PUBLIC HEARING SUMMARY

AMENDMENT 17A TO THE SNAPPER GROUPER FMP

NOVEMBER 2009

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The South Atlantic Fishery Management Council is soliciting public input on possible options under consideration by the Council. The Council is considering: (a) Specifying an ACL and an AM for red snapper with management measures to reduce the probability that catches will exceed the stock's ACL; (b) Specifying a rebuilding plan for red snapper; (c) Specifying status determination criteria for red snapper; and (d) Specifying a monitoring program for red snapper.

NEED FOR ACTION

Red Snapper Stock Assessment

The red snapper stock assessment, completed February 2008, determined that the species **is undergoing overfishing and is overfished**. Biomass shows a sharp decline during the 1950s and 1960s, continued decline during the 1970s, and stable but low levels since 1980. Estimates of annual biomass have been well below sustainable levels since the mid-1960s, although there are signs of slight improvement following implementation of current size limits in 1992 (Figure 1).

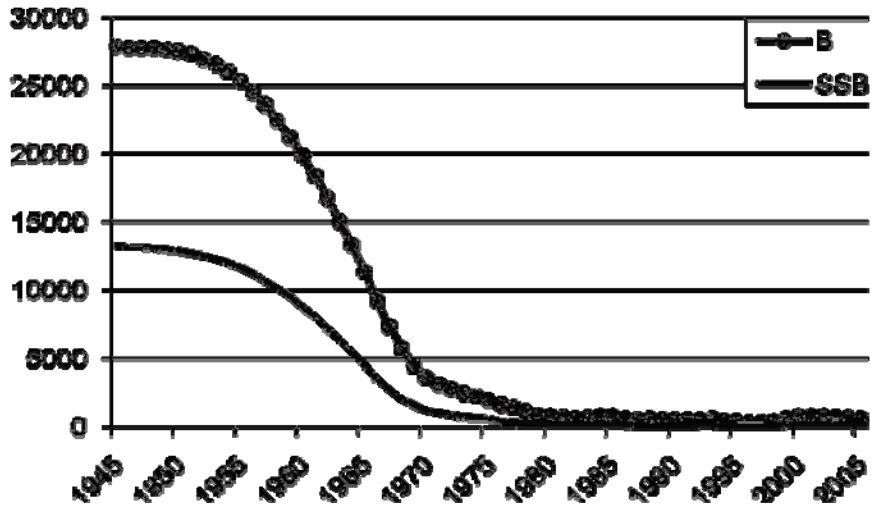

Figure 1. Biomass and Spawning Stock Biomass (pounds).

The Council received notification, in a letter dated July 8, 2008, that the South Atlantic red snapper stock is undergoing overfishing and is overfished and that the Reauthorized Magnuson-Stevens Act requires the Council to prepare a plan amendment or proposed regulations to end overfishing within one year. The Council is proposing management measures in this amendment to end overfishing of red snapper and rebuild the stock.

Red Snapper Regulatory Background

The Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (1983) (FMP) imposed minimum size limits on six species to control growth overfishing, one of the species affected was red snapper. Information about growth, age, and mortality was used to form the basis for yield per recruit (YPR) models used in the FMP. According to the 1983 Source Document for the FMP, the YPR analysis indicated red snapper were undergoing growth overfishing. At the time, minimum sizes were the preferred method of ending growth overfishing and preventing recruitment overfishing. Implementing a 12" size limit was expected to yield an eight percent increase in the yield if recruitment were held constant. It should be noted that at the time, the expected discard survival rate was estimated to be between 60 and 80 percent. Even at the lower end of the discard survivorship range, yield was still expected to increase by six percent. Larger size limits were rejected because of potential decreases to inshore availability, and public testimony indicated that all user groups unanimously favored at least a 12" minimum size for red snapper.

Amendment 4 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 1991) implemented management measures to address overfishing of several snapper grouper species including red snapper. Prior the implementation of Amendment 4, NOAA Fisheries Service held an overfishing workshop (February 12-14, 1990) where Dr. Phil Goodyear, a NOAA Fisheries Service population dynamist, presented his work on Gulf of Mexico red snapper. Dr. Goodyear noted an SPR of 3% in the Gulf, and the workshop concluded that an SPR of 20% was sufficient for that red snapper population. Later, the workshop concluded growth parameters and habitat were approximately the same for South Atlantic red snapper as Gulf red snapper, and it would be sufficient to apply the same SPR level of 20% to the South Atlantic stock. Based on proceedings of this workshop, which included SPR recommendations for other snapper grouper species in addition to red snapper, the Council specified 30% SPR as the overfishing level for all species in the snapper grouper management unit except goliath grouper.

During development of Amendment 4, which implemented a 20" total length size limit and a 2 red snapper bag limit within a 10-fish snapper aggregate bag limit (excluding vermilion snapper), the Plan Development Team (PDT) felt the most appropriate goal for management of red snapper was 40% SPR rather than the 30% specified by the Council, and the PDT recommended a 21" total length size limit for red snapper. However, the

Council felt implementing a 20" total length size limit would be adequate to reach the goal of 30% SPR. The size limit was expected to produce SPRs of 33% and 40% for the recreational and commercial fisheries, respectively. A provision to closely monitor the red snapper population (for size limit effectiveness) was included in the discussion, as was an allowance to implement larger size limits or additional regulations in the future if needed. At the time, the Council and NOAA Fisheries Service felt a bag limit of 10 snapper, where no more than 2 can be red snapper, would provide additional protection from overfishing, assist in achieving the target level of 30% SPR and spread out harvest within the recreational sector. However, it is important to note that at the time these red snapper management measures were implemented, there was no analysis projecting the expected reductions from the combination of size limit and bag limit. Therefore, it was impossible to predict whether or not the combination of size limit and bag limit would achieve the 30% SPR goal. Because of this uncertainty, Amendment 4 specified that the bag limit could be modified as necessary through future framework action.

In 1998, the Comprehensive Amendment Addressing Sustainable Fisheries Act Definitions and Other Required Provisions in Fishery Management Plans of the South Atlantic Region, Amendment 11 (SAFMC 1998), was implemented. In this amendment, the issue of MSY proxies was addressed. Amendment 11 states that during a meeting of the Snapper Grouper Assessment Group there was a consensus for 30-40% static SPR as a proxy for MSY. Where, longer lived species would have an SPR closer to 40% and moderately long-lived species, closer to 30%. It also stated that for data poor species with a known natural mortality rate, such as red snapper, the Council could use the natural mortality rate (M) as a proxy for F_{MSY}, and as soon as data are available, an F_{MSY} proxy would be specified. Taking this into account, Amendment 11 specified $F_{30\%SPR}$ as the proxy for F_{MSY}. At the time, the Council felt management measures being proposed in Amendments 7, 8, and 9 could result in an SPR of 35%, and they concluded those measures were sufficient to rebuild red snapper above the overfished level. Unfortunately the implementation of a limited access fishery, size limit, and bag limit were not enough to end overfishing of the species, and red snapper in the South Atlantic continue to be overfished to this day.

ACL Guidelines

Revisions to the Magnuson-Stevens Act in 2006 require that by 2010, Fishery Management Plans (FMPs) for fisheries determined by the Secretary to be subject to overfishing must establish a mechanism for specifying Annual Catch Limits (ACLs) at a level that prevents overfishing and does not exceed the recommendations of the respective Council's Scientific and Statistical Committee (SSC) or other established peer review processes. These FMPs also are required to establish within this time frame measures to ensure accountability. By 2011, FMPs for all other fisheries, except fisheries for species with annual life cycles, must meet these requirements.

NMFS guidelines define the following terms:

- Overfishing limit (OFL) means "the annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance and is expressed in terms of numbers or weight of fish.

- Acceptable biological catch (ABC) means "a level of a stock or stock complex's annual catch that accounts for the scientific uncertainty in the estimate of OFL and should be specified based on the ABC control rule.

- Annual catch limit (ACL) means "the level of annual catch of a stock or stock complex that serves as the basis for invoking accountability measures." Setting the ACL provides an opportunity to divide the total ACL into sector-specific ACLs.

- Annual catch target (ACT) means "an amount of annual catch of a stock or stock complex that is the management target of the fishery. NMFS guidelines indicate that specifying an ACT is optional and up to the discretion of the Council. A stock or stock complex's ACT should usually be less than its ACL and results from the application of the ACT control rule. If sector-ACLs have been established, each one should have a corresponding sector-ACT."

- Catch is the total quantity of fish, measured in weight or numbers of fish, taken in commercial, recreational, subsistence, tribal, and other fisheries. Catch includes fish that are retained for any purpose, as well as mortality of fish that are discarded.

- Accountability measures (AMs) means "management controls that prevent ACLs or sector-ACLs from being exceeded (in-season AMs), where possible, and correct or mitigate overages if they occur."

The SSC provided OFL and ABC recommendations in terms of pounds of fish at their June 2008 meeting but the SSC did not have an ABC control rule to assist them with estimating ABC and indicated that they considered the values to be "interim" until more robust methods for estimating these parameters could be made available. For stock and stock complexes required to have an ABC, NMFS final guidelines recommends that each Council should establish an ABC control rule based on scientific advice from its SSC. At their December 2008 SSC meeting, the SSC considered advice from the proposed NS1 guidelines and rescinded all estimates of ABC with the exception of an ABC = 0 for speckled hind and warsaw grouper. Furthermore, the SSC recommended at their December 2008 meeting that the ABC levels for snowy grouper, black sea bass, and red snapper be set consistent with the rebuilding plans for those species until they can be

further amended on better scientific information. The SSC has since developed an ABC Control Rule document.

ACTIONS AND ALTERNATIVES

2.1. Proxy Maximum Sustainable Yield (MSY) for red snapper

Table 1. MSY and MSY proxy alternatives for red snapper.

Alternatives	Equation	F_{MSY}	MSY Values (lbs whole weight)
Alternative 1 (no action)	MSY equals the yield produced by $F_{MSY.}$ $F_{30\%SPR}$ is used as the F_{MSY} proxy for all stocks.	$F_{30\%SPR}$[1]= 0.148[2]	2,431,000[3]
Alternative 2 (preferred)	MSY equals the yield produced by F_{MSY} or the F_{MSY} proxy. MSY and F_{MSY} are defined by the most recent SEDAR/SSC.[4]	$F_{40\%SPR}$= 0.104[2]	2,304,000[5]

[1]Prior to SEDAR 15 (2008), Potts et al. (2001) estimated $F_{30\%SPR}$= 0.40.
[2]Source: Red Snapper Projections V dated March 19, 2009
[3]The value for MSY was not specified in Amendment 11. Based on SEDAR 15 (2008) $F_{30\%SPR}$ = 0.148; yield at $F_{30\%SPR}$ = 2,431,000 lbs whole weight (Table 4.1 from Red Snapper Projections V dated March 19, 2009).
[4]The Review Panel from SEDAR and the SSC recommended a proxy of $F_{40\%SPR}$ for $F_{MSY.}$
[5]The values for MSY and $F_{40\%\ SPR}$ are defined by Red Snapper Projections V dated March 19, 2009. The range is MSY from sensitivity runs is 559,000 lbs whole weight to 3,927,000 lbs whole weight.

