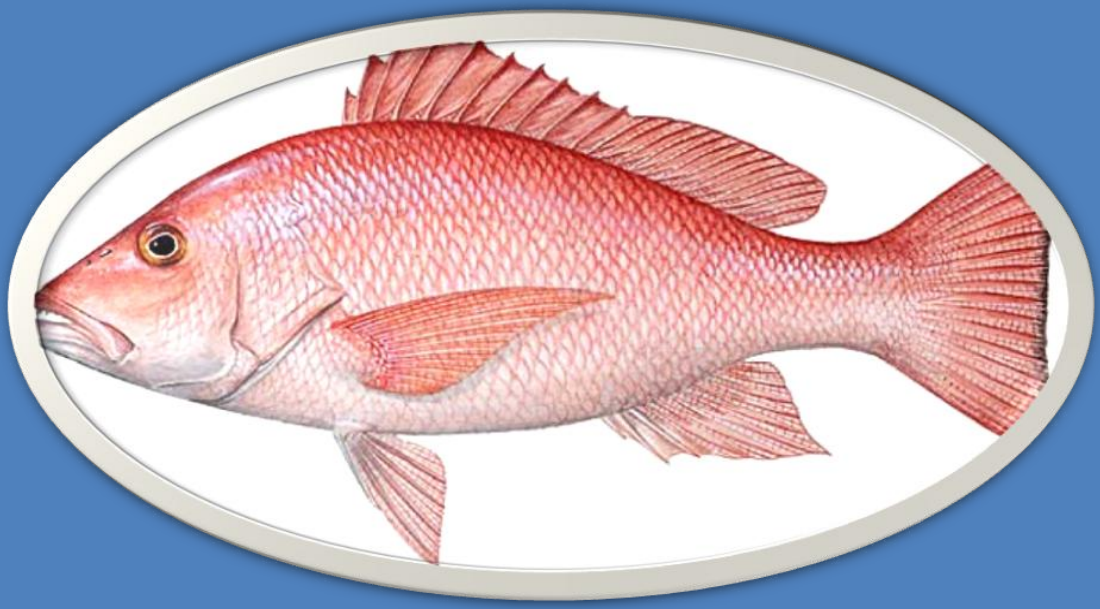

SUMMARY

Amendment 28 to the Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Changes to Red Snapper Management Measures, Including the Establishment of a Process to Determine Future Annual Catch Limits and Fishing Seasons

NOVEMBER 2012

Definitions, Abbreviations, and Acronyms

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

What Actions Are Being Proposed?

The harvest and possession of red snapper has been prohibited since January 4, 2010. In 2012, fishery managers allowed limited harvest of red snapper through a temporary rule through emergency action under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Through this amendment, managers are establishing a process to determine future annual catch limits and fishing seasons for red snapper in the South Atlantic similar to the season established in 2012.

Why are the Council and NMFS Considering Action?

The South Atlantic Council and NMFS have determined that retention of a limited number of red snapper beginning in 2013, along with appropriate management controls, would not jeopardize the rebuilding of the red snapper stock if the ACL is not exceeded the previous year. For the 2012 fishing season, the South Atlantic Council and NMFS 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. Similarly, the South Atlantic Council and NMFS have determined that future fishing seasons may occur following a comparison of allowable mortality levels and mortality (retention and discards) in past years.

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.

Purpose for Action

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

Need for Action

Increase the socio-economic benefits 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, the fishing season should allow an opportunity to collect information on the life history of red snapper.

The South Atlantic Council determines the annual catch limits (ACLs) from the overfishing limit (OFL) and the ABC (**Figure S-1**). 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.

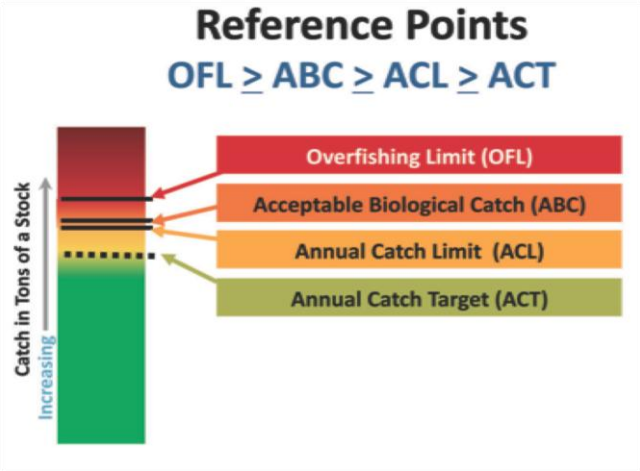

Figure S-1. The relationship of the reference points to each other.

