. The South Atlantic Council's preferred ACL accounts for increases in stock abundance, which is expected to increase encounter rates, resulting in higher dead discards and a lower ACL for landed red snapper.

An excerpt of the minutes of the June 2012 Snapper-Grouper Committee Meeting are included below:

MR. HAYMANS: Well, I was going to ask it of Bonnie because Roy indicated when I brought up a similar question up earlier that the center didn't necessarily care for the average mortalities from 2010 and 2011, and I was going to ask Bonnie to elaborate on that and why we didn't choose the 19.

DR. PONWITH: Again, as our chairman mentioned, this is relevant if and only if the council comes up with a way – makes a determination that they want a reopening in 2012 and comes up with a way to actually be able to accomplish it, then this conversation is

highly relevant. If you take a look at this slide and then you also take a look – just to refresh our memories, let's go back to Slide Number 4. What you see on that slide, on the right-hand side are the projections for red snapper discard mortality. Those projections were based on the SEDAR 24 stock assessment, and you see that it starts to increase and that increase again is a function of the fact that there are more red snapper out there because that is the intent of the management measure, to make more red snapper out there. That means that your encounter rates would be expected to go up as well. On the left-hand what we have is the number in that projection compared to the actual estimate of discards that were done when we looked at the commercial logbook, the MRFSS and the headboat survey. What you see in 2010 is a projected estimate of 65,000 and an estimated bycatch of 71,000, so we actually caught more fish than we projected we were going to catch so we have an overrun. In 2011 we projected that we would encounter 64,000 dead discards, and the mortalities that were actually estimated based on the data that we had were 61, which was below, so we have one year we were above and one year we were below. In 2012 what is going to happen; we don't really know because we're in the middle of the year and there is no way to actually do an estimate in the middle of the year as Andy's presentation gave. Now let's go back to that other table that we had up, which is Slide Number 6. If you take a look at this, in 2011 and 2010 one proposal was just average those and say that might be what we're going to catch. That mathematically is a way to do it, but logically it doesn't make much sense, and the reason is we expect red snapper to be increasing; it's not logical to think that the population would be increasing in the ocean and we would have static encounter rates. I'm troubled by that one because it is just not logical. The next one is that you average 2010 and 2011 as sort of what happened in those two years, those differences, and then average in on top of that what the projection is for 2012. What that does is it decreases 2012 by some amount that would be logical from the standpoint of we're seeing some trends in effort and those trends appear to be declining. If effort is declining, it could counterbalance some of the increases that we're seeing in the abundance. The third example here, it increases by the change in the exploitable abundance but it also makes a correction for the decrease in fishing effort in the patterns that we're seeing in those two years, 2010 and 2011. Then the last one, the smallest one, it just makes the change – help me out with that one, Andy.

MR. STRELCHECK: The last one is similar to the one above it except it is not altering the estimates based on the decrease in effort, so it is essentially presuming effort will remain constant, but the exploitable abundance will increase.

DR. PONWITH: So those are sort of a range of scenarios and there is no concrete way to say that this one is the truth, it is the one that is going to happen. There is an explanation for each of them and some of those explanations are more plausible or more reasonable than others. It is a matter of looking at that range and deciding what your goals are in terms of managing for risk of disrupting your rebuilding plan weighed with your risk of foregoing a potential fishing opportunity, so those are the two risks you're weighing. You need to make a determination based on that information of which of these scenarios you would select. From the science center's perspective, for me that top one with averaging just 2010 to 2011 is not a viable option. It would be hard for me to justify that one scientifically.