2.1.1 Effects

Biological Effects

Alternative 2 (Preferred) is based on the SEDAR and SSC's recommendation and would specify an MSY proxy equal to the yield at $F_{40\%SPR}$ with a steepness of 0.95. MSY for other species assessed through the SEDAR process has been based on the yield at F_{MSY} or the Council's status quo proxy for F_{MSY} ($F_{30\%SPR}$). Therefore, **Alternative 2 (Preferred)** would establish a new proxy for F_{MSY} not previously used, which is more conservative than the status quo proxy of $F_{30\%SPR}$. The choice of **Alternative 2 (Preferred)**, which uses $F_{40\%SPR}$ as a proxy for F_{MSY} versus $F_{30\%SPR}$ as proxy for F_{MSY} depends on how much risk the Council is willing to take. If $F_{30\%SPR}$ is not a proper proxy for F_{MSY}, the Council could have to take corrective actions down the road to rebuild the stock to B_{MSY} within the allowable timeframe. **Alternative 2 (Preferred)**, which uses $F_{40\%SPR}$ as a proxy for F_{MSY} is more conservative and provides greater assurance overfishing would be ended and the stock would rebuild within the specified time. Therefore, the biological benefits of **Alternative 2 (Preferred)** for the red snapper stock would be greater than **Alternative 1 (Status Quo)** because **Alternative 2 (Preferred)** would allow for less harvest and there would be a greater probability overfishing would end and the stock would be rebuilt to SSB_{MSY}. However, a choice of a F_{MSY} proxy that is too conservative could have unnecessary negative social and economic effects.

Economic Effects

Alternative 1 (Status Quo) would allow for relatively more harvest over time and therefore is accompanied by a greater probability of overfishing. It may therefore be characterized with greater short-term economic benefits and less long-term economic benefits than **Alternative 2 (Preferred)**. It likely that **Alternative 2 (Preferred)** would offer a higher net economic benefit over time.

Non-use values, like existence and bequest values, increase with increasing long-term economic benefits. Therefore, **Alternative 2 (Prefered)** would offer a higher level of non-use value.

2.2 Red Snapper Rebuilding Plan

2.2.1 Rebuilding Schedule

Alternative 1 (Status Quo). There currently is not a rebuilding plan for red snapper. Snapper Grouper Amendment 4 (regulations effective January 1992) implemented a 15-year rebuilding plan beginning in 1991 which expired in 2006.

Alternative 2. Define a rebuilding schedule as the shortest possible period to rebuild in the absence of fishing mortality (T_{MIN}). This would equal 15 years with the rebuilding time period ending in 2024, 2010 is Year 1.

Alternative 3. Define a rebuilding schedule as the mid-point between shortest possible and maximum recommended period to rebuild. This would equal 25 years with the rebuilding time period ending in 2034, 2010 is Year 1.

Alternative 4 (Preferred). Define a rebuilding schedule as the maximum recommended period to rebuild if $T_{MIN} > 10$ years. The maximum recommended period equals T_{MIN} + one generation time. This would equal 35 years with the rebuilding time period ending in 2044 (SEDAR 15 2008 was the source of the generation time). 2010 is Year 1.

2.2.1.1 Effects

Biological Effects

Biologically, under **Alternative 1 (Status Quo)**, it would be unlikely that the stock would rebuild to a sustainable level within a predictable amount of time. However, if fishing related mortality was limited to the OY level, which would be $75\%F_{MSY}$, the stock would rebuild with or without a plan. This may benefit the socioeconomic environment in the near term; however, not implementing a rebuilding schedule at this time increases the chance that more drastic measures would need to be taken in the future. For this reason the long-term negative socioeconomic impacts under **Alternative 1 (Status Quo)** would likely be higher than those under any of the other rebuilding schedule alternatives.

Alternatives 2-4 (Preferred) would establish rebuilding schedules within the time periods allowed by the Reauthorized Magnuson-Stevens Act. These alternatives differ in the length of time prescribed to rebuild the species, ranging from 15 years (**Alternative**

2) to 35 years (**Alternative 4, Preferred)**. The shorter the length of time established for a rebuilding schedule, the more restrictive harvest limitations need to be to achieve the rebuilding goal. The more restrictive the harvest limitations are, the more negative the socioeconomic impacts can be expected. Therefore, it can be assumed that **Alternative 2**, which would implement the shortest rebuilding schedule, would provide the greatest biological benefit in the shortest amount of time, but would also incur the highest level of negative socioeconomic impacts. Furthermore, **Alternative 2** would require there be no fishing mortality of red snapper and therefore would require a prohibition on all species that co-occur with red snapper. **Alternative 3**, with a 25-year rebuilding schedule would still provide the biological benefits of rebuilding the fishery; however, those benefits may not occur as quickly as they would under **Alternative 2**. **Alternative 3** would incur a level of negative socioeconomic impacts in between that of **Alternatives 2** and **4 (Preferred).** Lastly, **Alternative 4 (Preferred)**, with a rebuilding schedule of 35 years would again be expected to yield the same biological benefits of rebuilding the stock; however, the full impact of those benefits may not be realized until even later than they would be under **Alternative 3**. **Alternative 4 (Preferred)** would also require the least restrictive harvest limitations in order to achieve a rebuilt status within the 35-year period, and therefore, would incur the least negative socioeconomic impacts relative to **Alternatives 2** and **3**.

If no harvest of red snapper was allowed, as would be required under **Alternative 2**, it is still expected that red snapper would be caught and released by commercial and recreational fishermen. As release mortality is estimated to be 40% and 90% for the recreational and commercial sectors, respectively (SEDAR 15 2008), the schedule specified in **Alternative 2** is not considered to be realistic and would not be expected to rebuild the stock to B_{MSY}. It is not possible to eliminate incidental mortality on one species in a multi-species complex, without prohibiting fishermen from targeting all associated species wherever the prohibited species occurs. Similarly, due to bycatch mortality, the schedule specified in **Alternative 3** also is not realistic and would not likely allow red snapper to rebuild to B_{MSY} by the end of the rebuilding schedule unless greater restrictions were placed on other species that co-occur with red snapper than are being proposed in this amendment. The high rate of bycatch mortality of red snapper while fishing for co-occurring species in both sectors would require stricter harvest regulations in the form of larger closed areas, relative to **Alternative 4 (Preferred)**, applied to all snapper grouper species in order for the stock to rebuild within the **Alternative 3** rebuilding schedule. Greater restrictions would incur greater negative social and comic impacts, which may not be necessary for the stock to reach a rebuilt condition within the preferred rebuilding schedule. The Council is considering

substantial measures to reduce fishing mortality in this amendment including area closures for all snapper grouper species, which could reduce bycatch of red snapper and co-occurring species.

Consequently, the Council has chosen **Alternative 4** as preferred, which would support little or no harvest of red snapper in the initial years of rebuilding but would allow some incidental catch of red snapper when targeting co-occurring species. **Alternative 4 (Preferred)** would fulfill Reauthorized Magnuson-Stevens Act requirements to end overfishing of the species within a designated time span while minimizing adverse social and economic impacts to the extent practicable because using the longest allowable time span would require the implementation of less restrictive set of management measures relative to other alternatives considered.

Economic Effects

As discussed in the biological effects section, the presence of incidental mortality of red snapper from fishing for other species would render the shorter rebuilding schedules (**Alternatives 2** and **3)** or no rebuilding schedule (**Alternative 1 (Status Quo)**) unrealistic for rebuilding the red snapper stock to B_{msy}. These shorter rebuilding schedules would require regulations more restrictive than the ones considered in this amendment, thereby imposing more costs to the fishing participants in the red snapper and other fisheries. Unless those other fish stocks are also rebuilt as to provide substantially higher future benefits, there is a fairly low level of likelihood that future benefits from a fully recovered red snapper stock would outweigh the short-term costs of more restrictive regulations implied by these shorter rebuilding schedules. While incidental mortality would still occur under **Alternative 4 (Preferred)**, the associated costs of regulations would not be as high as in the other two alternatives. In addition, this alternative would provide a timeframe sufficiently long to rebuild the red snapper stock as well as flexibility in the type of management measures to implement over time. In this sense, **Alternative 4 (Preferred)** may be characterized with a higher likelihood of generating the highest net benefits over time.

Non-use values, like existence and bequest values, would be highest under **Alternative 2** and lowest under **Alternative 1 (Status Quo)**. However, the differences in non-use value between **Alternatives 2, 3,** and **4 (Preferred)** are minimal.

2.2.2 Rebuilding Strategy and Optimum Yield

Alternative 1 (Status Quo). Do not define a yield-based rebuilding strategy for red snapper. $F_{OY} = F_{45\%SPR}$. The value for OY at equilibrium is 2,169,000 lbs whole weight.

Alternative 2. Define a rebuilding strategy for red snapper that sets F_{OY} equal to F_{MSY} ($F_{40\%}$) in year 1. The ACL for 2010 would be 89,000 lbs whole weight. The ACL specified for 2010 would remain in effect beyond 2010 until modified. Under this strategy, the fishery would have a 44% chance of rebuilding to SSB_{MSY} within the allowable 35 year timeframe. Since this alternatives specifies the fishing mortality rate that produces MSY, OY at equilibrium would not be specified. The Council will review ACL and management measures following the next scheduled assessment for red snapper.

Establish three AMs:

(1) Track catch per unit effort (CPUE) of red snapper via a fishery-independent monitoring program (see Section 4.12) to track changes in biomass.
(2) Track the biomass and CPUE through the research set-aside that would involve data collection by headboat and charterboat operators.
(3) The Council would evaluate the size of the area closures when the discards are estimated to exceed the ACL. CPUE would be evaluated every three years and adjustments would be made by the framework action being modified in Amendment 17B.

Alternative 3. Define a rebuilding strategy for red snapper that sets F_{OY} equal to 85% F_{MSY} (85%$F_{40\%}$). The ACL for 2010 would be 69,000 lbs whole weight. The ACL specified for 2010 would remain in effect beyond 2010 until modified. The Council will review ACL and management measures following the next scheduled assessment for red snapper. OY at equilibrium would be 2,199,000 lb ww. Under this strategy, the fishery would have a 50% chance of rebuilding to SSB_{MSY} by 2035 and a 69% chance of rebuilding to SSB_{MSY} by 2044.

Establish three AMs:

(1) Track CPUE of red snapper via a fishery-independent monitoring program (see Section 4.12) to track changes in biomass.
(2) Track the biomass and CPUE through the research set-aside that would involve data collection by headboat and charterboat operators.
(3) The Council would evaluate the size of the area closures when the discards are estimated to exceed the ACL. CPUE would be evaluated every three years and adjustments would be made by the framework action being modified in Amendment 17B.