Using the ABC as a start, the South Atlantic Council is proposing to specify the total ACL for the red snapper stock in the South Atlantic beginning in 2013. In 2012, the ACL was 13,067 fish; if no action is taken, the ACL in 2013 and beyond would be zero (landings only). If an ACL is implemented, the total ACL would be divided into sector ACLs using the commercial and recreational allocations for red snapper of 28.07% and 71.93%, respectively (specified through the Comprehensive ACL Amendment).

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 Southeast Fisheries Science Center (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 (i.e., 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.

What is the History of Management for Red Snapper?

Red snapper regulations in the South Atlantic where first implemented in 1983. Recent actions since the first SEDAR assessment in 2008 are presented in **Figure S-2**.

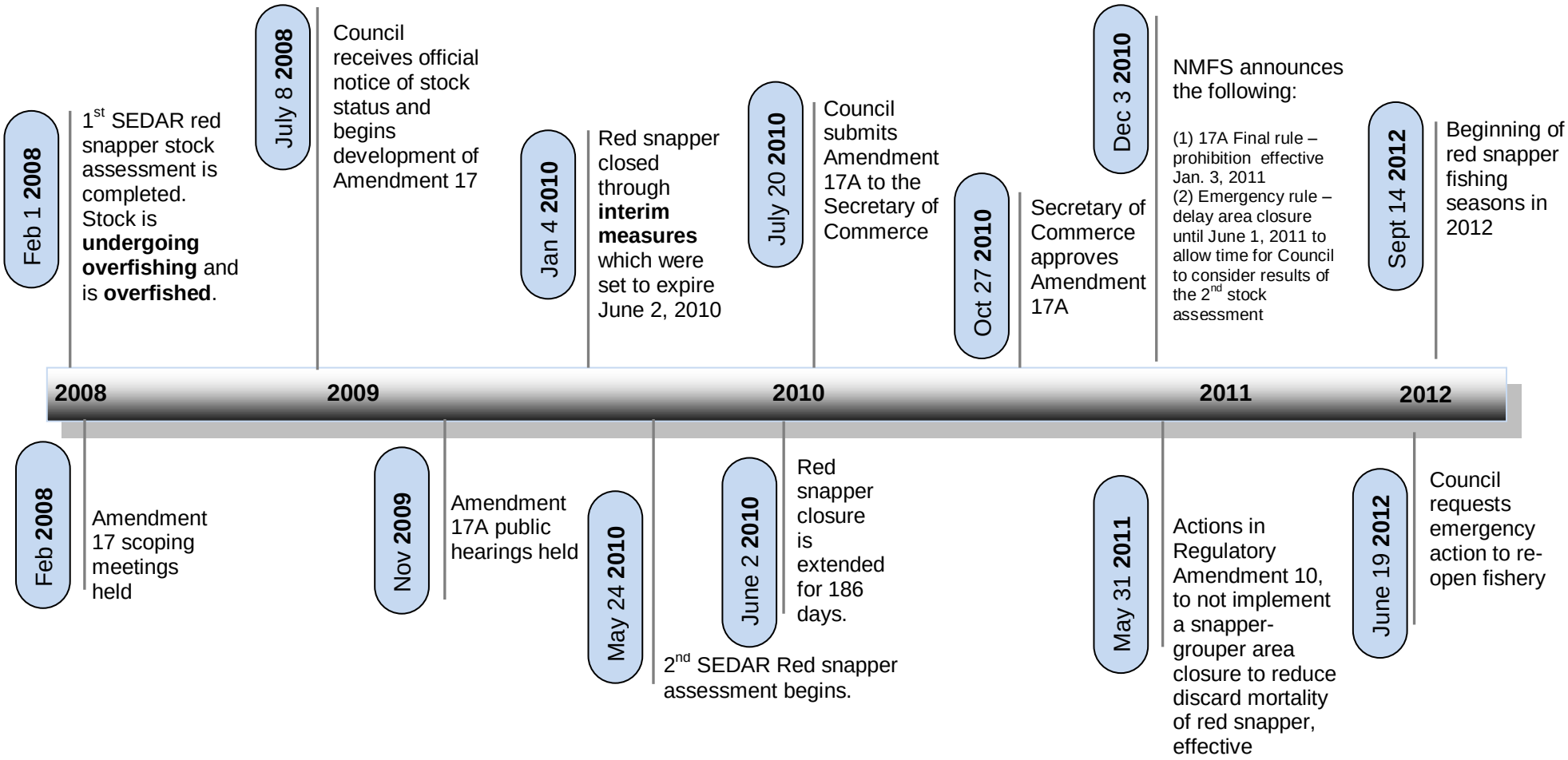

Figure S-2. Timeline of recent red snapper management measures.

