MAGNUSON – STEVENS ACT/NEPA SCOPING DOCUMENT

AMENDMENT 18 (RED SNAPPER) TO THE SNAPPER GROUPER FMP

MARCH 2008

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When the Council is considering the need for management, public scoping provides an opportunity for members of the public to make suggestions BEFORE the Council has made any decisions. Scoping meetings are held as a part of this process and are less formal than public hearings. Public scoping occurs prior to the Council taking any position on a management issue. The public can provide comments during public scoping meetings and/or in writing to the Council office.

I. INTRODUCTION

The South Atlantic Fishery Management Council is soliciting public input on possible options regarding red snapper. The recent SEDAR stock assessment indicates that red snapper are overfished and are in an overfishing state.

The reauthorized Magnuson-Stevens Act requires the Councils establish Annual Catch Limits (pounds or numbers of fish) for each species and Accountability Measures that ensure the catch limit is not exceeded in any year by any sector. To do this the Council must allocate the Total Allowable Catch (TAC) from the stock assessment process between recreational and commercial sectors. This is being done for the species undergoing overfishing in Snapper Grouper Amendment 17 (including red snapper).

The Council is also considering the need for emergency/interim action given the stock status of red snapper. More permanent management measures will be specified in Amendment 18.

II. SEDAR ASSESSMENT

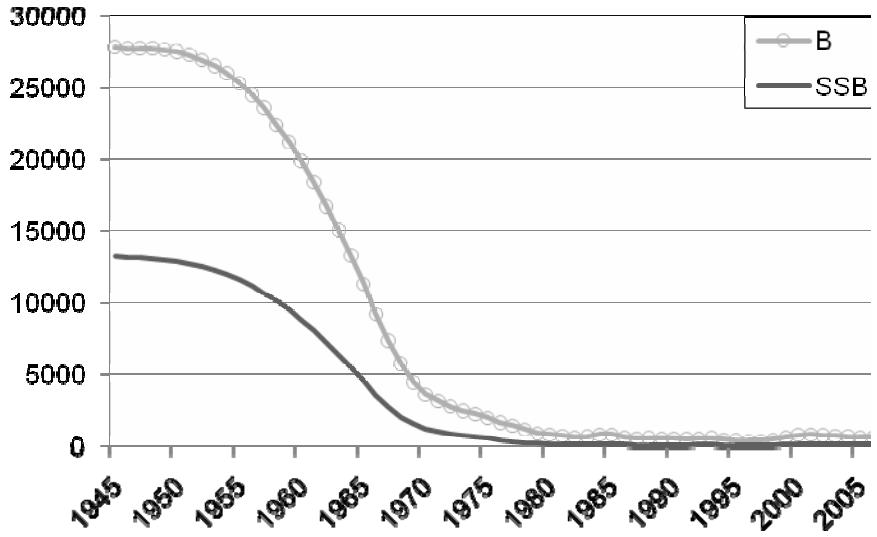
Stock assessments in the South Atlantic are conducted through the Southeast Data, Assessment, and Review (SEDAR) program. The assessments provide an evaluation of stock health under the current management regime and other potential future harvest conditions. More specifically, the assessments provide an estimation of the maximum sustainable yield (MSY) and a determination of the stock status (whether overfishing is occurring and whether the stock is overfished). Following the assessment, the Council's Scientific and Statistical Committee (SSC) reviews the information and advises the Council on whether the stock assessment was performed utilizing the best available data and whether the outcome of the assessment is suitable for management purposes.

Red snapper, greater amberjack, and mutton snapper stocks in the South Atlantic have recently been assessed. The Council and the Council's SSC will review the assessment results at the June 2008 Council Meeting. Early indications are that the Council will need to implement management measures to reduce fishing mortality of red snapper in order to end overfishing and rebuild the stock.

Stock Status

The assessment indicates that the stock has been overfished since 1960 and overfishing is currently occurring (Figures 1 & 4 and Table 2).

Figure 1. Biomass and Spawning Stock Biomass (metric tons) (MSST=7,275 MT).