Finding of No Significant Impact (FONSI) for Measures in the Environmental Assessment Supporting a Temporary Rule through Emergency Action Allowing Limited Harvest of Red Snapper in the South Atlantic Region in 2012

National Marine Fisheries Service

August 2012

Introduction

This FONSI was prepared in accordance with National Oceanic and Atmospheric Administration Administrative Order 212-6 (NAO 216-6; May 20, 1999) and NMFS Instruction 30-124-1, July 22, 2005, Guidelines for Preparation of Finding of No Significant Impact, for determining the significance of impacts of a proposed management action. This introduction provides a brief description of the proposed management action and alternatives and summarizes why measures contained in the environmental assessment (EA) will not have a significant effect on the human environment. Attached is the EA, entitled *Measures to Allow Limited Harvest of Red Snapper (*Lutjanus campechanus*) in the South Atlantic in 2012.*

The EA contains seven alternatives, seven sub-alternatives, and six preferred alternatives/sub-alternatives **(Table 1).** For the discussion throughout the FONSI, the "proposed action" refers to the six preferred alternatives/sub-alternatives. **Alternative 1 (No Action)** would retain the existing regulations for red snapper, including the prohibition of fishing for, possession, and retention of red snapper. **Alternatives 2-4** would modify the annual catch limit (ACL) of zero (landings only) and the red snapper harvest and possession prohibition in 2012 established through Amendment 17A to the Fishery Management Plan (FMP) for the Snapper-Grouper Fishery of the South Atlantic Region (Amendment 17A), which contained an environmental impact statement (EIS). The Regional Administrator of NOAA Fisheries Service's (NOAA Fisheries) Southeast Regional Office will determine the dates for the commercial and recreational season openings and closings. NOAA Fisheries will evaluate landings to determine if the commercial ACL is harvested and if commercial red snapper can re-open again in 2012. Landings will need to be lower than the ACL in order for red snapper to reopen in 2012. **Alternative 5** would suspend the 20-inch total length (TL) minimum size limit, while **Alternatives 6** and **7** would reduce effort during the opening through a commercial trip limit and recreational bag limit.

Table 1. A summary of the alternatives considered in the EA.

Alternative Number	Preferred?	Alternative Description[1]
1 (no action)		ACL=0 (landings), Closed fishery.
2		Set a 2012 ACL
2a		2,121 fish (3,379 lbs comm.[2]/1,526 fish rec.)
2b		8,984 fish (14,313 lbs comm.[2]/6,462 fish rec.)
2c	X	13,067 fish (20,818 lbs comm.[2]/9,399 fish rec).
3	X	7 day commercial season[3]
4	X	6 day recreational season[3]
5	X	Suspend 20-inch total length (TL) minimum size limit
6		Set a commercial trip limit
6a		25 lb gutted weight
6b	X	50 lb gutted weight
6c		75 lb gutted weight
6d		100 lb gutted weight
7	X	1 fish per person per day bag limit (recreational)

[1]See Chapter 2 of the EA for a more detailed description of the alternatives.
[2]Pounds are in gutted weight.
[3]NOAA Fisheries will evaluate landings to determine if the fishery may re-open again in 2012.

Under **Alternative 1**, the no action alternative, the underlying purpose (as described in Chapter 1 in the attached EA) will not be addressed. The purpose is to allow harvest of red snapper to reduce negative socio-economic effects expected from the regulations in Amendment 17A while maintaining biological protection for red snapper as the stock rebuilds. An additional purpose is to provide needed data for a stock assessment. **Alternatives 2-7** will meet the purpose by increasing the ACL in 2012 and allowing a limited harvest of red snapper within the constraints of the acceptable biological catch (ABC) identified by the rebuilding plan in Amendment 17A. In addition, the proposed action should provide fishery-dependent information on the life history of red snapper that may be used to inform a 2014 stock assessment.

Finding of No Significant Impact

National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 CFR 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include the following criteria:

1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?

Response: No. The proposed action will not be expected to jeopardize the sustainability of any target species. As more fully discussed in Chapter 4 of the EA, the proposed action, including the specification of the ACL in **Preferred Sub-Alternative 2c**, the short openings in **Preferred Alternatives 3** and **4**, and the actions in **Preferred Alternatives 5**, **6b**, and **7**, is consistent with the following: (1) assessment results from Southeast Data, Assessment, and Review (SEDAR) 24; (2) rebuilding projections provided by the Southeast Fisheries Science Center (SEFSC); (3) acceptable biological catch (ABC) recommendation from the South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical Committee (SSC); and, (4) rebuilding plan implemented in 2010. The assessment and rebuilding plan have been peer reviewed and are based on the best available scientific information.