Alternative 4 (Preferred). Define a rebuilding strategy for red snapper that sets F_{OY} equal to 75% F_{MSY} (75%$F_{40\%}$). The ACL for 2010 would be 79,000 lbs whole weight. The ACL specified for 2010 would remain in effect beyond 2010 until modified. The Council will review ACL and management measures following the next scheduled assessment for red snapper. OY at equilibrium would be 2,0104,000 lb ww. Under this strategy, the fishery would have a 50% chance of rebuilding to SSB_{MSY} by 2032 and an 84% chance of rebuilding to SSB_{MSY} by 2044.

Establish three AMs:

(1) Track CPUE of red snapper via a fishery-independent monitoring program (see Section 4.12) to track changes in biomass.
(2) Track the biomass and CPUE through the research set-aside that would involve data collection by headboat and charterboat operators.
(3) The Council would evaluate the size of the area closures when the discards are estimated to exceed the ACL. CPUE would be evaluated every three years and adjustments would be made by the framework action being modified in Amendment 17B.

Alternative 5. Define a rebuilding strategy for red snapper that sets F_{OY} equal to 65%F_{MSY} (65%$F_{40\%}$). The ACL for 2010 would be 70,000 lbs whole weight. The ACL specified for 2010 would remain in effect beyond 2010 until modified. The Council will review ACL and management measures following the next scheduled assessment for red snapper. OY at equilibrium would be 1,984,000 lbs ww. Under this strategy, the fishery would have a 50% chance of rebuilding to SSB_{MSY} by 2030 and a 94% chance of rebuilding to SSB_{MSY} by 2044.

Establish three AMs:

(1) Track CPUE of red snapper via a fishery-independent monitoring program (see Section 4.12) to track changes in biomass.
(2) Track the biomass and CPUE through the research set-aside that would involve data collection by headboat and charterboat operators.
(3) The Council would evaluate the size of the area closures when the discards are estimated to exceed the ACL. CPUE would be evaluated every three years and adjustments would be made by the framework action being modified in Amendment 17B.

Alternative 6. Define a rebuilding strategy for red snapper that sets F_{OY} equal to 96% F_{MSY} (96%$F_{40\%}$) and rebuilds in 35 years. The ACL for 2010 would be 101,000 lbs whole weight. The ACL specified for 2010 would remain in effect beyond 2010 until modified. The Council will review ACL and management measures following the next scheduled assessment for red snapper. Under this strategy, the fishery would have a 50% chance of rebuilding to SSB_{MSY} by 2044.

Establish three AMs:

(1) Track CPUE of red snapper via a fishery-independent monitoring program (see Section 4.12) to track changes in biomass.
(2) Track the biomass and CPUE through the research set-aside that would involve data collection by headboat and charterboat operators.
(3) The Council would evaluate the size of the area closures when the discards are estimated to exceed the ACL. CPUE would be evaluated every three years and adjustments would be made by the framework action being modified in Amendment 17B.

Alternative 7. Define a rebuilding strategy for red snapper that sets the ACL at 0 (directed landings only). The AM would be to track catch per unit effort (CPUE) of red snapper via a fishery-independent monitoring program (see Section 4.12) to track changes in biomass. CPUE would be evaluated every three years and adjustments would be made by the framework action being developed in Amendment 17B.

Sub-alternative 7a. Rebuilding strategy based on F_{MSY}.
Sub-alternative 7b. Rebuilding strategy based on 85% F_{MSY}.
Sub-alternative 7c. Rebuilding strategy based on 75% F_{MSY}.
Sub-alternative 7d. Rebuilding strategy based on 65% F_{MSY}.
Sub-alternative 7e. Rebuilding strategy based on 96% F_{MSY}.

2.2.2.1 Effects

Biological Effects

Optimum Yield at Equilibrium

The more conservative the estimate of OY, the larger the sustainable biomass when the stock is rebuilt. The greatest biological benefit would be provided by **Alternative 5** and **Sub-alternative 7d**, which would specify an OY at equilibrium equal to 65%F_{MSY}. The least amount of biological benefit would be provided by **Alternative 2** and **Sub-alternative 7a**, which would specify a rebuilding strategy and therefore an OY equal to the yield at F_{MSY}. Therefore, this definition could make it more difficult to sustain red snapper over the long term. Therefore, the biological benefits of this alternative would be intermediate in value and would consider the social and economic effects of the action.

Rebuilding Strategies

Under **Alternatives 2-7**, the red snapper stock could rebuild sooner than specified by each rebuilding strategy since the Council's intent is to prohibit all harvest of red snapper during initial rebuilding and actions are being taken to reduce incidental catch of red snapper in **Section 4.3.**

Alternatives 2-6 would prohibit all harvest of red snapper in the commercial and recreational sectors but would set an ACL equal to the total kill specified in the rebuilding strategy for each alternative. This would require the SEFSC to monitor discarded red snapper in the commercial and recreational sectors. At their March 2009 meeting, the SSC indicated their recommendation of ABC = 0 for speckled hind and warsaw grouper was based on landed catch only, due to concern about monitoring discards. The SSC expressed similar concerns when discussing ACLs based on discards for speckled hind and warsaw grouper at their March 2009 meeting. Since monitoring of discards would rely on self-reporting of discards by fishermen, the SSC felt that this could create a disincentive for fishermen to report if they know that once a certain level of discarded fish is reached, AMs would be triggered, which could potentially further restrict their snapper grouper harvest. Because of these concerns with monitoring discards, CPUE of red snapper would be tracked via a fishery-independent monitoring program to identify changes in biomass. Furthermore, the Council is considering a research set-aside that would involve data collection by headboat and charterboat operators to determine if there are changes in CPUE and biomass. If the ACL was

exceeded or if acceptable increased in CPUE did not occur, the Council would evaluate the size of the area closures. CPUE would be evaluated every three years and adjustments would be made by a framework action being developed in Amendment 17B.

Alternative 2 would establish an ACL of 82,000 lbs whole weight, and define a rebuilding strategy based a constant F of 0.104 and F_{MSY} ($F_{40\%SPR}$). Of the action alternatives considered, **Alternative 2** would have the smallest probability of rebuilding the stock to SSB_{MSY} by 2044. Compared to **Alternatives 3 - 5**, **Alternative 2** would require the longest time to rebuild.

Alternative 3 would define a rebuilding strategy for red snapper that maintains fishing mortality at a constant F of 0.088 and 85% F_{MSY} ($85\%F_{40\%SPR}$). Under **Alternative 3**, the initial reduction in total kill of 86% would be required. The ACL would be 69,000 lbs whole weight until modified. Under this alternative the stock has a 50% chance of being rebuilt by 2036, six years later than **Alternative 5**, and **4 (Preferred)** years later than **Alternative 4 (Preferred)**. Furthermore, there is a 69% chance the stock could rebuild to SSB_{MSY} in the maximum allowable 35 year time frame.

Under **Alternative 4 (Preferred)**, an 87% reduction in total kill would be required. At this rate of recovery, the stock would have a 50% probability of reaching a rebuilt condition in 2032 and an 84% probability of reaching a rebuild condition by 2045. **Alternative 4 (Preferred)** would rebuild the stock faster than **Alternative 3**, but would rebuild it two years slower than **Alternative 5**.

Alternative 5 would implement the most conservative rebuilding strategy of all the alternatives considered. The ACL would be the lowest of all the alternatives and would remain in effect until modified. An 88% reduction in total kill would be required under **Alternative 5**. **Alternative 5** may be viewed as too conservative in light of the fact that **Alternatives 3** and **4 (Preferred)** are also expected to rebuild the stock within the allowable time frame.

Under **Alternative 6**, an initial 84% reduction in total kill would be required. **Alternative 6** specifies a fishing mortality rate that would rebuild the stock to SSB_{MSY} in the maximum allowable time of 35 years (2044). **Alternative 6** is more biologically beneficial than **Alternative 1 (Status Quo)** and **Alternative 2** because it would lead to a substantial increase in SSB in the first 20 years of implementation but would allow for slower recovery of the stock than **Alternatives 3-5**.

Alternative 7 would define a rebuilding strategy for red snapper that sets the ACL at 0 (directed landings only). The biological effects of **Sub-alternatives 7a-7e** correspond to **Alternatives 2-6** described above. The primary difference between **Alternative 7** and **Alternatives 2-6** is **Alternative 7** sets the ACL at 0 where a certain level of dead discards is assumed but not monitored. In contrast, **Alternatives 2-6** would require the SEFSC monitor the level of dead discards with respect to the ACL. The advantage of **Alternatives 2-6** is a concrete value would be specified for an ACL and action could be taken if that value was exceeded. The disadvantage of **Alternatives 2-6** is discard data are more uncertain than landed data and the SSC has concern that the public may under report discards if there is a perception further restrictions could be placed on fisheries when a specified level is achieved.

Under **Alternative 7**, the AM would be to track catch per unit effort (CPUE) of red snapper via a fishery-independent monitoring program (see **Section 4.12**) to track changes in biomass. CPUE would be evaluated every three years and adjustments would be made by the framework action being developed in Amendment 17B. The proposed framework for a fishery-independent red snapper monitoring program would continue the long-term data series from MARMAP surveys and adds a complementary sampling program to expand needed coverage. The improved sampling plan would increase the (1) spatial footprint (central FL to Cape Hatteras, NC), (2) sample size, and (3) number of gear utilized over current survey levels, thereby considerably improving program effectiveness.

Economic Effects

Commercial Fishery

The alternatives above identify various rebuilding schedules and their implied ACLs. In general, the lower the ACL, the greater would be the negative short-term economic effects. However, a lower ACL implies a shorter rebuilding period and therefore greater positive long-term economic effects. In 2007, the commercial fishery for red snapper harvested 108,000 pounds of red snapper with an ex-vessel value of $376,000. If the commercial fishery only harvests the ACL amount under each of the alternatives, the short-term annual loss in revenue from red snapper would amount to approximately $89,800 under **Alternative 2**, $135, 200 under **Alternative 3**, $163,110 under **Alternative 4**, and $187, 540 under **Alternative 5**. However, since the ACL includes discards, these estimates are the maximum amounts. Actual negative impacts would be more. Under the assumption that the ACL is the upper limit of a commercial quota, short-

term negative economic effects would be greatest under **Alternative 5**. However, **Alternative 5** has the shortest rebuilding period, and therefore, the largest long-term positive economic effects. **Alternative 6** has impacts between those of **Alternatives 2** and **3**. Impacts from **Alternative 7** depend upon the risk associated with accuracy of predicting dead discards. These estimates only consider the negative impacts from the decrease in the red snapper ACL. If the red snapper limitations on harvest prevent catch of co-occurring species, this will have to be incorporated in order to assess the full impact of these alternatives. Also, these estimates do not incorporate Amendment 16 regulations into the status quo. If these were able to be incorporated into the baseline, the impacts would be less. Therefore, these impacts are overestimates.

Positive impacts to the non-use value of the red snapper resource would be lowest under **Alternative 1 (Status Quo)** and highest under **Alternative 5**.