Note: The following regulations have been implemented: (1) 8/31/83 – 4" trawl mesh & 12" TL; (2) 1/12/89 – no trawls; and (3) 1/1/92 – no traps, 20" TL & recreational bag of 2 red snapper.

Assessment Methods

A statistical catch-at-age model (SCA) and a surplus-projection model (ASPIC) were considered in this assessment. A surplus-production model treats all fish in the population as having similar characteristics such as vulnerability to predation or to being caught in the fishery, and similar reproductive capacity. However, in fish populations natural mortality decreases with age, as fish become larger, and fecundity – reproductive capacity – increases with age. A catch-at-age model takes into account the changes in those characteristics with the age of the fish and it can account for recruitment variability and changes in selectivity due to regulations. Because of this enhanced ability to capture demographics, the catch-at-age model was chosen for evaluating stock status and providing management benchmarks and advice.

Assessment Data Summary

Data used for this assessment consist of records of commercial catch for the handline (hook-and-line) and dive fisheries, logbook data from the recreational headboat fishery, and MRFSS survey data of the rest of the recreational sector (Table 1).

Table 1. Assessment data availability.

Fishery	Landings	Estimated Discards	Indices
Commercial handline	1945-2006	1984-2006	1993-2006
Commercial dive	1984-2006	--	--
Headboat	1972-2006	1984-2006	1976-2006
Recreational (MRFSS)	1981-2006	1984-2006	1983-2006

A 12-inch length limit for red snapper was instituted in 1984 (effective date = 8/31/83), which is believed to have caused an increase in discarding. The dive fishery was assumed to generate no discards because of the selectivity of the method. Mortality rates used for discarded fish were 0.4 for the recreational fisheries and 0.9 for the commercial handline fishery. The higher mortality in the commercial fishery is due to the depth at which the fish are caught, and the effect of pressure changes as they are brought to the surface, and the length of time fish may be on deck before being returned to the water – the handling time of the fishery.

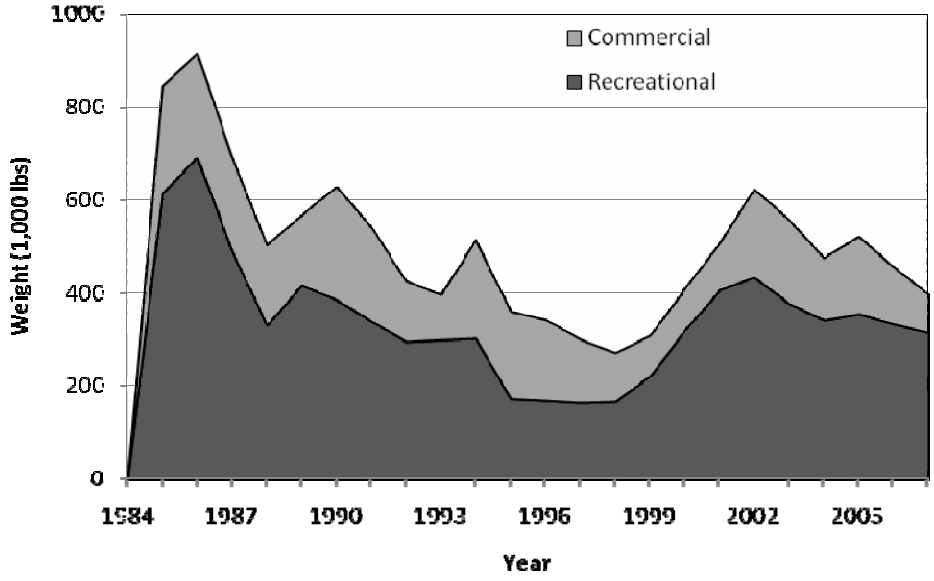
The base natural mortality (M) in the fishery was 0.078. This was assumed to be a constant over time, but varying with age because younger fish are much more vulnerable (for example, to predation) than larger, older fish.

Red snapper do not change sex over their lifetimes, and studies supported a constant 50:50 sex ratio for the population. The mean generation time of 20 years was estimated from data.