Proposed Actions

Action 1. Red Snapper: ACLs, AMs, and Fishing Seasons

Alternative 1 (No Action). Outside of the 2012 fishing season summarized below, the red snapper annual catch limit (ACL) is zero (landings only), and 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 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.
(4) During the closed seasons, the recreational and commercial ACLs are zero (landings only).

2012 Fishing Season

In 2012, a temporary red snapper season was established. The commercial and recreational ACLs for 2012 were 20,818 pounds gutted weight and 9,399 fish, respectively. The commercial red snapper season opened at 12:01 a.m., local time, on September 17, 2012, and closed at 12:01 a.m., local time, on September 24, 2012. During the open commercial season, the daily trip limit was 50 pounds gutted weight and there was no minimum size limit for red snapper. The recreational fishing season was open for two consecutive weekends made up of Fridays, Saturdays, and Sundays. The recreational red snapper season opened at 12:01 a.m., local time, on September 14, 2012, and closed at 12:01 a.m., local time, on September 17, 2012; the season then reopened at 12:01 a.m., local time, on September 21, 2012, and closed at 12:01 a.m., local time, on September 24, 2012. During the open recreational season, the bag limit was one fish per person per day and there was no minimum size limit for red snapper. The temporary commercial AM was 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. The temporary recreational AM was the specification of the length of the opening and other management controls.

The total ACL (in numbers of fish) was based on the following formula:

$$ACL_{yr} = ABC_{yr} - (estCSR_{yr-2} + estCSR_{yr-1} + ABC_{yr})/3$$

where ACL_{yr} equal the annual catch limit in the current fishing year, ABC_{yr} equal the acceptable biological catch approved by the SSC for the current fishing year, and *estCSR* equals the estimated dead discards plus closed season landings during the previous fishing years.

Differences Between Sub-alternatives 2a, 2b and 2c to Calculate the ACL

To determine the ACL, all three alternatives compare the present year ABC to ABCs and estimated removals. They differ in how the ABCs and estimated removals are calculated as described below.

2a. Uses average of 2 prior year's estimated removals + prior years' ABC

2b. Uses ratio of previous year's "left over removals" to previous years ABC

2c. Uses ratio of two previous years' "left over removals" to previous years ABC

Alternative 2. Annually establish the red snapper total ACL (in numbers of fish) and sector ACLs based upon Council pre-approved formulas. Establish commercial and recreational AMs as in-season closures based on pre-season or in-season ACL projections. If the total ACL is exceeded in a given year, then harvest would not be allowed in the following fishing year.

Sub-alternative 2a. Annually establish the total ACL (in numbers of fish) based on the formula used to determine the ACL in 2012 as done through the temporary rule through emergency action.

$$\textbf{\textit{If total removals}}_{yr-1} > \textbf{\textit{ABC}}_{yr-1}\textbf{\textit{, then ACL}}_{yr} = 0$$

$$\textbf{\textit{If total removals}}_{yr-1} < \textbf{\textit{ABC}}_{yr-1}\textbf{\textit{, then}}$$

$$\boldsymbol{ACL_{yr} = ABC_{yr} - (estCSR_{yr-2} + estCSR_{yr-1} + ABC_{yr})/3}$$

where ACL_{yr} equal the annual catch limit in the current fishing year, ABC_{yr} equal the acceptable biological catch approved by the SSC for the current fishing year, and *estCSR* equals the estimated dead discards plus closed season landings during the previous fishing years.

If the ACL in the prior fishing year is exceeded, then the ACL in the following year would be set equal to zero.

The ACL would be computed by first averaging estimated dead discards for the two prior fishing years with projected mortalities from the current year ABC. Average mortalities would then be subtracted from the current fishing year ABC to estimate the ACL. If the ACL is calculated as a negative number, then the ACL would be set equal to zero.

Sub-alternative 2b. Annually establish the total ACL (in numbers of fish) based on the following formulas:

$$\textit{If total removals}_{yr-1} > ABC_{yr-1}\textit{, then } ACL_{yr} = 0$$

$$\textit{If total removals}_{yr-1} < ACL_{yr-1}\textit{, then } ACL_{yr} = ((ABC_{yr-1} - estCSR_{yr-1})/ABC_{yr-1}) \times ABC_{yr}$$

where ACL_{yr} equals the annual catch limit in the current fishing year, ACL_{yr-1} and ABC_{yr-1} equal the annual catch limit and acceptable biological catch for the prior fishing year fishing year, and $estCSR_{yr-1}$ equals the estimated dead discards plus closed season landings during the prior year.

If the ACL in the prior fishing year is exceeded, then the ACL in the following year would be set equal to zero.

The ACL would be computed by subtracting the previous year's estimated dead discards from the previous year's ABC, then dividing by the previous year's ABC. The resulting ratio would be multiplied by the current fishing year ABC to estimate the ACL.