Recreational fishery

The alternative rebuilding strategies and their implied ACLs provide measurable parameters that would delimit the nature and extent of management measures to be implemented over time. In general, a lower ACL would imply more stringent management measures and consequently larger adverse economic effects in the short-run but potentially larger benefits in the long run.

Abstracting from **Alternative 1 (Status Quo),** which is the status quo, all alternatives would virtually render the red snapper fishery a bycatch fishery for the recreational sector. **Alternatives 2-6** would provide for some positive ACL level for red snapper while **Alternative 7** would set the ACL to zero for directed landings. Whether or not some benefits can be derived from the positive ACLs depends on the actual management measures implemented. Given the management measures specified in the next section where basically the harvest, retention, and possession of red snapper would be prohibited or the structure of fishing activities severely curtailed, the recreational sector of the red snapper fishery would not derive any economic benefit from any of the positive ACLs (**Alternatives 2-6**) or from the zero ACL (**Alternative 7**) during the rebuilding period. Some positive benefits from the positive ACLs would occur only if less restrictive management measures are implemented during the rebuilding period. Naturally, benefits would accrue once the stock is rebuilt and management measures are changed to effectively allow directed harvests.

If the same management measures are maintained throughout the rebuilding period until B_{msy} is reached, the various rebuilding strategies would carry the same economic costs. In that case, the alternatives may be compared on the basis of expected economic benefits over time, and economic benefits would be mainly determined by the probability of achieving the B_{msy} target. In this case, the alternatives may be ranked in the following descending order: A**lternative 5**, **Alternative 4**, **Alternative 3**, and **Alternatives 6** and **2**. The various sub-alternatives under **Alternative 7** may be ranked in a similar manner. Although the various ACLs are calculated on the assumption of very high recruitment, different recruitment levels may affect the probability of successfully achieving the target but not necessarily the relative ranking of alternatives. One major factor that can change the ranking of alternatives pertains to the possibility of changing management regulations during the rebuilding period. For example, if an ACL is exceeded, additional stringent measures may be implemented to constrain red snapper removal to the chosen ACL. This could materially change the costs of regulations during the rebuilding period. Although this could happen with lower ACLs, there is a possibility this could happen as well with higher ACLs. This possible difference in costs among the various alternatives when management measures are changed cannot be evaluated, so the possible change in the ranking of alternatives cannot be determined.

The same three sets of accountability measures accompany **Alternatives 2-6**. The first one would track CPUE/biomass of red snapper via a fishery independent data collection; the second would track CPUE/biomass via a research program involving headboats and charterboats; and, the third would require the Council to evaluate CPUE/biomass every three years and make adjustments to the size of area closures when discards are estimated to exceed the ACL. The costs to fishing participants associated with the tracking of CPUE and biomass are relatively minimal, but the administrative costs for the fishery independent data collection could vary from small to large depending on the size of the program. Any additional closures based on the collected information would add costs especially to the fishing participants of other fisheries. The costs and potential benefits of these AMs to the fishing participants would be proportionally the same across **Alternatives 2-6**. The AM for **Alternative 7** involves tracking of red snapper CPUE via a fishery independent monitoring program, with the CPUE being evaluated every three years to determine if adjustments to the management measures are required. The costs to fishing participants arising out of this particular AM would be about the same as those under the AMs for the other alternatives. Because CPUE/biomass tracking would be done via one instead of two tracking methods, the administrative costs of this particular AM would be slightly less than the AMs for the other alternatives. But with only one source of data, there is a possibility the evaluation would be less accurate. This could

potentially result in getting off track of the rebuilding schedule. If more strict adjustments become necessary later, the resulting costs to fishing participants may turn out to be higher than those of the AMs for the other alternatives.

2.3 Red Snapper Management Measures

Note: More than one of the alternatives and/or sub-alternatives below may be chosen as preferred alternatives.

Alternative 1 (Status Quo). This would continue the 20-inch size limit (commercial & recreational) and the recreational 2 fish bag limit (included in the 10 snapper per person limit).

Alternative 2. Prohibit all commercial and recreational harvest, possession, and retention of red snapper year-round in the South Atlantic EEZ.

Alternative 3. Prohibit commercial and recreational harvest, possession, and retention of species in the snapper grouper FMU year-round in an area that includes commercial logbook grids 2880, 2980, 3080, and 3180 between a depth of 98 feet (16 fathoms; 30 m) to 240 feet (40 fathoms; 73 m), or 8,100 sq miles of the South Atlantic EEZ. Prohibit all commercial and recreational harvest, possession, and retention of red snapper year-round in the South Atlantic EEZ.

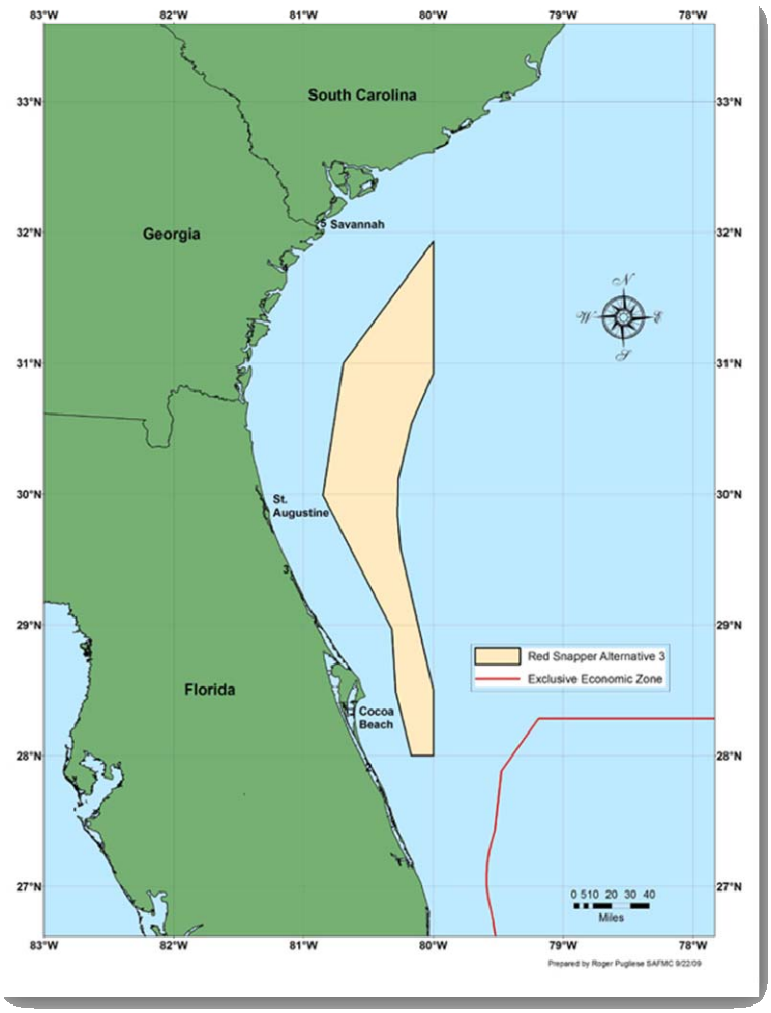

Figure 2. Map of proposed closed area under **Alternative 3**.

Alternative 4. Prohibit commercial and recreational harvest, possession, and retention of species in the snapper grouper FMU year-round in an area that includes commercial logbook grids 2880, 2980, 3080, 3179, 3180, 3278, and 3279 between a depth of 98 feet (16 fathoms; 30 m) to 240 feet (40 fathoms; 73 m), or 12,300 sq miles of the South Atlantic EEZ. Prohibit all commercial and recreational harvest, possession, and retention of red snapper year-round in the South Atlantic EEZ.

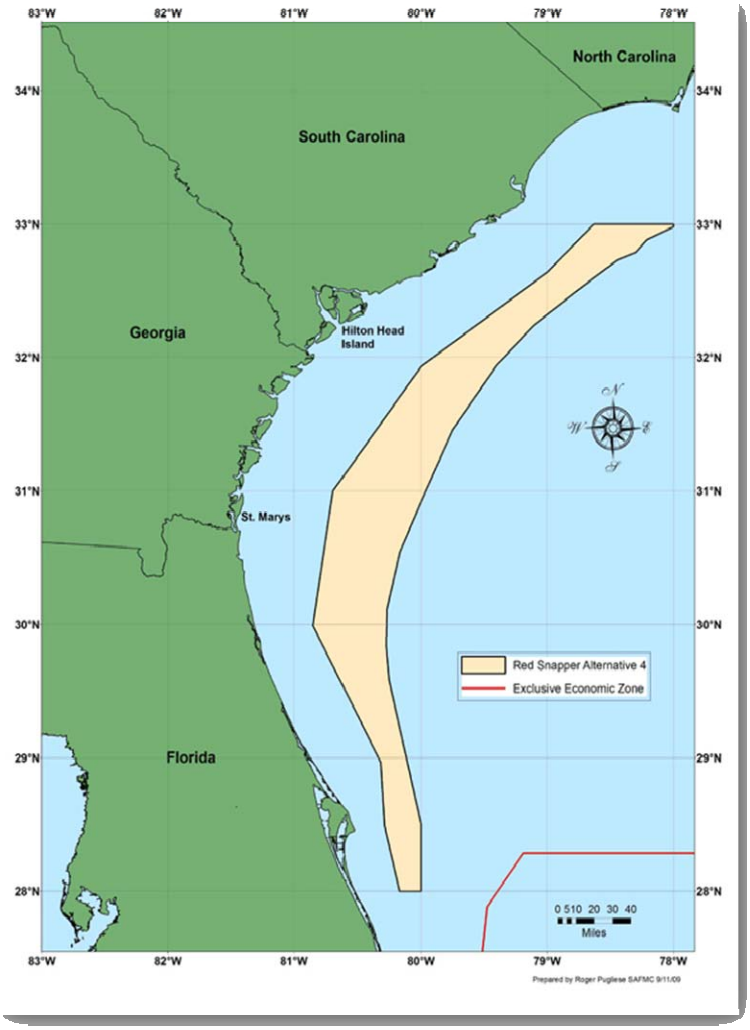

Figure 3. Map of proposed closed area under **Alternative 4.**

Alternative 5. Prohibit commercial and recreational harvest, possession, and retention of species in the snapper grouper FMU year-round in an area that includes commercial logbook grids 2880, 2980, 3080, and 3180, or 13,900 sq miles of the South Atlantic EEZ. Prohibit all commercial and recreational harvest, possession, and retention of red snapper year-round in the South Atlantic EEZ.