Catch Trends

The bulk of landings of red snapper come from the recreational fishery, which have exceeded the landings of the commercial fishery by 2-3 fold over the assessment period (Figure 2). Total landings were variable, with a downward trend through the 1990s.

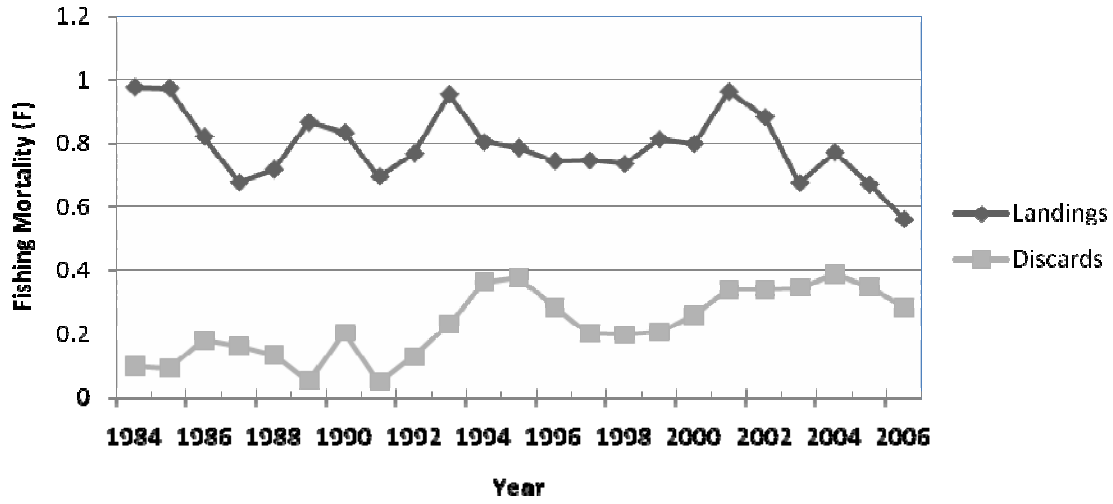
Figure 2. Landings by fishery sector, 1984-2006. (Note: Discards by weight were unavailable in this assessment). Note: (1) 8/31/83 – 4" trawl mesh & 12" TL; (2) 1/12/89 – no trawls; and (3) 1/1/92 – no traps, 20" TL & recreational bag of 2 red snapper.



Fishing Mortality Trends

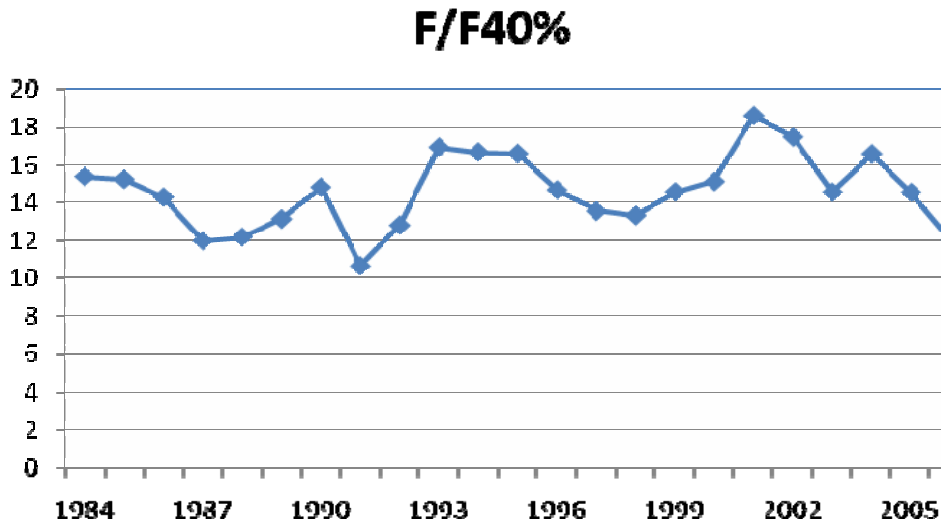
Fishing mortality can be evaluated by examining the time series of fully-recruited fishing mortality for both the landings and discards in the fishery (Figure 3). This is simply the sum of mortality by age in each component of the fishery.