Sub-alternative 2c. Annually establish the total ACL (in numbers of fish) based on the following formulas:

$$\textit{If total removals}_{yr-1} > ABC_{yr-1}\textit{, then } ACL_{yr} = 0$$

$$\textit{If total removals}_{yr-1} < ACL_{yr-1}\textit{, then } ACL_{yr} = \left(\frac{ABC_{yr-2} - estCSR_{yr-2}}{ABC_{yr-2}} + \frac{ABC_{yr-1} - estCSR_{yr-1}}{ABC_{yr-1}}\right)/2 \times ABC_{yr}$$

where ACL_{yr} equals the annual catch limit in the current fishing year, ACL_{yr-n} and ABC_{yr-n} equal the annual catch limit and acceptable biological catch for the two prior fishing years, and $estCSR_{yr-n}$ equals the estimated dead discards plus closed season landings in the two prior fishing years.

If the ACL in the prior fishing year is exceeded, then the ACL in the following year would be set equal to zero.

The ACL would be computed in a similar manner as **Sub-Alternative 2b**, but would include two years of estimated removals rather than one.

Note: S**ector ACLs** will be calculated through the established allocations for red snapper (28.07% commercial; 71.93% recreational).

Alternative 3. Establish commercial fishing seasons. NMFS will announce the commercial ACL and the opening of the fishing season through the *Federal Register* and other methods deemed appropriate. The end of the commercial red snapper season will close when the sector ACL is met or projected to be met. Commercial landings will be monitored by the SEFSC's quota monitoring program. The commercial fishing season will not open if the projected season length is three days or less.

Sub-alternative 3a. The commercial season will begin at 12:01 A.M. on the second Monday in July.

Sub-alternative 3b. The commercial season will begin at 12:01 A.M. on the first Monday in August.

Sub-alternative 3c. The commercial season will begin at 12:01 A.M. on the second Monday in September.

Note: The operator of a vessel with red snapper in excess of the bag or possession limit aboard must have landed such red snapper prior to 12:01 a.m., local time, on the day following the closure, and all sale or purchase of red snapper must occur prior to 12:01 a.m., local time, on the day following the closure. The prohibition on sale or purchase does not apply to sale or purchase of red snapper that were harvested, landed ashore, and sold prior to 12:01 a.m., local time, on the day following the closure, and were held in cold storage by a dealer or processor.

Alternative 4. Establish recreational fishing seasons. SERO will complete an analysis each year estimating the length of the recreational red snapper fishing season. NMFS will announce the recreational ACL and the opening of the fishing season through the *Federal Register* and other methods deemed appropriate. The recreational season will consist of weekends only (Friday, Saturday, Sunday). The end of the recreational red snapper season will be pre-determined and announced before the start of the recreational season. The recreational fishing season will not open if the projected season length is three days or less.

Sub-alternative 4a. The recreational season will begin at 12:01 A.M. on the second Friday in July.

Sub-alternative 4b. The recreational season will begin at 12:01 A.M. on the first Friday in August.

Sub-alternative 4c. The recreational season will begin at 12:01 A.M. on the second Friday in September.

Alternative 5. Eliminate the red snapper commercial and recreational 20-inch TL minimum size limit.

Alternative 6. Establish a red snapper commercial trip limit.

Sub-alternative 6a. Establish a red snapper commercial trip limit of 25 lbs gutted weight per trip.

Sub-alternative 6b. Establish a red snapper commercial trip limit of 50 lbs gutted weight per trip.

Sub-alternative 6c. Establish a red snapper commercial trip limit of 75 lbs gutted weight per trip.

Sub-alternative 6d. Establish a red snapper commercial trip limit of 100 lbs gutted weight per trip.

Alternative 7. Establish a red snapper recreational bag limit of one fish per person per day.

A Description of How the Proposed Process Would Work

The ABC for 2012 was 86,000 fish. Estimated landings and dead discards that occurred in 2012 will be available around March 2013. If NMFS determines that the estimated landings and dead discards that occurred in 2012 is equal to or greater than 86,000 fish, no harvest will be allowed in 2013.

If NMFS determines that the estimated landings and dead discards that occurred in 2012 is less than 86,000 fish, harvest *may* be allowed in 2013. (Note: The commercial fishing season and the recreational fishing seasons will not open if their 2013 projected season length is three days or less.)

The 2013 ABC is from rebuilding projections contained in Table 9c of a document titled "SEDAR-24 South Atlantic Red Snapper: Management quantities and projections requested by the SSC and SERO". The 2013 ABC equals 96,000 fish. NMFS will calculate the total ACL as per the formula implemented thorough this amendment and the sector-ACLs as per the Council's allocation formula. NMFS will project the length of the commercial and recreational fishing seasons.

