



FINAL

REGULATORY AMENDMENT 6

**(INCLUDING REGULATORY IMPACT REVIEW
AND ENVIRONMENTAL ASSESSMENT)**

FOR THE

**SNAPPER GROUPER FISHERY
OF THE SOUTH ATLANTIC REGION**

OCTOBER 1994

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REGULATORY IMPACT REVIEW

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Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The Regulatory Impact Review does three things: 1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action, 2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem, and 3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The Regulatory Impact Review also serves as the basis for determining whether any proposed regulations are a "significant regulatory action" under certain criteria provided in Executive Order 12866 and whether the proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act of 1980 (RFA).

Problems and Objectives

The general problems and objectives are found in the fishery management plan as amended (see Appendix A). This regulatory amendment proposes to rebuild and protect the hogfish, cubera snapper and gray triggerfish resources. Further exposition of these issues are found in the biological discussions under each action in Section 4.0.

Methodology and Framework for Analysis

This Regulatory Impact Review analyzes the probable impacts on fishery participants of the proposed regulatory amendment to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (FMP). The discussions for the proposed actions are incorporated in the text under socioeconomic impacts in Section 4.0. The basic approach adopted in this Regulatory Impact Review is an assessment of management measures from the standpoint of determining the resulting changes in costs and benefits to society. The net effects should be stated in terms of producer surplus to the harvest sector, net profits to the intermediate sector, and consumer surplus to the final users of the resource.

The harvest sector refers to harvesters of fish in the snapper grouper fishery and the intermediate sector to processors and dealers of snapper grouper species. Final users of the resource are taken to refer to the individuals that derive benefits from consuming species from the snapper grouper fishery. Ideally, all these changes in costs and benefits need to be accounted for in assessing the net economic benefit to society from the management of the snapper grouper fishery. However, lack of data does not allow for this type of analysis. The Regulatory Impact Review attempts to determine these changes to the extent possible, albeit in a very qualitative manner.

1.0 PURPOSE AND NEED

Regulatory Amendment 6 to the Snapper Grouper Fishery Management Plan was developed to rebuild and protect the hogfish, cubera snapper and gray triggerfish resources. The South Atlantic Fishery Management Council is concerned about these resources, and is proposing to implement size and bag limits off the State of Florida to provide biological protection and to track Florida's regulations. The majority of the hogfish and cubera snapper catches occur in Florida and a large portion of the gray triggerfish resource is harvested off Florida. The Council concluded that additional measures are not necessary off other states at this time. Additional measures will be implemented under the framework procedure if they become necessary at a later date.

The stock status of hogfish and cubera snapper is poorly understood due to severely limited data. The Council has evaluated all readily available information in designing the management measures contained in this amendment. The framework procedure contained in the fishery management plan will be used to monitor and adjust management as necessary.

The original management plan (SAFMC, 1983a) included a Final Environmental Impact Statement. Amendments 1 - 7 included Environmental Assessments. Regulatory Amendment 6 includes an Environmental Assessment. New information will be available concerning the economics of the fishery in early 1995. This information will allow the Council to quantify the socioeconomic impacts of management regulations; such information is not available at this time. The Council intends to prepare a Supplemental Environmental Impact Statement with preparation of Amendment 8 during 1995 utilizing the new socioeconomic information from the South Carolina Department of Natural Resources' (formerly South Carolina Wildlife & Marine Resources Department) survey of snapper grouper fishermen and any other information that becomes available.

Management Objectives

Objectives addressed in this amendment are presented below. (See Appendix A for a complete listing of objectives from the Snapper Grouper Fishery Management Plan as amended.)

- Prevent overfishing of all species.
- Promote voluntary compliance.

Issues/Problems to be Considered

Issues/problems addressed in this amendment are as follows. (See Appendix A for a complete listing of issues/problems from the Snapper Grouper Fishery Management Plan as amended.)

Overfishing

- What is the best approach to prevent overfishing of hogfish, gray triggerfish and cubera snapper?

Compliance

- What approaches will ensure and/or promote voluntary compliance?