Figure 3. Fully recruited fishing mortality. Note: (1) 8/31/83 – 4" trawl mesh & 12" TL; (2) 1/12/89 – no trawls; and (3) 1/1/92 – no traps, 20" TL & recreational bag of 2 red snapper.



The fishing mortality (F) is compared to what the fishing mortality would be if the fishery were operating at maximum sustainable yield ($F_{40\%}$ is used as a proxy for F_{MSY}). The ratio of $F/F_{40\%}$ suggests a generally increasing trend from the 1950s through the mid-1980s, and since 1985 has fluctuated about a mean near 14 (Figure 4). This indicates that overfishing has been occurring at about 14 times the maximum sustainable level since 1984, with the 2006 estimate of $F/F_{40\%}$ at 12.021.

Figure 4. Fishing Mortality (F)/Fishing Mortality at Maximum Sustainable Yield ($F_{40\%}$) Ratio. Note: (1) 8/31/83 – 4" trawl mesh & 12" TL; (2) 1/12/89 – no trawls; and (3) 1/1/92 – no traps, 20" TL & recreational bag of 2 red snapper.



Stock Abundance and Biomass Trends

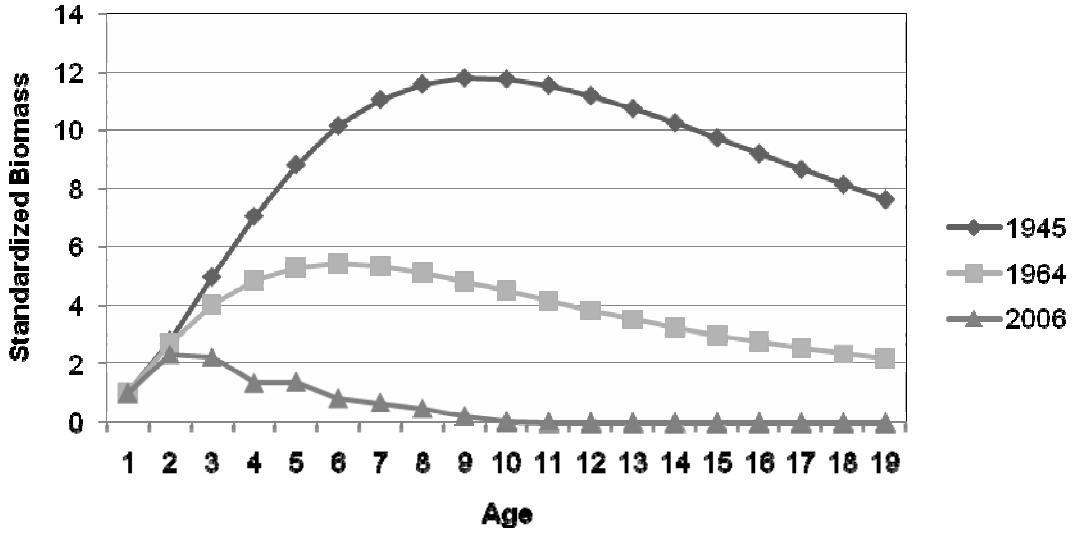
Estimated abundance-at-age shows truncation of the oldest ages from the 1950s into the 1980s; the age structure continues to be in a truncated condition. Fish of age 10 and above are practically non-existent in the population.

Estimated biomass-at-age follows a similar pattern of truncation as seen in the abundance data. Total biomass and spawning biomass show nearly identical trends—sharp decline during the 1950s and 1960s, continued decline during the 1970s, and stable but low levels since 1980.

Numbers of age-1 fish have declined during the same period, however notably strong year classes occurred in 1983 and 1984, and again in 1998 and 1999.

The age structure of the population has changed significantly over time (Figure 5). Red snapper have been aged to 53 years and the generation time has been calculated as 20 years. Female red snapper become reproductively active at 1 year of age (23.7% mature at Age 1 or 13.1 inches; 64.4% mature at Age 2 or 17.7 inches; 91.3% mature at Age 3 or 21.4 inches; 98.4% mature at Age 4 or 24.3 inches; 99.7% mature at Age 5 or 26.6 inches; and 100% mature at Age 6 or 28.4 inches).