As discussed in **Section 1.4** of the EA, the rebuilding plan allows for the ABC to increase as the stock rebuilds. New information from the SEFSC indicates the level of total kill occurring from incidental catch of red snapper is less than the ABC from the red snapper rebuilding projection in 2012. Thus, the ACL can be increased during 2012 in accordance with the rebuilding plan. The proposed action will not change the rebuilding plan. Furthermore, the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the South Atlantic region.

2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?

Response: No. Although fishery management actions can adversely impact non-target species, the proposed action is not anticipated to have such effects on such species. The increase in the red snapper ACL as proposed by the EA is relatively small (13,067 fish) and will not be expected to significantly increase bycatch of snapper-grouper species. Any changes in the bycatch of other fish species and resulting population and ecosystem effects will be minimal in nature as the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the South Atlantic region.

A bycatch practicability analysis (BPA) is included in **Appendix D**. The impacts to bycatch are also discussed in **Section 4.1.1.** Species that are most likely to co-occur with red snapper

include: vermilion snapper, gag, scamp, greater amberjack, gray triggerfish, black sea bass, and red grouper. The BPA concluded that the proposed action is not anticipated to significantly increase bycatch of snapper-grouper species. As the increase in the red snapper ACL as proposed by the EA is relatively small (13,067 fish) and the seasons will be relatively short, none of the proposed alternatives are expected to substantially increase overall fishing effort or the spatial and/or temporal distribution of current fishing effort.

3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and defined in the FMP for the Snapper-Grouper Fishery of the South Atlantic Region?

Response: No. Although fishery management actions can adversely affect habitat by increasing fishing gear interactions with the seafloor and/or redistributing fishing effort over more vulnerable habitat, the proposed action is not anticipated to have such an effect. The area affected by the proposed action in the snapper-grouper fishery has been identified as essential fish habitat for the Shrimp, Snapper-Grouper, Coral, Dolphin-Wahoo, *Sargassum*, and Golden Crab FMPs of the South Atlantic Council; the Coastal Migratory Pelagics and Spiny Lobster joint FMPs of the Gulf and South Atlantic Councils; the Bluefish and Squid/Mackerel/Butterfish FMPs of the Mid-Atlantic Council, and the Tuna/Swordfish/Shark and Billfish FMPs of NOAA Fisheries' Highly Migratory Species Division. Since the proposed action represents a relatively small increase in the red snapper ACL (13,067 fish) in accordance with an established rebuilding plan, fishing effort is not expected to significantly increase as a result of these actions, nor are changes in fishing technique or behavior expected. As a result, the proposed action is not expected to cause damage to ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in the South Atlantic Council's FMPs. Additionally, the South Atlantic Council has implemented a number of gear restrictions designed to minimize adverse effects of the snapper-grouper fishery on particularly vulnerable or valuable habitat. The habitat environment is discussed in **Section 3.1** of the EA; the biological impacts are discussed in **Section 4.1.1**.

4) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

Response: No. Although fishery management actions can sometimes affect public safety by eliminating or minimizing fishermen's flexibility to decide when, where, and how to fish, the proposed action is not expected to have such an effect. The proposed action is not expected to change fishing techniques or operations in a way that will impact the safety of commercial or recreational fishermen. The openings will occur as early as possible in 2012 so as to not open the season too late in the fishing year when poor weather can lead to unsafe fishing conditions. The Regional Administrator of NOAA Fisheries' Southeast Regional Office will evaluate weather conditions before determining any opening dates. These impacts are described in Sections **4.1.3**, **4.1.4**, **6.1**, and **6.2** of the EA.