If harvest is allowed, NMFS will announce the pre-determined commercial and recreational fishing year start dates. The end of the commercial red snapper season will close when the sector ACL is met or projected to be met. The end of the recreational red snapper season will be projected and announced before the start of the recreational season.

The process will be repeated each year unless modified.

What would the ACL be under each of the sub-alternatives?

Sub-alternatives 2a-2c propose formulas that could be used to set red snapper ACLs (in numbers) on an annual basis. **Sub-alternative 2a** is consistent with the methodology used to set the ACL for the 2012 red snapper opening. This alternative uses commercial and recreational estimated removals calculated by the Southeast Fisheries Science Center (SEFSC) from the two previous fishing years and the ABC from the current fishing year in which the ACL is to be set. The ABC is based on the preferred rebuilding plan projections from the red snapper stock assessment (SEDAR 24). Estimated removals and the current year ABC are averaged and subtracted from the annual ABC to determine the ACL. If average removals exceed the ABC, then the ACL would be set equal to zero. If average removals are less than the ABC, then an ACL would be set. Using estimated removals from 2010 and 2011 and the 2012 ABC, the ACL was estimated to equal 13,067 fish in 2012 **(Table S-1)**. **Sub-alternative 2a** is the most simplistic and generally the least conservative of the three sub-alternatives, especially when estimated removals are near the ABC in prior years. However, **Sub-alternative 2a** can result in a lower ACL than **Sub-alternative 2b** when estimated closed season removals are significantly lower than the ABC in the prior fishing year **(Table S-2)**. Similarly, **Sub-alternative 2a** can result in a lower ACL than **Sub-alternative 2c** when estimated closed season removals two years prior are well below the ABC and estimated closed season removals one year prior are moderately less than the ABC **(Table S-3)**.

Sub-alternative 2b uses the prior year's closed season removals and ABC to calculate the proportion of the ABC that was caught. This ratio is then applied to the ABC in the following year to calculate the ACL. By using a ratio, this formula takes into account increases in stock abundance projected to occur as the stock rebuilds. The ratio assumes removals in future years would increase at the same rate stock abundance increases. Generally, ACLs estimated by **Sub-alternative 2b** are greater than those estimated by **Sub-alternative 2c** but less than those estimated by **Sub-alternative 2a**. However, **Sub-alternative 2b** can generate ACLs greater than **Sub-alternative 2a** when estimated closed season removals are significantly lower than the ABC in the prior fishing year **(Table S-2)**. Similarly, ACLs can be less than **Sub-alternative 2c** when estimated closed season removals two years prior are well below the ABC and estimated closed season removals one year prior are near the ABC **(Table S-3)**. If this formula had been used to set the 2012 ACL, then the ACL would have been 3,487 fish.

Sub-alternative 2c is similar to **Sub-alternative 2b**, but relies on two years of data rather than one. Similar to **Sub-alternative 2b**, this sub-alternative uses the proportion of the ABC caught in the prior two years and then applies the ratio to the ABC in the following year to calculate the ACL. **Sub-alternative 2c** takes into account increases in stock abundance and catches that are projected to occur as the stock rebuilds and is generally the most conservative of the three sub-alternatives. However, **Sub-alternative 2c** can generate ACLs greater than **Sub-alternative 2a** when the proportion of ABC caught in the two prior years is well below the previous ABCs **(Table S-3)**. Similarly, ACLs can be greater than **Sub-alternative 2b** when estimated closed season removals two years prior are well below the

ABC and estimated closed season removals one year prior are near the ABC **(Table S-3)**. If this formula had been used to set the 2012 ACL, then the ACL would have been zero **(Table S-1)**.

Table S-1. Estimated annual catch limits for 2012 fishing year based on formulas summarized in Acton 1, **Sub-alternatives 2a-2c**. ABC_{yr} = acceptable biological catch and $estCSR_{yr}$ = estimated closed season removals.

	Alternatives		
Estimates	**Alt 2a**	**Alt 2b**	**Alt 2c**
ABC_{2010}			65,000
ABC_{2011}		64,000	64,000
ABC_{2012}	86,000	86,000	86,000
$estCSR_{2010}$	71,394		71,394
$estCSR_{2011}$	61,405	61,405	61,405
avg ($estCSR_{2010\text{-}11}$ + ABC_{2012})	72,933		
$propABC_{2010}$			-9.8%
$propABC_{2011}$		4.1%	4.1%
avg $propABC_{2010\text{-}11}$			-2.9%
Estimated ACL	**13,067**	**3,487**	**0**

Table S-2. Hypothetical example showing how the ACL calculated by **Sub-alternative 2b** could exceed ACLs calculated by **Sub-alternatives 2a and 2c**. ABC_{yr} = acceptable biological catch and $estCSR_{yr}$ = estimated closed season removals.