Figure 5. Age structure of the population (standardized to year-1 biomass). Note: (1) 8/31/83 – 4" trawl mesh & 12" TL; (2) 1/12/89 – no trawls; and (3) 1/1/92 – no traps, 20" TL & recreational bag of 2 red snapper.



Status Determination Criteria

The maximum fishing mortality threshold (MFMT) is defined by the Council as F_{MSY}, and the Review Workshop has recommended using $F_{40\%\ SPR}$ as a proxy. The minimum stock size threshold (MSST) is defined as $(1 - M)SSB_{MSY}$, where SSB refers to Spawning Stock Biomass; SSB_{MSY} is the level of SSB when the fishery is operating at maximum sustainable yield, and constant M is 0.078. The Review Workshop has recommended using $SSB_{F40\%}$ as a proxy. Technically, "overfishing" is defined as occurring whenever F > MFMT and a stock is "overfished" when SSB < MSST. Current status of the stock and fishery are represented by the latest assessment year (2006).

Table 2. Status Summary Table (conditioned on the base run of the model).

Quantity	Units	Estimate
MFMT ($F_{40\%}$)	per year	0.07
$B_{40\%}$	mt	17347
$SSB_{F40\%}$	mt	7891
$MSST_{F40\%}$	mt	7275
$MSY_{F40\%}$	1000 lb	2314
$D_{F40\%}$	1000 fish	37
F_{MSY}	per year	0.112
$F_{2006}/F_{40\%}$	–	12.021
$SSB_{2006}/SSB_{F40\%}$	–	0.025
$SSB_{2006}/MSST_{F40\%}$	–	0.027

In addition to MSY-related benchmarks, proxies were computed based on per recruit analyses. These quantities may serve as proxies for F_{MSY}, if the spawner-recruit relationship cannot be estimated reliably. The proxies computed include F_{max}, $F_{30\%}$, and $F_{40\%}$, along with their associated yields. The value of F_{max} is defined as the level of fishing, F, that maximizes yield per recruit. $F_{30\%}$ and $F_{40\%}$ are the levels corresponding to 30% and 40% of the spawning potential ratio of the unfished stock. Uncertainty in the assessment led the review panel to choose $F_{40\%}$ as the MFMT value for red snapper.

Stock Status
Initial stock status was well above the maximum sustainable yield (MSY) benchmark, but declined sharply during the 1950s and 1960s (Figure 1). Declines slowed during the 1970s, and the stock has been stable at low levels since 1980. Based on the ratio of current estimated biomass to biomass at MSY, the stock is considered to be overfished. The benchmark history for period 1984-2006 is shown in Table 5.

Uncertainty
The effects of uncertainty in model structure were examined by comparing two structurally different assessment models—the catch-at-age model and a surplus-production model. For each model, uncertainty in data or assumptions was examined through sensitivity runs, which involve varying the value of a parameter and evaluating its impact on the model. Precision of benchmarks was computed by a parametric bootstrap procedure.

Projection methods
Projections were run to predict stock status in years after the assessment, 2007–2040. This 34 year time frame is the sum of mean generation time (20 years) and the number of years it would take for spawning biomass to reach SSB_{MSY} if no fishing occurred. The structure of the projection model was the same as that of the assessment model, and parameter estimates were those from the base run of the assessment model. Time-varying quantities, such as fishery selectivity curves, were fixed to reflect the most recent values of the assessment period, 2004-2006.

Tables 3a & 3b show the results of the 12 projection scenarios. What the discard-only projections show is that in order to rebuild the stock, the total catch (landings and discards) of red snapper will need to be reduced, not just the landings.

Special Comments
Reproduction in this model was calculated from mid-year spawning stock biomass (SSB), to reflect the actual timing of spawn. In most SEDAR models, the Jan. 1 SSB is assumed representative for purposes of calculating reproduction.