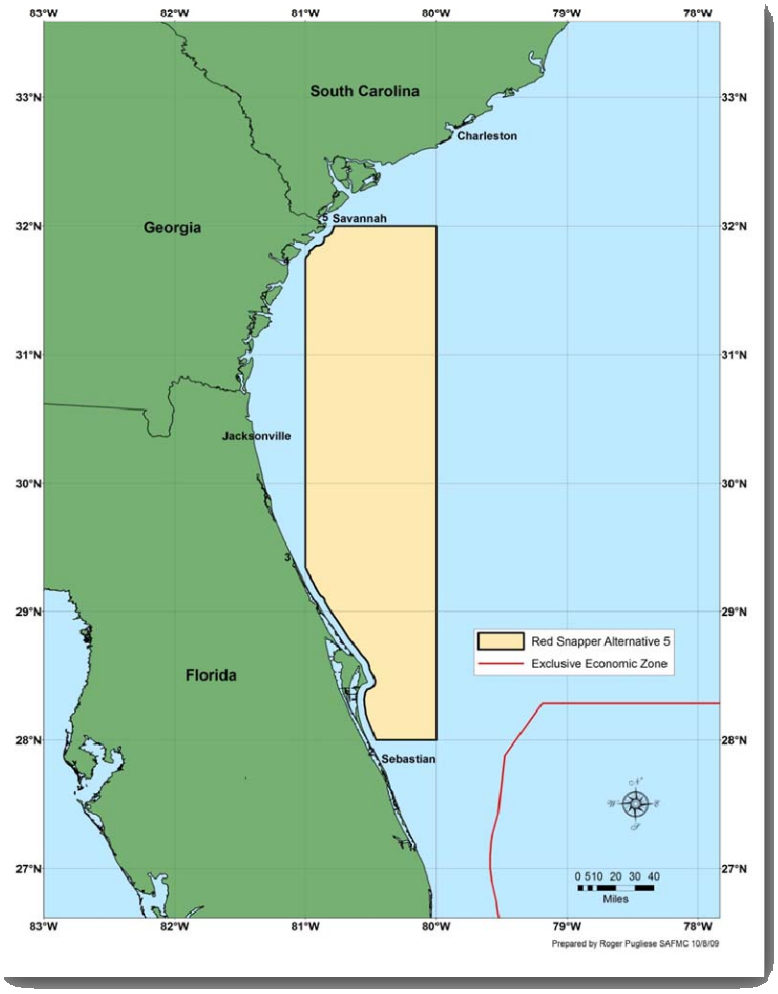

Figure 4. Map of proposed closed area under **Alternative 5.**

Alternative 6 . Prohibit commercial and recreational harvest, possession, and retention of species in the snapper grouper FMU year-round in an area that includes commercial logbook grids 2880, 2980, 3080, 3179, 3180, 3278, and 3279, or 26,600 sq miles of the South Atlantic EEZ. Prohibit all commercial and recreational harvest, possession, and retention of red snapper year-round in the South Atlantic EEZ.

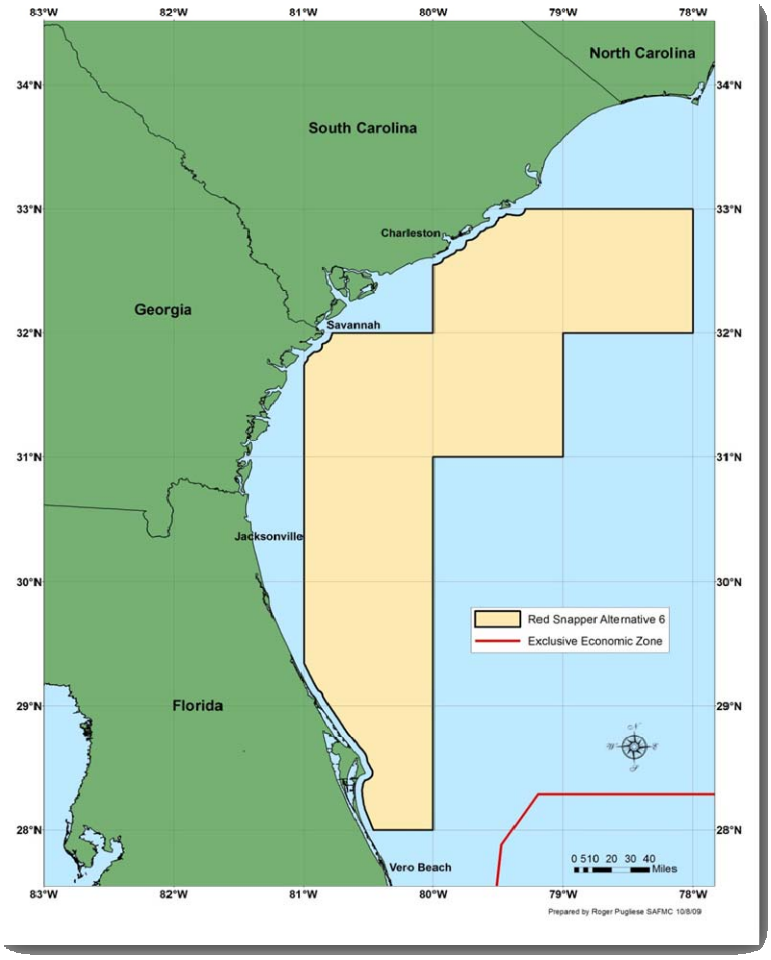

Figure 5. Map of proposed closed area under **Alternative 6.**

Alternative 7. Allow harvest, possession, and retention of snapper grouper species (with the exception of red snapper) in the closed area if fish were harvested with black sea bass pots with endorsements.

Alternative 8. Allow harvest, possession, and retention of snapper grouper species (with the exception of red snapper) with bottom longline gear in the closed area deeper than 50 fathoms as specified in CFR §622.35.

Alternative 9. Allow harvest, possession, and retention of snapper grouper species (with the exception of red snapper) in the closed area if fish were harvested with spearfishing gear.

Alternative 10. Prohibit all commercial and recreational harvest, possession, and retention of red snapper year-round in South Atlantic EEZ. Establish a limited, designated snapper-grouper bottom fishing zone (or zones) between 28 degrees N (approx. Stuart, FL) and 33 degrees N (Cape Romain, SC) within the South Atlantic EEZ.

Allocate a portion of the 79,000 lb ACL as non-directed removals; i.e., bycatch mortality, between the closure area and outside the closure area.

> **Outside the closure area**: Take the poundage allotment for area south of 28 degrees north and north of 33 degrees north (Cape Romain), off the 79,000 lb.
>
> South of 28 degrees (approx. Stuart FL) – 25,048 pounds
> North of 33 degrees (Cape Romain SC) – 24,047 pounds
> 49,095 lb (non-directed removals) comes off the 79,000 ACL (These are draft numbers subject to change.)
> **Closure area**: Allocate the remaining poundage (79,000 – 49,095 lbs) as directed removals to the three sectors:
>
> 28% - commercial 8,373 lbs
> 29% - for hire 8,672 lbs
> 43% - recreational 12,859 lbs
>
> (Team to verify numbers and convert to numbers of fish where appropriate)
>
> (Determine number of fish)

Commercial

The red snapper commercial ACL within the zone is 8,373 lbs. Make X number of permits available to those that hold a Federal Snapper Grouper Commercial Permit that would allow the permit holder to fish for species in the Snapper Grouper FMU inside of the limited, designated snapper-grouper bottom fishing zone(s) using circle hooks. Commercial permit holders selected to fish the designated fishing zone would be selected by a lottery system. (Details to be inserted; see GA DNR's rules for administering a lottery system). NMFS-SERO shall issue permits in the initial or any subsequent permit year by lottery devised and operated by the agency. A subset would be selected by the SEFSC to bring in red snapper for biological sampling. If real-time reporting requirements are violated, the permit holder would be subjected to severe sanctions, up to and including permit revocation. Once the real-time monitoring indicates the poundage [i.e., red snapper discards] allocated to the commercial sector has been taken, all permits for that sector are rescinded.

The following tracking and accountability measures would be required for those with a permit to fish in the zone:

- VMS
- Real time electronic catch (directed and non-directed) reporting via electronic logbooks Video monitoring or observers (if selected)
- (The Council discussed requiring observers in at least in the first year to validate the video monitoring.)

For-Hire (Headboat and Charterboat)

The red snapper for-hire ACL within the zone is 8,672 lbs. Make X number of permits available to those that hold a Federal Snapper Grouper For-Hire Permit that would allow the permit holder to fish for species in the Snapper Grouper FMU inside of the limited, designated snapper-grouper bottom fishing zone(s) using circle hooks. For-hire permit holders selected to fish the designated fishing zone would be selected by a lottery system. (Details to be inserted; see GA DNR's rules for administering a lottery system). NMFS-SERO shall issue permits in the initial or any subsequent permit year by lottery devised and operated by the agency. A subset would be selected by the SEFSC to bring in red snapper for biological sampling. If real-time reporting requirements are violated, the

permit holder would be subjected to severe sanctions, up to and including permit revocation. Once the real-time monitoring indicates the poundage [i.e., red snapper discards] allocated to the for-hire sector has been taken, all permits for that sector are rescinded.

The following tracking and accountability measures would be required for those with a permit to fish in the zone:

- Mandatory species ID training
- VMS
- Real time catch (directed and non-directed) reporting via logbooks??
- Video monitoring or Observers (if selected)
- (The Council discussed requiring observers in at least in the first year to validate the video monitoring.)

Private Recreational

The red snapper private recreational ACL within the zone is 12,859 lbs. Make X number of permits available that would allow the permit holder to fish for species in the Snapper Grouper FMU inside of the limited, designated snapper-grouper bottom fishing zone using circle hooks. Private recreational permit holders selected to fish the designated fishing zone would be selected by a lottery system. (Details to be inserted; see GA DNR's rules for administering a lottery system). NMFS-SERO shall issue permits in the initial or any subsequent permit year by lottery devised and operated by the agency. A subset would be selected by the SEFSC to bring in red snapper for biological sampling. If real-time reporting requirements are violated, the permit holder would be subjected to severe sanctions, up to and including permit revocation. Once the real-time monitoring indicates the poundage [i.e., red snapper discards] allocated to the private recreational sector has been taken, all permits for that sector are rescinded.

The following tracking and accountability measures would be required for those with a permit top fish in the zone:

- Mandatory species ID training
- VMS
- Real time text message reporting of catch (B1s and B2s)
- Video monitoring

Permit Numbers

At the September 2009 Council meeting, NMFS Law Enforcement personnel indicated that they could adequately monitoring, using VMS, 1,000 vessels. Under that scenario, the following number of permits would be distributed each year:

28% - commercial	280 boats
29% - for hire X 10 to obtain boat #	290 boats
43% - recreational	430 boats
	1,000 boats

These calculations were brought forward by a Council member. It may not be possible to divvy this small number of fish among this many boats. Perhaps you can, if fishermen can really stay off the snapper, as the commercial fishermen assert that they can.

There was discussion that attrition in the commercial and for-hire sectors would be so substantial as to allow everyone remaining to participate, so that a lottery wouldn't be necessary for that sector.

Costs

Applicant to procure the monitoring technology. VMS can be reimbursed; other technology such as video monitoring, electronic logbooks, etc. would be responsibility of the applicant.