History of Management

The Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region was prepared by the South Atlantic Fishery Management Council (SAFMC, 1983a) to address overfishing in 13 species and to establish a procedure for preventing overfishing in other species. Regulatory Amendment 1 (SAFMC, 1987) implemented Special Management Zones (SMZs) off South Carolina and Georgia, and Regulatory Amendment 2 (SAFMC, 1988a) implemented SMZs off Ft. Pierce, Florida. Amendment 1 (SAFMC, 1988b) prohibited use of trawl gear in the snapper grouper fishery to prevent habitat damage and overfishing. The Dade County, Florida SMZ was implemented through Regulatory Amendment 3 (SAFMC, 1989). Amendment 2 (SAFMC, 1990a) protected jewfish and Amendment 3 (SAFMC, 1990b) established a management program for wreckfish. A comprehensive expansion of the snapper grouper management program was accomplished in Amendment 4 (SAFMC, 1991a) and wreckfish individual transferable quotas (ITQs) were implemented in Amendment 5 (SAFMC, 1991b). Regulatory Amendment 4 implemented additional SMZs off South Carolina (SAFMC, 1992a). The definition of black sea bass pots was modified and multi-gear trips allowed under Regulatory Amendment 5 (SAFMC, 1992b). Measures were implemented for deep water species in Amendment 6 (SAFMC, 1993). Additional measures are proposed in Amendment 7 (SAFMC, 1994a) that is currently under review by the Secretary of Commerce.

Details for prior amendments are found in Appendix B.

Issues/Problems Requiring Regulatory Amendment 6

Species in a documented state of overfishing, that is with a spawning stock ratio (SSR) less than 30%:

- **Gray Triggerfish**

Species thought to be overfished but for which data are insufficient to calculate spawning stock ratios are:

- **Hogfish**
- **Cubera Snapper**

The original Snapper Grouper Fishery Management Plan (SAFMC, 1983a) established a management program for the snapper grouper resource in the south Atlantic which included minimum sizes for six species identified as being overfished. The first assessment of the status of species in the snapper grouper fishery was prepared by the National Marine Fisheries Service, Beaufort Laboratory, with input from the South Atlantic Council's Plan Development Team (PDT), and presented to the Council in August 1990. This assessment became the basis for Amendment 4 (SAFMC, 1991a). Subsequent assessments were prepared by the National Marine Fisheries Service and presented to the Council in June 1991, 1992, 1993 and 1994. Amendment 7 (SAFMC, 1994a) contains assessment information for other species. This document only contains information for hogfish, cubera snapper and gray triggerfish as suggested in the National Marine Fisheries Service's informal review comments.

No information was presented on hogfish or cubera snapper in any of the assessments. Gray triggerfish have been included in every assessment report. The most recent information for gray triggerfish was presented in the 1992 assessment report; information indicated that gray triggerfish are overfished with a spawning stock ratio of 27%.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

National Environmental Policy Act (NEPA) regulations indicate that Section 2.0 should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. The Council's documents must also conform to Magnuson Act and "Other Applicable Law" requirements. National Environmental Policy Act regulations are one of the "other applicable laws" referenced. The South Atlantic Council decided to blend Magnuson Act and "other applicable law" (including NEPA) requirements in one consolidated, non-duplicative and non-repetitive document. The Council's approach, used successfully in Snapper Grouper Amendments 6 and 7, is to present the bulk of the evaluation of alternatives and discussion about the effects on the environment in Section 4.0 Environmental Consequences of Fisheries Activities. Section 2 Alternatives, is presented as a summary of Section 4.0. In Section 2.0, the Council makes extensive use of matrices to provide the reader with an overview of the alternatives considered and resulting environmental impacts for each management measure. The Council concluded that this meets the NEPA regulatory requirements.

Management measures (proposed actions) are intended to address the management objectives and issues discussed in Section 1.0. Each management measure has a number of alternatives that have been considered by the Council. The following tables summarize the alternatives and how they address the problems/issues identified by the Council. Management alternatives are presented in the rows and issues/problems in the columns.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES (Effects of Alternatives on the Issues/Problems)

ACTION 1. HOGFISH:

ISSUES/PROBLEMS

Alternatives	Overfishing	Socioeconomic Impacts	Compliance
Proposed Action: 5-fish bag limit	Provides more protection	Short-term losses Long-term positive	Dockside enforcement Compatible state/federal
Rejected Option 1. No Action	Continues overfishing	Long-term losses	Low due to inconsistent regulations
Rejected Option 2. 12" FL & include in 10-fish aggregate snapper bag limit	Provides protection Increases YPR	Short-term losses Long-term positive	Low for bag limit due to inconsistent regulations