Table 3a. Projection Scenarios (based on a reference run of the model). These are model projections based on various fishing mortality rates and discard mortality rates that provide an estimate of stock recovery dates. First year of management changes assumed to be 2009.

Projection Scenario	Projected Recovery Date
F = 0 (assumes we can really limit all sources of mortality to zero; unrealistic in a multispecies fishery like the snapper grouper fishery)	**2020**
F = $F_{current}$ (reflecting 2004-2006) (best estimate of the current fishing mortality rate)	**0.3% of recovered value by 2040**
F_{MSY} (assumes fishing at the fishing mortality rate that produces maximum sustainable yield)	**97.5% of recovered value by 2040**
$F_{65\%MSY}$ (assumes fishing at65% of the fishing mortality rate that produces maximum sustainable yield)	**2025**
$F_{75\%MSY}$ (assumes fishing at 75% of the fishing mortality rate that produces maximum sustainable yield)	**2027**
$F_{85\%MSY}$ (assumes fishing at 85% of the fishing mortality rate that produces maximum sustainable yield)	**2030**
$F_{Rebuild}$ ($F_{Rebuild}$ = 0.109, about 97% of F_{MSY}) (assumes fishing at the fishing mortality rate that rebuilds the stock by the recovery deadline of 2040)	**2040**

Table 3b. Discard only Projection Scenarios (based on a reference run of the model). These are model projections based on various fishing mortality rates and discard mortality rates that provide an estimate of stock recovery dates. First year of management changes assumed to be 2009.

Discard Only Scenarios: Commercial diving excluded and assumed that all fish expected to be caught as bycatch associated with targeting other species were released and they were subject to various levels of discard mortality; assumed that any individual fish could be caught only once per.	
$F = F_{current}$ **Discard mortality: Com = 0.9, Rec = 0.4** (these are the discard mortality rates recommended for use in the assessment)	**15% of recovered value by 2040**
$F = F_{current}$ **Discard mortality: Com = 0.8, Rec = 0.2** (discard mortality rates lower than used in the assessment)	**25% of recovered value by 2040**
$F = F_{current}$ **Discard mortality: Com = 1.0, Rec = 0.6** (discard mortality rates higher than those used in the assessment)	**9.8% of recovered value by 2040**
$F = F_{Rebuild} = 0.262$ **Discard mortality: Com = 0.9, Rec = 0.4** (these are the discard mortality rates recommended for use in the assessment)	**2040**
$F = F_{Rebuild} = 0.286$ **Discard mortality: Com = 0.7, Rec = 0.4** (if the commercial discard mortality rate is lower than that recommended for use in the assessment)	**2040**

Table 4. Landings by fishery sector in thousands of pounds (whole weight), and discards in thousands of fish; 1984-2006. Note: (1) 8/31/83 – 4" trawl mesh & 12" TL; (2) 1/12/89 – no trawls; and (3) 1/1/92 – no traps, 20" TL & recreational bag of 2 red snapper.

Year	Recreational Landings	Commercial Landings	Recreational Discards	Commercial Discards
1984	613.78	231.76	46.81	6.76
1985	691.65	225.27	31.78	3.34
1986	490.21	200.71	28.69	6.37
1987	329.50	173.24	28.85	13.82
1988	415.23	152.30	29.96	6.83
1989	384.54	243.63	10.55	2.52
1990	338.44	203.35	17.94	27.47
1991	294.30	130.69	9.35	3.70
1992	298.22	96.96	21.30	16.46
1993	301.50	212.11	31.68	16.07
1994	171.01	188.58	32.13	22.01
1995	167.52	174.24	29.28	21.74
1996	163.08	136.15	15.62	29.03
1997	165.22	106.37	9.52	30.35
1998	220.80	86.73	37.71	22.97
1999	319.33	88.84	69.51	20.66
2000	405.01	100.57	96.28	19.63
2001	432.89	189.85	98.88	21.31
2002	375.73	181.68	82.74	19.92
2003	340.80	134.45	74.24	17.04
2004	354.23	166.69	80.43	14.23
2005	331.95	124.40	75.91	13.74
2006	313.10	83.17	63.65	15.22

Table 5. Benchmarks 1984-2006. The fishing mortality rate is full F, which includes discard mortalities. B is the total biomass at the start of the year, and SSB is the spawning biomass at midyear. B and SSB are in units = mt (metric tons: 1,000 kg). SPR is static spawning potential ratio. Note: (1) 8/31/83 – 4" trawl mesh & 12" TL; (2) 1/12/89 – no trawls; and (3) 1/1/92 – no traps, 20" TL & recreational bag of 2 red snapper.