5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

Response: No. Fishery management actions can adversely affect species and/or habitat protected by the Endangered Species Act (ESA) and/or Marine Mammal Protection Act (MMPA) by increasing bycatch and/or fishing gear interactions with these species, and/or by redistributing fishing effort to areas where protected species and/or critical habitat occurs. However, the proposed action is unlikely to alter fishing in ways that will cause new adverse affects to species not previously considered. Protected resources are discussed in **Section 3.2.6** of the EA; the biological impacts are discussed in **Section 4.1.1**.

According to the 2012 List of Fisheries (76 FR 73912, November 29, 2011), the Southeastern U.S. Atlantic snapper-grouper fishery is classified as a Category III fishery under the MMPA, meaning the annual mortality and serious injury of a marine mammal resulting from the fishery is less than or equal to one percent of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Additionally, the snapper-grouper fishery is not expected to adversely modify northern right whale critical habitat. Listed sea bird species such as the Bermuda petrel will not be adversely affected by actions contained within this EA due to their rare occurrence off the Atlantic coast.

NOAA Fisheries completed a biological opinion (opinion) on the South Atlantic snapper-grouper fishery entitled: "The Continued Authorization of Snapper-Grouper Fishing in the U.S. South Atlantic Exclusive Economic Zone (EEZ) as Managed Under the Snapper-Grouper Fishery Management Plan of the South Atlantic Region (SGFMP), including Amendment 13C to the SGFMP," on June 7, 2006. The opinion concluded the continued authorization of the fishery will not affect marine mammals and is not likely to jeopardize the continued existence of any other ESA-listed species.

Subsequent to the June 7, 2006, biological opinion, elkhorn and staghorn coral (*Acropora cervicornis* and *Acropora palmata*) were listed as threatened. In a consultation memorandum dated July 9, 2007, NOAA Fisheries concluded the continued authorization of the South Atlantic snapper-grouper fishery is not likely to adversely affect these *Acropora* species. On November 26, 2008, an *Acropora* critical habitat was designated. In a consultation memorandum dated December 2, 2008, NOAA Fisheries concluded the continued authorization of the snapper-grouper fishery is not likely to adversely affect *Acropora* critical habitat. Additionally, on September 22, 2011, NOAA Fisheries and the U.S. Fish and Wildlife Service determined the loggerhead sea turtle population consists of nine DPSs (76 FR 58868). Previously, loggerhead sea turtles were listed as threatened species throughout their global range. The snapper-grouper fishery interacts with loggerhead sea turtles from what is now considered the Northwest Atlantic (NWA) DPS, which remains listed as threatened. Five distinct population segments (DPS) of Atlantic sturgeon have been listed (effective April 6, 2012). In a consultation memorandum dated February 15, 2012, NOAA Fisheries concluded the continued authorization of the South Atlantic snapper-grouper fishery is not likely to adversely affect the Atlantic sturgeon. The February 15, 2012, memorandum also stated that because the 2006 biological opinion had evaluated the impacts of the fishery on the loggerhead subpopulations now wholly contained

within the NWA DPS, the opinion's conclusion that the fishery is not likely to jeopardize the continued existence of loggerhead sea turtles remains valid.

As provided in 50 CFR 402.16, re-initiation of formal consultation is required if: 1) The amount or extent of the incidental take is exceeded; 2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; 3) the agency action is subsequently modified in a manner causing an effect to the listed species or critical habitat not previously considered; or 4) if a new species is listed or critical habitat designated that may be affected by the identified action.

Reinitiation of ESA section 7 consultation for this EA is not required. The amount or extent of incidental take authorized by the 2006 biological opinion has not been exceeded, and no new information exists that indicates the agency action is causing effects to listed species that have not been previously considered. The proposed action is also not likely to modify the agency action in a manner that will cause new effects not previously considered. Fishing activities anticipated to occur if the proposed action is effective will fall within the level of effort and scope of the action analyzed in the June 7, 2006, opinion. During the harvest prohibition of red snapper, it is possible that fishing effort has been redistributed to target other species. Regardless, elimination of the harvest prohibition to allow for a very small increase in the red snapper ACL under this EA is not likely to attract any new effort into the snapper-grouper fishery. Additionally, the proposed action will not change the gear use that were previously evaluated in the section 7 consultation. Thus, no new effects from the fishery are anticipated. No new species or critical habitat has been designated that may be affected by the identified proposed action.