SUMMARY OF ENVIRONMENTAL CONSEQUENCES
(Effects of Alternatives on the Issues/Problems)

ACTION 2. CUBERA SNAPPER:		ISSUES/PROBLEMS	
Alternatives	Overfishing	Socioeconomic Impacts	Compliance
Proposed Action: 2-fish/person or boat per day for fish 30" TL and larger; smaller in 10-fish aggregate snapper bag limit	Provides more protection Increases YPR	Short-term losses Long-term gains	Dockside enforcement Compatible state/federal regulations
Rejected Option 1. No Action	Risk of overfishing	Long-term losses	Less compliance
Rejected Option 2. Spawning area closure, 42" TL size limit and 1-fish per person per day bag limit	Provides more protection Increases YPR	Large short-term losses	Less compliance
Rejected Option 3. Daily bag limit of 2/boat and 42" TL size limit	Provides protection Increases YPR	Large short-term losses	Less compliance

SUMMARY OF ENVIRONMENTAL CONSEQUENCES
(Effects of Alternatives on the Issues/Problems)

ACTION 3. GRAY TRIGGERFISH:		ISSUES/PROBLEMS	
Alternatives	Overfishing	Socioeconomic Impacts	Compliance
Proposed Action: 12" FL size limit off Florida; no size limit off other states	Provides protection off Florida	Short-term losses Long-term benefits	Compatible state/federal regulations
Rejected Option 1. No action	Risk of overfishing	Long-term efficiency losses	Less compliance
Rejected Option 2. 12" FL size limit (NC through FL)	Provides more protection	Short-term losses Long-term benefits	Less compliance
Rejected Option 3. 12" FL size limit and a 1-3-fish bag (NC through FL)	Provides more protection	Short-term losses Long-term benefits	Less compliance

3.0 AFFECTED ENVIRONMENT

The following information contains a description of the existing environment for the snapper grouper fishery. The original Fishery Management Plan (SAFMC, 1983a), original Source Document (SAFMC, 1983b), Amendment 4 (SAFMC, 1991a), and the draft update of the Source Document (SAFMC, in prep.) contain additional information on the fishery and utilization patterns. Appendix D in Amendment 7 (SAFMC, 1994a) contains the Council's habitat concerns. Table 1 in Amendment 7 lists species in the management unit according to our knowledge about their spawning stock ratios and Table 2 in Amendment 7 shows the actual spawning stock ratio values. Information for hogfish, cubera snapper and gray triggerfish are included in this regulatory amendment document.

A. Optimum Yield

Optimum yield (OY) is any harvest level for a species which maintains, or is expected to maintain, over time, a survival rate of biomass into the stock of spawning age fish to achieve at least a 30% spawning stock biomass per recruit (SSBR; equivalent to SSR) population level, relative to the SSBR that would occur with no fishing (SAFMC, 1990b). The Council's intent is to ensure the weight of spawning stock does not decrease below 30% of the spawning stock that would occur in an unfished fishery. Information from other species indicates stock collapse is a possibility if the spawning stock declines below the 30% level.

B. Definition of Overfishing

Overfishing for all species other than jewfish is defined as follows (SAFMC, 1990b):

- (i) A snapper grouper stock or stock complex is overfished when it is below the level of 30% of the spawning stock biomass per recruit which would occur in the absence of fishing.
- (ii) When a snapper grouper stock or stock complex is overfished, overfishing is defined as harvesting at a rate that is not consistent with a program that has been established to rebuild the stock or stock complex to the 30% spawning stock biomass per recruit level. (Note: For jewfish 40% was used.)
- (iii) When a snapper grouper stock or stock complex is not overfished, overfishing is defined as a harvesting rate that, if continued, would lead to a state of the stock or stock complex that would not at least allow a harvest of OY on a continuing basis.

The time frame for recovery of snappers (excluding red snapper), greater amberjack, black sea bass, and red porgy is not to exceed 10 years. For red snapper and the groupers, the time frame is not to exceed 15 years. Year 1 was the 1991 fishing year. The recovery time period may be modified by the framework (regulatory amendment) procedure. These time frames were established in Amendment 4 and are based on the life history characteristics (growth rate, mortality rate, longevity, etc.). Longer lived, slower growing species are more susceptible to overfishing and will rebuild more slowly, hence the 15 year recovery period. Shorter-lived, faster growing species will recover more quickly and was the basis for choosing 10 years.