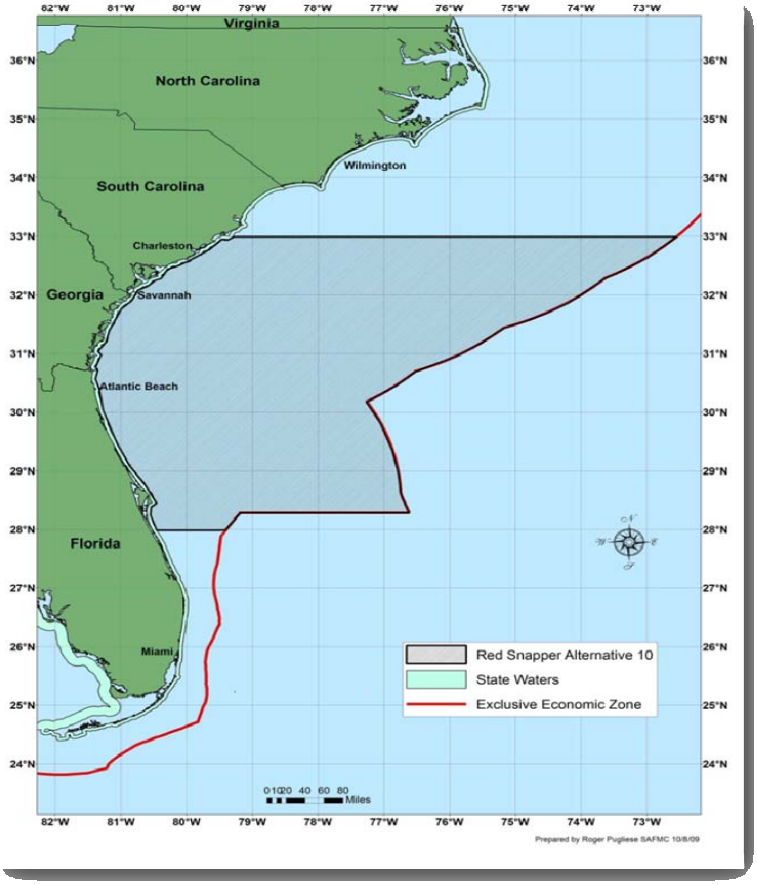

Figure 6. Map of proposed lottery program area under **Alternative 10.**

Alternative 11. Allow transit through areas closed to snapper grouper harvest.

> **Sub-alternative 11a.** The prohibition on possession does not apply to a person aboard a vessel that is in transit with snapper-grouper species on board and with fishing gear appropriately stowed.

Vessels (both commercial and recreational) may transit through any snapper grouper closed area in the South Atlantic EEZ with snapper grouper species on board if prohibited fishing gear is appropriately stowed and not available for immediate use. Use of spearfishing gear is permitted within South Atlantic snapper grouper closed areas and is not subject to this provision.

The term *"transit"* means: Direct, non-stop progression through any snapper grouper closed area in the South Atlantic EEZ on a constant heading, along a continuous straight line course, while making way by means of a source of power at all times.

The term *"Gear appropriately stowed"* includes but is not limited to: **Terminal gear** (i.e., hook, leader, sinker, flasher, or bait) used with an automatic reel, bandit gear, buoy gear, tolling gear, hand-line, or rod and reel must be disconnected and stowed separately from such fishing gear. Rod and reel must be removed from the rod holder and stowed securely on or below deck; **longline gear** may be left on the drum if all gangions and hooks are disconnected and stowed below deck, hooks cannot be baited, all buoys must be disconnected from the gear; however, buoys may remain on deck; **trawl and try net gear** may remain on deck, but trawl doors must be disconnected from such net and must be secured; **gill nets**, stab nets, or trammel nets must be left on the drum, any additional such nets not attached to the drum must be stowed below deck; and **crustacean traps,** golden crab trap, or sea bass pots cannot be baited, all buoys must be disconnected from the gear; however, buoys may remain on deck. Other methods of stowage authorized in writing by the Regional Administrator, and subsequently published in the *Federal Register* may also be utilized under this definition.

The term *"Not available for immediate use"* means: Gear that is shown to not have been in recent use and that is stowed in conformance with the definitions included under "gear appropriately stowed".

> **Sub-alternative 11b.** The prohibition on possession does not apply to a person aboard a vessel that has snapper grouper species onboard if the vessel is in transit.

Vessels (both commercial and recreational) may transit through any snapper grouper closed area in the South Atlantic EEZ with snapper grouper species.

The term *"transit"* means: Direct, non-stop progression through any snapper grouper closed area in the South Atlantic EEZ on a constant heading, along a continuous straight line course, while making way by means of a source of power at all times.

Sub-alternative 11c. The prohibition on possession does not apply to a person aboard a vessel that has wreckfish onboard if the vessel is in transit.

Vessels (both commercial and recreational) may transit through any snapper grouper closed area in the South Atlantic EEZ with snapper grouper species and/or wreckfish on board.

The term *"transit"* means: Direct, non-stop progression through any snapper grouper closed area in the South Atlantic EEZ on a constant heading, along a continuous straight line course, while making way by means of a source of power at all times.

2.3.1 Effects

Biological Effects

Under **Alternative 1 (Status Quo)**, harvest reductions in total kill of 16.5% (commercial sector), 1.1 to 7.7% (headboat sector), and 2.3% (private/charter sector) stemming from Snapper Grouper Amendment 16 (SAFMC 2008), which has recently been implemented. An 85% reduction in total removals of red snapper is needed to end overfishing. Under the preferred rebuilding strategy, a 90% reduction in red snapper total removals would be needed. **Alternative 2** would prohibit all commercial and recreational harvest, possession, and retention of red snapper year-round in the South Atlantic EEZ. Depending on the assumptions, prohibiting all harvest of red snapper under **Alternative 2**, could provide between a 39 to 61% reduction in total removals.

Alternative 3 prescribes, in addition to a closure of the red snapper fishery, a closure of four logbook grids (2880, 2980, 3080, 3180) between depths of 98 feet (16 fathoms; 30 m) and 240 feet (40 fathoms, 73m) to harvest, possession, and retention of all species in the snapper grouper FMU. Under **Alternative 3**, the estimated reduction in total removals is estimated to range from 79%, which assumes the SEDAR 15 (2008) 90% release mortality rate for the commercial fishery to 88% reduction in total removals, which assumes a 40% discard mortality (SERO-LAPP-2009-07). **Alternative 5**, which prescribes a general closure of the red snapper fishery and a complete closure of the four logbook grids partially closed in **Alternative 3** would provide a reduction in total removals from 80% to 88%.

Alternative 4 requires, in addition to a closure of the red snapper fishery, the year-round closure of seven logbook grids (2880, 2980, 3080, 3179, 3180, 3278, 3279) between depths of 98 and 240 feet to the harvest of all members of the snapper/grouper FMU. Under this regulatory option, assuming **Alternative 4** has the same impacts upon recreational and headboat fisheries as **Alternative 6**, the reduction in total kill in the different scenarios examined in SERO-LAPP-2009-07 would range from 84% to 90%. The reduction in total removals from the scenarios examined for **Alternative 6** range from 86% to 90%. This alternative would establish the year-round closure of seven logbook grids (2880, 2980, 3080, 3179, 3180, 3278, 3279) and therefore includes the most extensive closure of harvest areas.

Allowing transit with snapper grouper and or wreckfish on board (**Sub-Alternatives 7a, 7b**, and **7c**) would make enforcement within the closed areas more difficult; however, the enforcement burden may be mitigated by careful drafting of transit and "gear stowed" regulations. Additionally, allowing for transit through the closed area would likely eliminate any safety-at-sea concerns that may arise from having to navigate around a closed area in bad weather.

Economic Effects

Alternative 2 is the least restrictive alternative because it would prohibit the harvest of red snapper only, and is expected to reduce net operating revenues for commercial fishermen by an average of approximately 4 percent per year (Figure 7). For individual years of data used in the analysis, the expected losses in net operating revenues associated with **Alternative 2** ranged from 2.4 percent for 2006 to 7.3 percent for 2008. The expected losses are relatively small because red snapper is not a high-volume species in the commercial snapper-grouper fishery.

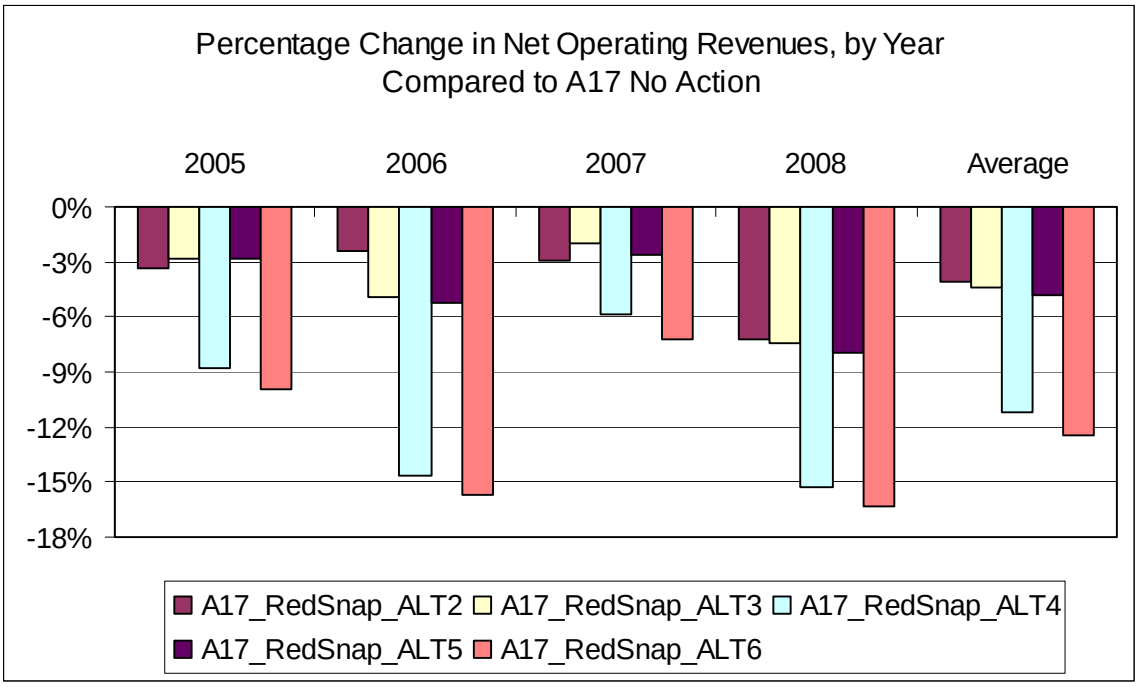

Figure 7. Predicted percentage changes in net operating revenues compared to the No Action alternative for Amendment 17A.

Alternatives 3 and **4** would prohibit the harvest of all species in the snapper-grouper management unit between 98 and 240 foot water depths in specific geographic locations. **Alternative 3** would prohibit harvests of snapper-grouper species off northeast Florida and Georgia, while **Alternative 4** would prohibit harvests off portions of South Carolina in addition to northeast Florida and Georgia. Therefore, **Alternative 4** is expected to generate greater losses for the commercial fishery than **Alternative 3** because it encompasses a broader range of restricted waters. **Alternative 3** is predicted to reduce net operating revenues for commercial fishermen by an average of approximately 4.4 percent per year, whereas **Alternative 4** is predicted to reduce net operating revenues by 11.2 percent (Figure 7). For **Alternative 3**, the expected losses for individual years range from 2.0 percent for 2007 to 7.4 percent for 2008. For **Alternative 4**, the expected losses for individual years range from 5.9 percent for 2007 to 15.3 percent for 2008.