6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g. benthic productivity, predator-prey relationships, etc.)

Response: The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. This action merely increases the ACL by a relatively small amount (13,067 fish) in 2012 consistent with the FMP objectives, the rebuilding plan, and the ABC recommendation from the South Atlantic Council's SSC. The proposed action is not expected to alter fishing methods or activities. The proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. These impacts are described in **Section 4.1.1** of the EA.

7) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: No. In the context of the entire snapper-grouper fishery as a whole, the social and economic impacts of the preferred alternative are not expected to be significant as the magnitude of net effects of the proposed action comprises a relatively small portion of the entire economic and social activities associated with the snapper-grouper fishery in the South Atlantic. It is also noted that these effects are expected to be positive. These impacts are described in **Section 4.1.2** of the EA.

Red snapper is a minor component of the entire *commercial* snapper-grouper fishery. All harvests (all trips and all species) by commercial vessels harvesting snapper grouper averaged approximately 11.24 million pounds valued at $24.74 million (2011 dollars) over 2003-2007. The landings of red snapper in 2003-2007 averaged annually at approximately 121,000 pounds valued at $421,000 (2011 dollars). Assuming the absence of overages in the commercial sector, the maximum expected revenue effects from the proposed action, in 2011 dollars, would be $86,395 with a commercial ACL of 20,818 lbs gw.

Recreational snapper grouper harvest in the South Atlantic averaged approximately 10.8 million lbs per year during 2005-2009. For the same period, recreational harvest of red snapper averaged approximately 557,000 pounds per year. In terms of effort, recreational target effort and catch effort for snapper-grouper averaged 945,000 trips and 2.7 million trips per year, respectively, during 2005-2009. For the same period, red snapper target effort and catch effort, respectively, averaged 57,300 trips and 94,000 trips per year. Assuming the absence of any overages in the recreational sector, the maximum expected consumer surplus effects from the proposed action, in 2011 dollars, would be $231,896 with a recreational ACL of 9,399 fish. Although there is not a comparable estimate of consumer surplus for the entire snapper-grouper recreational sector, it can be inferred from the relative size of the recreational sector's allowable harvest of red snapper that the social and economic effects of the proposed action to the recreational sector will be relatively insignificant.

8) Are the effects on the quality of the human environment likely to be highly controversial?

Response: No. The effects of the proposed action on the quality of the human environment are not likely to be highly controversial. As discussed in **Section 5.1** of the EA, the South Atlantic Council held a public comment session prior to approving any motions pertaining to the management of red snapper; the majority of stakeholders were in favor of a limited re-opening of red snapper harvest in 2012. Based on this information, it is anticipated that most of the South Atlantic Council's constituents support this action. The effects on the quality of the human environment of the red snapper closure approved in the interim rule and extended through Amendment 17A were controversial as some fishermen felt the action will have unnecessary negative economic effects. Also, many fishermen questioned the accuracy of the data used to make the overfishing and overfished stock status determinations. Any controversy will likely be minimal as the proposed action will reduce negative socio-economic effects imposed through the red snapper closure, while ensuring the red snapper stock continues to rebuild.

9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

Response: No. Special areas, including historic and cultural areas, park land, prime farmlands, wetlands, wild and scenic rivers, ecologically critical areas, or marine sanctuary areas will not be impacted by the proposed action because none of these areas are in the directly affected environment of the South Atlantic snapper-grouper fishery, which is conducted in the federal waters off of North Carolina, South Carolina, Georgia, and Florida.

10) Are the effects of the human environment likely to be highly uncertain or involve unique and unknown risks?