	Alternatives		
Estimates	**Alt 2a**	**Alt 2b**	**Alt 2c**
$ABC_{yr\text{-}2}$			65,000
$ABC_{yr\text{-}1}$		64,000	64,000
ABC_{yr}	86,000	86,000	86,000
$estCSR_{yr\text{-}2}$	63,000		63,000
$estCSR_{yr\text{-}1}$	45,000	45,000	45,000
avg ($estCSR_{yr\text{-}2,\ yr\text{-}1}$ + ABC_{2012})	64,667		
$propABC_{yr\text{-}2}$			3.1%
$propABC_{yr\text{-}1}$		29.7%	29.7%
avg $propABC_{yr\text{-}2,\ yr\text{-}1}$			16.4%
Estimated ACL	**21,333**	**25,531**	**14,089**

Table S-3. Hypothetical example showing how the ACL calculated by **Sub-alternative 2c** could exceed ACLs calculated by **Sub-alternatives 2a and 2b.** ABC_{yr} = acceptable biological catch and $estCSR_{yr}$ = estimated closed season removals.

	Alternatives		
Estimates	**Alt 2a**	**Alt 2b**	**Alt 2c**
ABC_{yr-2}			65,000
ABC_{yr-1}		64,000	64,000
ABC_{yr}	86,000	86,000	86,000
$estCSR_{yr-2}$	30,000		30,000
$estCSR_{yr-1}$	50,000	50,000	50,000
avg ($estCSR_{yr-2, yr-1}$ + ABC_{2012})	55,333		
$propABC_{yr-2}$			53.8%
$propABC_{yr-1}$		21.9%	21.9%
avg $propABC_{yr-2, yr-1}$			37.9%
Estimated ACL	**30,667**	**18,813**	**32,560**

Summary of Effects

Action 1. Red Snapper ACLs, AMs, and Fishing Seasons

Biological

Unsustainable fishing pressure **(Figure S-3)** 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 S-4)**.

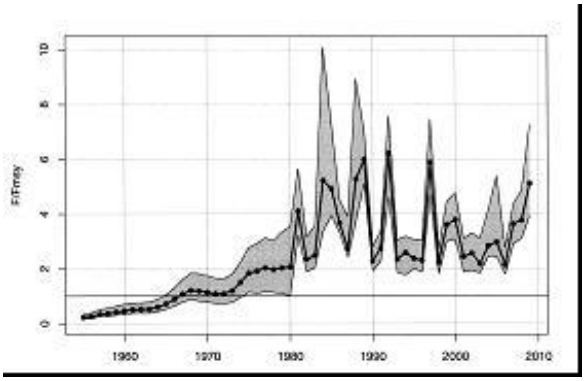

Figure S-3. The overfishing ratio for red snapper over time. The stock is undergoing overfishing when the F/F_{MSY} is greater than one (SEDAR 24 2010).

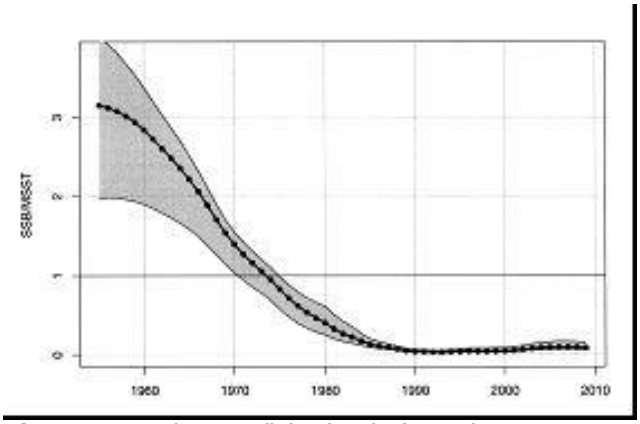

Figure S-4. The overfished ratio for red snapper over time. The stock is overfished when the SSB/MSST is less than one (SEDAR 24 2010).

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, 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 Council and NMFS 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.

Alternatives 2 through 4 – Allowing limited harvest in 2013 and beyond

Alternatives[1]

1. No action. In 2012, ACL=13,067 fish (20,818 lbs comm.[1]/9,399 fish rec). In 2013, ACL = 0 (landings) and prohibition.
2. Computing ACL
   - 2a. Equation 1: 2012 Temporary Rule Method
   - 2b. Equation 2: Previous Year Ratio Method
   - 2c. Equation 3: Two Previous Years Ratio Method
3. Commercial fishing season
   - 3a. Begins 12:01 AM on 2nd Monday in July
   - 3b. Begins 12:01 AM on 1st Monday in August
   - 3c. Begins 12:01 AM on 2nd Monday in September
4. Recreational fishing season (weekends)
   - 4a. Begins 12:01 AM on 2nd Friday in July
   - 4b. Begins 12:01 AM on 1st Friday in August
   - 4c. Begins 12:01 AM on 2nd Friday in September
5. Eliminate 20-inch total length (TL) minimum size limit
6. Commercial trip limit
   - 6a. 25 lb gutted weight
   - 6a. 50 lb gutted weight
   - 6c. 75 lb gutted weight
   - 6d. 100 lb gutted weight
7. 1 fish per person per day (recreational)

[1]Pounds are in gutted weight.