Year	F	$F/F_{40\%}$	B	SSB	$SSB/SSB_{40\%}$	SPR
1984	1.076	15.376	839	180	0.025	0.011
1985	1.066	15.230	825	191	0.027	0.012
1986	1.000	14.284	663	173	0.024	0.013
1987	0.838	11.967	591	160	0.022	0.020
1988	0.852	12.176	616	163	0.023	0.018
1989	0.920	13.137	598	153	0.021	0.016
1990	1.037	14.815	553	141	0.020	0.014
1991	0.745	10.649	520	142	0.020	0.025
1992	0.897	12.807	575	169	0.024	0.033
1993	1.185	16.924	607	174	0.024	0.022
1994	1.166	16.664	509	158	0.022	0.026
1995	1.161	16.589	457	140	0.019	0.024
1996	1.027	14.669	413	123	0.017	0.028
1997	0.948	13.547	414	122	0.017	0.032
1998	0.932	13.321	504	138	0.019	0.030
1999	1.019	14.561	668	175	0.024	0.026
2000	1.058	15.113	814	224	0.031	0.025
2001	1.303	18.612	863	243	0.034	0.021
2002	1.223	17.465	797	235	0.033	0.023
2003	1.019	14.550	747	231	0.032	0.027
2004	1.160	16.574	720	215	0.030	0.022
2005	1.017	14.533	661	195	0.027	0.024
2006	0.841	12.021	644	194	0.027	0.030

III. POTENTIAL MANAGEMENT MEASURES

Given the need to reduce total fishing mortality (landings and discards) by at least 87% (from F=0.841 to F=0 .109), the Council is considering the following measures to end overfishing and rebuild red snapper:

A. Emergency/interim rule – prohibit all harvest and possession of red snapper. If the Council approved this request at the June 2008 meeting, the estimated effective date would be around January 1, 2009. The Council is also considering a measure in Snapper Grouper Amendment 16 that would reduce recreational and commercial bycatch mortality by requiring the use of venting and dehooking tools and non-offset, non-stainless steel circle hooks when using natural baits to fish commercially or recreationally for snapper grouper species. The estimated effective date for Amendment 16 is January 1, 2009.

Section 305(c)(1) of the Magnuson-Stevens Act states the following:

"(c) EMERGENCY ACTIONS AND INTERIM MEASURES.–

(1) If the Secretary finds that an emergency or overfishing exists or that interim measures are needed to reduce overfishing for any fishery, he may promulgate emergency regulations or interim measures necessary to address the emergency or overfishing, without regard to whether a fishery management plan exists for such fishery.

(2) If a Council finds that an emergency or overfishing exists or that interim measures are needed to reduce overfishing for any fishery within its jurisdiction whether or not a fishery management plan exists for such fishery –

(A) the Secretary shall promulgate emergency regulations or interim measures under paragraph (1) to address the emergency or overfishing if the Council, by unanimous vote of the members who are voting members, requests the taking of such actions; and

(B) the Secretary may promulgate emergency regulations or interim measures under paragraph (1) to address the emergency or overfishing if the Council, by less than a unanimous vote, requests the taking of such action."

The Council's Scientific and Statistical Committee will be reviewing the SEDAR stock assessment for red snapper at their June 8-10, 2008 meeting in Orlando, Florida. During their June 8-13, 2008 meeting in Orlando, the Council will determine whether emergency/interim measures are necessary or whether management action can be taken through Snapper Grouper Amendment 18 with an estimated effective date of January 1, 2010.