Alternatives 5 and **6** would prohibit the harvest of all species in the snapper-grouper management unit regardless of water depth in specific areas. **Alternative 5** would prohibit fishing for species in the snapper-grouper management unit in the same areas off Georgia and northeast Florida as would **Alternative 3**, and **Alternative 6** would prohibit fishing in the same areas as would **Alternative 4**. Therefore, **Alternative 5** is expected to

generate greater losses than **Alternative 3** because **Alternative 3** would prohibit harvests only in water depths between 98 and 240 feet. **Alternative 6** is expected to generate greater losses than **Alternative 4** for the same reason. On average, **Alternative 5** is expected to generate reductions of about 4.8 percent in net operating revenues, and **Alternative 6** is expected to generate reductions of about 12.4 percent (Figure 7). For **Alternative 5**, the expected losses for individual years range from 2.6 percent for 2007 to 8.0 percent for 2008. For **Alternative 6**, the expected losses for individual years range from 7.3 percent for 2007 to 16.4 percent for 2008.

Although the average overall expected reductions in net operating revenues range from 4 percent to slightly more than 12 percent for the entire commercial snapper-grouper fishery, the effects of Amendment 17A would be highly focused on fishermen in northeast Florida and Georgia because that region represents the center of the red snapper fishery (Figures 8 and 9). Fishermen there would incur the largest losses in absolute and relative terms The predicted reductions in net operating revenues for fishermen in northeast Florida and Georgia are expected to average approximately 24 percent for **Alternative 2,** 64 percent for **Alternative 3,** 70 percent for **Alternative 4**, 65 percent for **Alternative 5**, and 71 percent for **Alternative 6** (Figure 9).

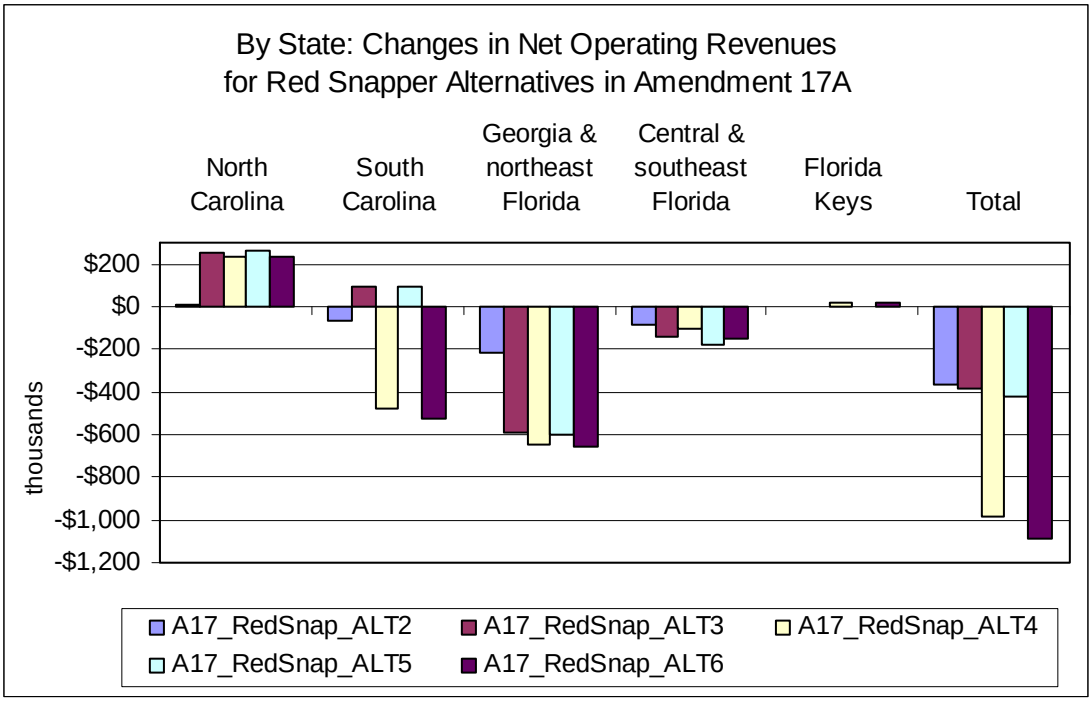

Figure 8. Change in net operating revenues by state of landing for red snapper alternatives compared to the No-Action alternative for Amendment 17A.

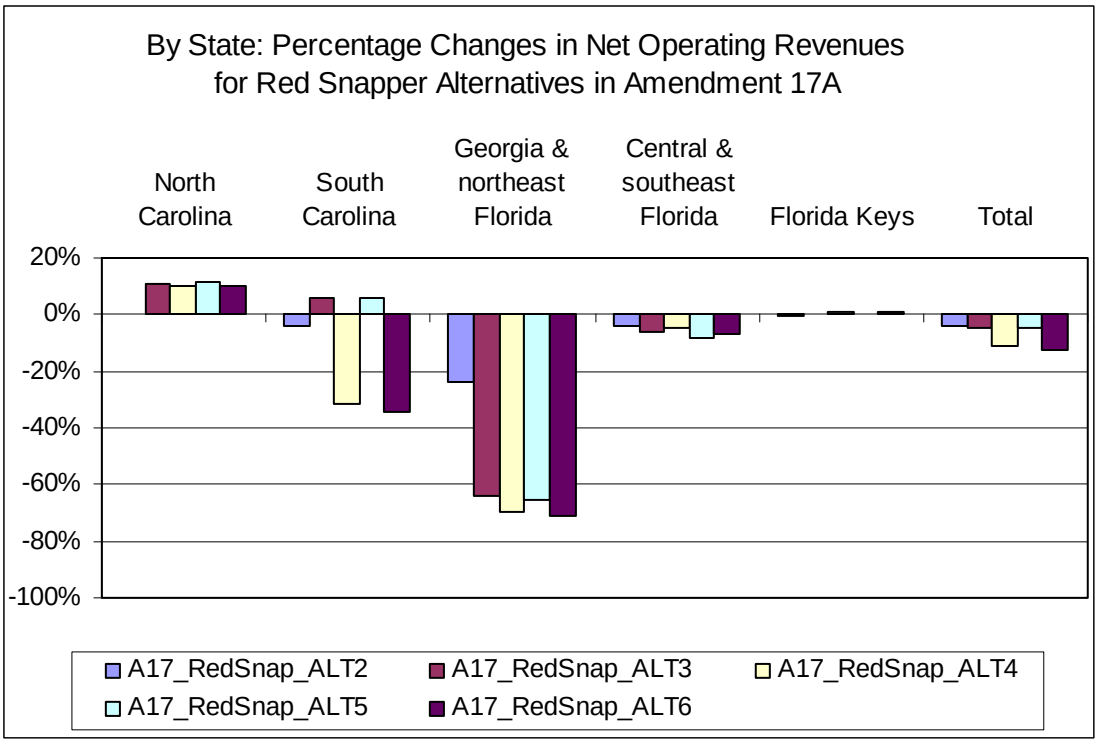

Figure 9. Percentage change in net operating revenues by state of landing for red snapper alternatives compared to the No-Action alternative for Amendment 17A.

Table 2 summarizes the impacts to the recreational sector.. This assessment evaluated the expected change in economic value relative to the status quo to fishers and for-hire vessels in response to the proposed alternatives. The change in economic value is measured in terms of the consumer surplus (CS) to recreational anglers and net operating revenues (NOR) to for-hire vessels. CS in the present case is the net benefit an angler derives from an additional fish kept on a fishing trip and is equivalent to the difference between the monetized benefit an angler receives and the actual cost. This value is the appropriate measure of economic effects on recreational anglers as a result of changes in fishing regulations. NOR is the net operating revenue, expressed on a per angler basis, a charterboat or headboat derives from a fishing trip. NOR is calculated as revenue minus the costs for fuel, ice, bait, and other supplies.

Table 2. Summary of economic effects, in 2009 dollars.

		FL-NE	FL-SE	GA	SC	NC	TOTAL
ALT. 2	CS	3,543,852	622,764	440,795	243,742	6,702	4,857,855
	NOR	3,075,319	555,444	158,760	355,326	161,989	4,306,837
	TOTAL	6,619,170	1,178,207	599,555	599,068	168,691	9,164,692
ALT. 3,5	CS	11,168,342	622,764	522,848	243,742	6,702	12,564,398
	NOR	3,929,523	555,444	161,128	355,326	161,989	5,163,410
	TOTAL	15,097,865	1,178,207	683,976	599,068	168,691	17,727,808
ALT. 4,6	CS	11,168,342	622,764	522,848	1,550,774	6,702	13,871,430
	NOR	3,929,523	555,444	161,128	848,156	161,989	5,656,239
	TOTAL	15,097,865	1,178,207	683,976	2,398,930	168,691	19,527,670

2.4 Require the use of Circle Hooks

Alternative 1 (Status Quo). Do not require the use of circle hooks within any particular area of the South Atlantic EEZ when fishing for snapper grouper species.

Alternative 2. Require the use of circle hooks when fishing for snapper grouper within the area north of 28 degrees.

Alternative 3. Require the use of circle hooks when fishing for snapper grouper species within the South Atlantic EEZ.

2.4.1 Effects

Alternative 2 would require the use of circle hooks within north of 28^{o}N; whereas **Alternative 3** would require the use of circle hooks within the South Atlantic EEZ. The intended effect is to reduce discard and bycatch mortality of red snapper.

Studies on the effects of circle hooks and J hooks on retention and survival is limited to a handful of snapper grouper species. Some studies indicate beneficial effects can be gained to species such as red snapper while others are inconclusive. Due to limited data, it is not possible to quantify the reduction in red snapper release mortality that could be

provided by using circle hooks. Furthermore, not all species in the snapper grouper complex have the same mouth morphology and it is possible that circle hooks could negatively impact survival. Alternatively, use of circle hooks could substantially reduce harvest of some species, would have positive biological benefits but have negative social and economic impacts on fishermen dependent upon the species.

The mandatory use of circle hooks was considered in Amendment 16 but removed after the amendment was reviewed by the Council's SSC. The SSC was concerned that there was not enough published information to quantify the effects of reducing discard mortality for various snapper grouper species, including red snapper. The SSC also expressed concern as did some public comments, that mandatory use of circle hooks could reduce availability of some snapper grouper species such as yellowtail snapper and gray triggerfish, which are not overfishing or overfished. Yellowtail snapper are primarily taken in South Florida; therefore, if **Alternative 3** was not selected as the preferred alternative, fishermen targeting yellowtail snapper with J-hooks would be able to continue this practice.