Alternatives 2 through **4** would potentially allow limited harvest and possession of red snapper each year beginning in 2013.

Alternative 2 would establish the formula to determine the annual catch limit (ACL). **Sub-alternative 2a** would calculate the ACL using the equation that was used to calculate the 2012 ACL. To determine the ACL for the 2012 opening, 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 **Appendix A** of the amendment document. **Sub-alternatives 2b** and **2c** would each compare *ratios* to the present-year ABC to determine the level of removals that would be allowed. The ratio is the level of "left over removals" in previous years to the ABC for those same years. The biological impacts of the three sub-alternatives considered would vary according to the ACL that would be generated by each, which could be influenced by the level of removals during the previous year closed season(s).

For all three sub-alternatives, allowing greater levels of harvest would result in greater biological risks. For instance, if estimated removals are lower than projected, it could be because of lower fishing effort, lower stock abundance, or both. If there are fewer closed season removals than projected because of lower stock abundance, then projected ABCs may be overestimated and allowing higher amounts of harvest may result in higher fishing mortality and impacts to the stock. Similarly, if there are fewer closed season removals due to lower fishing effort than allowing additional harvest may be consistent with rebuilding the stock. Allowing less removals increases the probability of rebuilding as fishing mortality would be lower.

Alternatives 2 through **4** could have negligible biological effects since the same amount of red snapper previously killed through regulatory discards would still die but fishermen would be allowed to retain them instead of throwing them back. 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 lower adverse effects from lowering ACLs since lower ACLs reduce the length of fishing seasons, provide a larger buffer from the ABC, and may reduce the chance that overfishing of the stock would occur. 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 may increase. Increased fishing effort may be more likely in the recreational sector (charter boats, headboats, and private) than in the commercial sector. For-hire fishermen from northern Florida and Georgia have often testified that potential customers have been unwilling to book trips without the opportunity to retain red snapper. Conversely, the establishment of a short 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 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 have occurred.

Alternative 5 – Minimum size limit removal

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.

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

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

Alternative 1 (No action) would retain the red snapper 20-inch Total Length (TL) minimum size limit; however, the size limit is not currently applicable due to the prohibition on the harvest and possession of red snapper. If the season were to open, as proposed under **Alternatives 2** through **4**, and no action was taken to change the size limit, then the minimum size limit of 20 inches TL would still apply. **Alternative 5** would remove 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 "regulatory discards" can result; 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. In general, discarded fish are less likely to die if they are caught in shallow water.

In addition, **Alternative 1 (No action)** and **Alternative 5** could also promote "high-grading" behavior. High-grading is a practice of selectively landing fish so that only the best quality (usually largest) fish are retained and can result in many dead discards. Fishermen would most likely high-grade less with no size limit (**Alternative 5**) as fishermen may cease targeting red snapper after harvesting the bag limit.

Alternative 6 – Commercial trip limit

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 commercial season may exceed the commercial ACL.

Alternative 7 – 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 (**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 recreational fishing season may exceed the recreational ACL. Conversely, the bag limit proposed in **Alternative 7** could result in beneficial effects by increasing the probability that the ACL would not be exceeded during the season. 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.

Economic

Under **Alternative 1 (No Action)**, commercial harvest of red snapper would continue to be prohibited and thus landings and gross revenue would be zero in 2013 and for as long as the ACL was set at zero. In the recreational sector, private recreational anglers and for-hire vessels will still catch fish even with the prohibition in place, as illustrated by the fact that 53,101 and 40,237 fish were caught in 2010 and 2011, respectively. Available data suggests recreational anglers and for-hire operators were adjusting to the prohibition on retention in 2010 as catch, catch effort, and target effort declined from 2009 to 2010 but declined further in 2011. Thus, assuming 2011 is more reflective of what is likely to occur in 2013 and beyond, if recreational anglers are not allowed to retain red snapper then the total expected consumer surplus in the recreational sector is expected to be $337,186.

What is Consumer Surplus?

Consumer surplus measures consumer satisfaction. It is the difference between what consumers are willing to pay for a good or service relative to its market price.