Response: No. As discussed in **Section 1.5** of the EA, The proposed action, including the specification of the ACL in **Preferred Sub-Alternative 2c**, the short openings in **Preferred Alternatives 3** and **4**, and the actions in **Preferred Alternatives 5**, **6b**, and **7**, is consistent with the following: (1) assessment results from SEDAR 24; (2) rebuilding projections provided by the SEFSC; (3) ABC recommendation from the South Atlantic Council's SSC; and, (4) rebuilding plan implemented in 2010. The assessment and rebuilding plan have been peer reviewed and are based on the best available scientific information. NOAA Fisheries will monitor the landings as described in Section 6.3 of the EA.

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: No. The proposed action represents a relatively small increase in the red snapper ACL, and is not expected to compound the cumulative effects on the physical, social and economic environments, habitat, protected species or the fishery resource. Therefore, there are no foreseeable significant additive or interactive effects as a result of the proposed action. These impacts are described in **Sections 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.4, 7.1,** and **7.2** of the EA.

12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Response: No. The proposed action affected environment does not concern districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. Consequently, it is unlikely that the proposed action will adversely affect the aforementioned, and this action is not likely to cause destruction of significant scientific, cultural, or historical resources.

13) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Response: No. The proposed action will not introduce or spread any non-indigenous species because it does not change existing fishing operations. There is no evidence or indication that the snapper-grouper fishery has ever resulted in the introduction or spread of non-indigenous species. The proposed action is not expected to alter fishing methods or activities. The proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The biological impacts are discussed in **Section 4.1.1.**

14) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

Response: No. The proposed action does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration. A rebuilding plan was completed for red snapper through Amendment 17A which contained an EIS. This action merely proposes to revise the ACL in 2012 for red snapper according to the rebuilding plan. The proposed action represents a relatively small increase in the ACL, and is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. As the stock rebuilds, a new stock assessment is completed, or other biological information about red snapper becomes available in the future, the ACL will be adjusted according to FMP objectives, the rebuilding plan, and the ABC recommendation from the South Atlantic Council's SSC. These impacts are described in **Sections 7.1,** and **7.2** of the EA. The Council is considering additional management measures for red snapper in Amendment 22 to the Snapper-Grouper FMP. Amendment 22 considers long-term management of red snapper, including the implementation of a tag program where retention is limited to those that possess tags.

15) Can the proposed action reasonably be expected to threaten a violation of Federal, State or local law requirements imposed for the protection of the environment?

Response: No. The proposed action is not likely to impose or cause a violation of federal, state, or local law or requirements imposed for the protection of the environment. The proposed action is consistent with applicable state and federal regulations. A thorough analysis of other applicable laws related to the implementation of the EA was conducted and the analysis is contained in **Appendix E**.

16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target or non-target species?

Response: No. The proposed action is not expected to result in any cumulative adverse effects that could have a substantial effect on the target species or non-target species. The impacts of the proposed alternatives on the biological, physical, and human environment are described in Chapter 4 and 7. The cumulative effects of the proposed action on target and non-target species are detailed in Chapter 7 of the EA. The cumulative effects analysis revealed no significant, cumulative adverse effects on the biological environment. The preferred ACL in 2012 for red snapper is consistent with the objectives of the FMP for the Snapper-Grouper Fishery of the South Atlantic Region, the rebuilding plan, and the ABC recommendation from the South Atlantic Council's SSC. The scientific information upon which the ACL is based (SEDAR 24, rebuilding projections provided by the SEFSC, Amendment 17A EIS) has been peer reviewed and is based on the best available scientific information. Furthermore, the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the South Atlantic region.

Determination

In view of the information presented in this document and the analysis contained in the supporting EA, I have determined that the preferred alternative and preferred sub-alternatives will not significantly impact the quality of the human environment as described above and in the supporting EA. In addition, all beneficial and adverse impacts of the proposed action have been identified and analyzed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

8/15/12

Roy E. Crabtree, Ph.D.
Regional Administrator
National Marine Fisheries Service
Southeast Regional Office

Date