B. Amendment 18 (Red Snapper) – potential management measures could include the following:

a. Prohibit all harvest and possession of red snapper year-round and establish a seasonal closure for shallow water snappers or all species in the snapper grouper management unit (**Appendix B**).

b. Reduction in bag limit from 2 to 1 red snapper per person per day or per boat per day combined with a seasonal closure.

c. Reduction and/or elimination of the 20 inch size limit.

d. Establish a closed season for recreational and commercial fishing for red snapper; this could also apply to the shallow water snappers.

e. Establish time/area closures that could apply to red snapper, the shallow water snappers, or all species in the snapper grouper management unit (**Appendix B**).

f. Other measures?

SNAPPER GROUPER AMENDMENT 18
PUBLIC SCOPING MEETING SITES AND DATES

Scoping meetings will be held from 3:00 P.M – 7:00 P.M. at the following locations. Written comments must be received by 5 P.M on May 16, 2008. The Council accepts comments sent by mail, fax, or E-mail (RedSnapperScoping@safmc.net).

Wednesday, May 7, 2008 Key Largo Grande 97000 South Overseas Highway Key Largo, Florida 33037 Phone: 866-597-5397	**Tuesday, May 13, 2008** Town & Country Inn 2008 Savannah Highway Charleston, South Carolina 29407 Phone: 843-571-1000
Friday, May 9, 2008 Radisson Resort at the Port 8701 Astronaut Boulevard Cape Canaveral, Florida 32920 Phone: 321-784-0000	**Thursday May 15, 2008** Sheraton New Bern 100 Middle Street New Bern, North Carolina 28560 Phone: 252-638-3585
Monday, May 12, 2008 Mighty Eighth Air Force Museum 175 Bourne Avenue Pooler, Georgia 31322 Phone: 912-748-8888	

Council staff and local Council representatives will be on hand to answer questions concerning Amendment 18 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. The Council will also be taking public comments on Snapper Grouper Amendment 16, the Fishery Ecosystem Plan, and the Comprehensive Ecosystem Amendment at these meetings. Copies of these documents will be available from our website in the near future.

Copies of the scoping document 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 May 16, 2008. All comments will be considered by the Council (see **Appendix A**) in determining whether emergency/interim actions are necessary and in drafting Amendment 18 to the Snapper Grouper Fishery Management Plan. There will be a number of opportunities to provide public input as the Council moves forward to develop the amendment. A simplified schematic of the Council process is presented in **Appendix C**.

Timing for Snapper Grouper Amendment 18:

- Scoping through May 16, 2008 at 5 pm.
- Scientific & Statistical Committee (SSC) reviews SEDAR Red Snapper Assessment – June 8-10, 2008 meeting in Orlando, FL.
- Council reviews SSC comments on assessment, scoping comments, and Options Paper & provides direction to Staff/Team – June 8-13, 2008 meeting in Orlando, FL.
- Council decision about need for emergency/interim measures – June 8-13, 2008 meeting in Orlando, FL.
- Council reviews Options Paper/Amendment & provides direction to Staff/Team – September 15-19, 2008 meeting in Charleston, SC and December 1-5, 2008 meeting in Wilmington, NC.
- Council approves Amendment 18/Draft Environmental Impact Statement for public hearings – March 2-6, 2009 meeting in Jekyll Island, GA.
- Public hearings – May 2009.
- Scientific & Statistical Committee reviews Amendment18/Draft Environmental Impact Statement – June 7-9, 2009 meeting in northern Florida.
- Council reviews SSC comments, informal & public hearing comments, and DEIS comments and approves all actions – June 8-12, 2009 meeting in northern Florida.
- If necessary, review complete Amendment 18/Final Environmental Impacts Statement document and approve for formal review by the Secretary of Commerce – September 14-18, 2009 meeting in Atlantic Beach, NC. Send document for formal review by 9/21/09.
- Estimated effective date of January 1, 2010.

Appendix A. South Atlantic Fishery Management Council 2007-2008 Membership. The names of the Council Members who serve on the Snapper Grouper Committee appear in bold.

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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.