Since **sub-alternative 2a** factors in the most recent ABC and ABCs increase each year in the rebuilding projections, **sub-alternative 2a** would generate a higher ACL relative to **sub-alternatives 2b** and **2c**. Further, **sub-alternative 2b** generates a higher ACL relative to **sub-alternative 2c**. If this illustrates the expected relative size of the ACLs under each sub-alternative, the positive economic effects to the commercial sector and recreational sector relative to the status quo would be greatest in the short-term under **sub-alternative 2a**, less under **sub-alternative 2b**, and the least under **sub-alternative 2c**. Assuming red snapper would continue to rebuild at basically the same rate under each sub-alternative, the same would also be true with respect to long-term economic benefits.

It is not possible to determine with certainty if re-opening the harvest of red snapper would entice additional effort from the for-hire sector. However, it is unlikely the for-hire sector would undertake additional trips targeting red snapper, at least in the short-run, and thus net operating revenues (NOR) would not differ between **sub-alternatives 2a**, **2b**, and **2c** or between these sub-alternatives and the status quo. 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 alternatives considered in this amendment (e.g., the one-fish bag limit under **Alternative 7**). Moreover, the relatively small ACLs and associated short recreational seasons under each of the sub-alternatives would significantly reduce incentives even further, particularly when combined with a one-fish bag limit. Nonetheless, benefits to anglers would increase on for-hire trips as they would be allowed to keep their red snapper bag limit. In the event that for-hire trips actually increased in the long-term, for-hire vessels' NOR would be expected to increase, and the economic benefits to the recreational sector would therefore be increased.

An increase in the 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 pounds. There is always the possibility that some vessels may increase their target effort for red snapper, but the combination of any of the trip limits considered under **Alternative 6** in addition to the relatively low ACL suggests that the likelihood commercial red snapper target effort would increase is very low, at least in the short-term.

The economic benefits from allowing commercial harvest of red snapper may be highest if the red snapper season is opened in July, as would be the case under **sub-alternative 3a**, than if it were opened in August (**sub-alternative 3b**) or September (**sub-alternative 3c**). Conversely, economic benefits may be the lowest if the season is opened in September (**sub-alternative 3c**). Assuming catch and catch effort are reflective of when red snapper are relatively more available to the recreational sector, and that target effort reflects when red snapper are relatively most valued, then opening the season in July or August (**sub-alternatives 4a and 4b**) would generate greater economic benefits to the recreational sector than if the recreational season opened in September (**sub-alternative 4c**).

The economic effects of **Alternative 5** are expected to be positive (i.e., reduction in trip costs) though relatively small for the commercial sector in the short-term. In the long-term, the reductions in trip costs would be expected to increase, at least for a time, as the stock recovers and ACLs are increased, though the magnitude of these effects will be dependent on whether a trip limit is selected under **Alternative 6**. In general, **Alternative 6** would help in ensuring the commercial ACL is not exceeded. Overages could require more stringent regulations (e.g., reductions in future year's ACLs and commercial quotas), in addition to prohibiting harvest of red snapper in the short-term on commercial vessels harvesting snapper grouper. In this respect, the long-term economic effects of this alternative may be considered positive. However, such effects will likely not differ across the four sub-alternatives.

The economic benefits in terms of additional red snapper consumer surplus under **Alternative 7** cannot be estimated without knowing the recreational ACL. Thus, the economic benefits of **Alternative 7** are dependent on the choice of sub-alternative under **Alternative 2** and whether targeting of red snapper will increase, as the latter would potentially affect red snapper catch per trip.

Social

The decision to allow for the harvest of red snapper in South Atlantic waters is likely to have positive social effects, as the closure of this fishery was highly controversial. Public comment suggested that there were more red snapper than what was reflected in the stock assessment science. The temporary opening as a result of lower discards was likely perceived positively and may have had positive economic and social effects. **Alternative 1 (No Action)** would keep current regulations, which do not allow any harvest, in place. Stakeholders would likely perceive such action negatively in both the commercial and recreational sectors as much of the public comment suggested that there would be negative social and economic impacts from the closure initially. Furthermore, because there was a temporary seasonal opening during the 2012-fishing year, stakeholders might expect similar action in years to follow. Because of the economic downturn, fishing businesses and individuals may be experiencing economic stress that could be negatively affected by slight disruptions in revenues or positively affected by increases in that revenue. If **Alternative 1 (No Action)** is chosen, then managers would have to resort to some type of emergency action in order to allow harvest of red snapper. Such temporary actions are designed to be in place only for a short time. Thus, more than one opening in a given year would be unlikely. Further, stakeholders do not perceive such uncertain temporary openings as prudent management. On the other hand, establishing a process to allow limited harvest of red

snapper, as proposed under this action, would give fishermen the opportunity to be involved in the design of such a process and the ability to plan ahead, both of which would have positive social impacts.

Administrative

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.