2.5 Establish a Red Snapper Monitoring Program

Alternative 1. (Status Quo) Utilize existing data collection programs to monitor the rebuilding progress of red snapper. Existing programs include the fishery dependent Marine Recreational Information Program (MRIP), logbook, discard logbook, headboat logbook, Trip Interview Program (TIP), and dealer reported landings. Fishery independent methods include Marine Resources Monitoring Assessment and Prediction Program (MARMAP), and the Southern Area Monitoring and Assessment Program (SEAMAP). Over the course of the next three years MARMAP will be looking for red snapper sampling sites along the north FL and South GA coast.

Alternative 2. Establish fishery independent monitoring program to track progress of red snapper. Sampling would include deployment of chevron traps, cameras, and hook and line at randomly selected stations.

Alternative 3. Establish a red snapper research fishery involving for-hire vessels (charter boat and headboats). Participating vessels may be authorized to harvest and land fish in excess of Federal possession limits and/or during fishery closures. Retention limits for red snapper would be based upon research objectives. The trip limits and number of trips per month will depend on the number of selected vessels, available quota, and objectives of the research fishery (Table 2).

Table 2. Sub-Alternatives under consideration for the red snapper research fishery.

	Number of vessels to participate		Trip Limit (lbs whole weight)	Trips/month	Fishing Season
	CB	HB			
Alternative 3a					
Alternative 3b					
Alternative 3c					

[In order to determine the number of headboats that could participate while still allowing the stock to rebuild, several variables need to be considered, i.e., number of grids closed, biomass in closed grids, number of vessels located near closed areas able to participate, level of dead discards predicted for commercial and recreational sector inside and outside the closed areas.]

Sub-Alternatives under consideration for the red snapper headboat research fishery.
*If no directed fishing were allowed in the commercial and recreational sectors ACL = 0, and no discards by participating headboats. Note: It is not possible to complete this table until preferred alternative specifying are closure is selected. Table will likely have to be completed by Science Center.

Administrative Details

The National Marine Fisheries Service (NMFS) will annually request applications for participation in the red snapper research fishery through an Exempted Fishing Permit (EFP). The EFP would authorize participation in the red snapper research fishery and the collection of red snapper and other species in the Fishery Management Unit. Participating vessels may be authorized to harvest and land fish in excess of Federal possession limits and/or during fishery closures.

NMFS will review the submitted applications based on the selection criteria as described in a Federal Register notice and information provided on the application form to determine which applicants are qualified to participate in the red snapper research fishery.

Qualified applicants are those that:

- possess a valid commercial snapper grouper Federal permit;
- possess a valid United States Coast Guard (USCG) safety inspection decal when the application is submitted;
- have not been charged criminally or civilly (i.e., issued a Notice of Violation and Assessment (NOVA) or Notice of Permit Sanction) for any snapper grouper-related violation;
- have complied with NMFS observer programs and are able to take a NMFS-approved observer; and,
- submit a completed application by the posted deadline.

2.5.1 Effects

The no action **Alternative 1 (Status Quo)** would not establish a program to monitor rebuilding of red snapper. However, since some of the alternatives being considered would prohibit fishing for or retention of red snapper as well as area closures for snapper grouper species, traditional fishery-dependent data would be lacking and it would not be possible to track recovery of red snapper in SEDAR updates and future benchmark assessments. Further, existing fishery-independent data collection programs would not be sufficient to monitor red snapper due to limitations associated with the temporal and spatial range of sampling.

Alternative 2 would utilize fishery-independent sampling to collect data to monitor stock status of red snapper. It is possible that with additional funding, the Marine Resources Monitoring Assessment and Prediction Program (MARMAP) or a new program could be established to accomplish the task.

Under **Alternative 2**, chevron traps would be used to collect information on red snapper. Few red snapper have been taken with chevron trap by the MARMAP program. However, use of chevron traps in the Gulf of Mexico indicates red snapper are readily available to this gear type. It may be that few red snapper have been taken with this gear in the South Atlantic because MARMAP began using the gear when biomass was already at very low levels. In addition, the zone of greatest abundance for red snapper is off north Florida in the South Atlantic, which represents the geographic extreme for sampling by the MARMAP program.

Alternative 3 would employ fishery dependent data to monitor abundance of red snapper. The advantage in having fishermen collect information is they would have some knowledge about locations where red snapper can be found that might not be available to

researchers. The disadvantage would be fishermen could target red snapper where they are most concentrated and therefore, trends in CPUE and mean length might not reflect true population trends. To eliminate this bias, sampling would need to be coordinated through the SEFSC.

Under **Alternative 3**, participating vessels may be authorized to harvest and land fish in excess of Federal possession limits and/or during fishery closures. Retention limits for red snapper would be based upon research objectives. The trip limits and number of trips per month will depend on the number of selected vessels, available quota, and objectives of the research fishery.

SNAPPER GROUPER AMENDMENT 17A
PUBLIC SCOPING MEETING SITES AND DATES

Public hearings will be held from 3:00 P.M –7:00 P.M. at the following locations. The November 16th public hearing in Virginia will begin at 6:00 P.M. Written comments must be received by 5 P.M on November 25, 2009. The Council accepts comments sent by mail, fax, or E-mail (SGAmend17APH@safmc.net).

Monday, 11/2/09 **Hilton Garden Inn Charleston Airport** **5265 International Boulevard** **North Charleston, South Carolina 29418** **Phone: 843-308-9330**	**Tuesday, 11/3/09** **Hilton New Bern Riverfront** **100 Middle Street** **New Bern, North Carolina 28562** **Phone: 252-638-3585**
Thursday, 11/5/09 **Mighty Eighth Air Force Museum** **175 Bourne Avenue** **Pooler, Georgia 31322** **Phone: 912-748-8888**	**Tuesday, 11/10/09** **Key Largo Grande** **97000 Overseas Highway** **Key Largo, Florida 33037** **Phone: 305-852-5553**
Wednesday, 11/11/09 **Radisson Resort at the Port** **8701 Astronaut Boulevard** **Cape Canaveral, Florida 32920** **Phone: 321-784-0000**	**Thursday, 11/12/09** **Crowne Plaza Jacksonville Riverfront** **1201 Riverplace Boulevard** **Jacksonville, Florida 32207** **Phone: 904-396-8800**
November 16, 2009 **Virginia Marine Resources Commission** **2600 Washington Avenue, 3rd Floor** **Newport News, VA 23607** **Phone: 757/247-2200**	

Council staff and local Council representatives will be on hand to answer questions concerning Amendment 17 and other topics covered during this series of scoping meetings. Members of the public will have the opportunity to provide comments on the record at any time during the hours posted above.

Other topics being covered during these scoping meetings include Amendments 17B and 18 to the Snapper Grouper FMP. Copies of the scoping documents for these topics can be accessed at www.safmc or by contacting the Council office.

What Next?

Comments must be provided to the Council by 5 P.M. on November 25, 2009. All comments will be considered by the Council in drafting Amendment 17A to the Snapper Grouper Fishery Management Plan. The Council will review the comments and discuss them at their December 2009 Council meeting. The Council is scheduled to submit the amendment to the Secretary of Commerce and for regulations to become effective sometime in 2010. A simplified schematic of the Council process is presented in Appendix C.

Appendix A. South Atlantic Fishery Management Council 2009-2010 Membership.

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Appendix B: Species in the Snapper Grouper Fishery Management Unit.

Almaco jack, *Seriola rivoliana*
Atlantic spadefish, *Chaetodipterus faber*
Banded rudderfish, *Seriola zonata*
Bank sea bass, *Centropristis ocyurus*
Bar jack, *Caranx ruber*
Black grouper, *Mycteroperca bonaci*
Black margate, *Anisotremus surinamensis*
Black sea bass, *Centropristis striata*
Black snapper, *Apsilus dentatus*
Blackfin snapper, *Lutjanus buccanella*
Blue runner, *Caranx crysos*
Blueline tilefish, *Caulolatilus microps*
Bluestriped grunt, *Haemulon sciurus*
Coney, *Cephalopholis fulva*
Cottonwick, *Haemulon melanurum*
Crevalle jack, *Caranx hippos*
Cubera snapper, *Lutjanus cyanopterus*
Dog snapper, *Lutjanus jocu*
French grunt, *Haemulon flavolineatum*
Gag, *Mycteroperca microlepis*
Golden tilefish, *Lopholatilus chamaeleonticeps*
Goliath grouper, *Epinephelus itajara*
Grass porgy, *Calamus arctifrons*
Gray (mangrove) snapper, *Lutjanus griseus*
Gray triggerfish, *Balistes capriscus*
Graysby, *Cephalopholis cruentata*
Greater amberjack, *Seriola dumerili*
Hogfish, *Lachnolaimus maximus*
Jolthead porgy, *Calamus bajonado*
Knobbed porgy, *Calamus nodosus*
Lane snapper, *Lutjanus synagris*
Lesser amberjack, *Seriola fasciata*
Longspine porgy, *Stenotomus caprinus*
Mahogany snapper, *Lutjanus mahogoni*
Margate, *Haemulon album*
Misty grouper, *Epinephelus mystacinus*
Mutton snapper, *Lutjanus analis*
Nassau grouper, *Epinephelus striatus*
Ocean triggerfish, *Canthidermis sufflamen*
Porkfish, *Anisotremus virginicus*
Puddingwife, *Halichoeres radiatus*
Queen snapper, *Etelis oculatus*
Queen triggerfish, *Balistes vetula*
Red grouper, *Epinephelus morio*
Red hind, *Epinephelus guttatus*
Red porgy, *Pagrus pagrus*
Red snapper, *Lutjanus campechanus*
Rock hind, *Epinephelus adscensionis*
Rock Sea Bass, *Centropristis philadelphica*
Sailors choice, *Haemulon parra*
Sand tilefish, *Malacanthus plumieri*
Saucereye porgy, *Calamus calamus*
Scamp, *Mycteroperca phenax*
Schoolmaster, *Lutjanus apodus*
Scup, *Stenotomus chrysops*
Sheepshead, *Archosargus probatocephalus*
Silk snapper, *Lutjanus vivanus*
Smallmouth grunt, *Haemulon chrysargyreum*
Snowy grouper, *Epinephelus niveatus*
Spanish grunt, *Haemulon macrostomum*
Speckled hind, *Epinephelus drummondhayi*
Tiger grouper, *Mycteroperca tigris*
Tomtate, *Haemulon aurolineatum*
Yellow jack, *Caranx bartholomaei*
Yellowedge grouper, *Epinephelus flavolimbatus*
Yellowfin grouper, *Mycteroperca venenosa*
Yellowmouth grouper, *Mycteroperca interstitialis*
Yellowtail snapper, *Ocyurus chrysurus*
Vermilion snapper, *Rhomboplites aurorubens*
Warsaw grouper, *Epinephelus nigritus*
White grunt, *Haemulon plumieri*
Whitebone porgy, *Calamus leucosteus*
Wreckfish, *Polyprion americanus*

Appendix C. A Simplified Schematic of the Council Process.