C. Commercial Fishery

In general, total landings, mean size of fish captured, and nominal catch per trip in the commercial snapper grouper fishery have declined. Also, the commercial sector has shifted offshore and changed target species as traditional species became less abundant. In addition, the commercial fishery developed with relatively inefficient hook-and-line gear and then switched to more efficient longline and trap gear in order to catch enough fish to operate profitably. In a relatively unexploited fishery, the fish population is high, and use of relatively inefficient hook-and-line gear can result in a sufficient harvest to make a trip economically feasible. However, as exploitation continues, the fish population declines and the poundage produced by hook-and-line gear becomes uneconomical. Fishermen switch to gear (such as longlines and trap gear) that is more efficient at harvesting sufficient pounds when the fish population is reduced. This switch in gear is an indication of high exploitation.

The Council compared commercial landings information from the 1992 logbook to estimates from general canvass data when considering establishing a red porgy quota (see Amendment 7; SAFMC, 1994). The Council's Scientific and Statistical Committee concluded, from the review of red porgy, that the logbook survey was more accurate than existing data collection programs and recommended using the same data base for setting and monitoring quotas. The South Atlantic Council concluded that the logbook catch estimates represent the best available information and the information presented in Figure 1 shows the NMFS canvass landings data for 1978-92 and the 1992-93 logbook data.

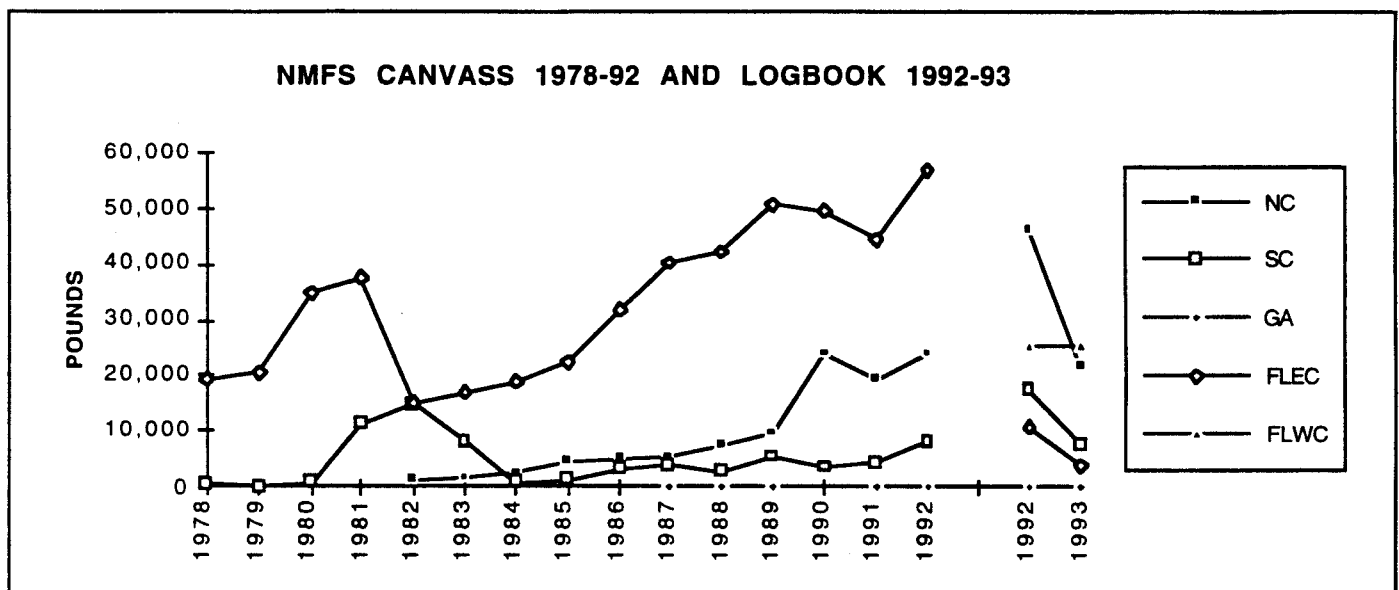


Figure 1. Comparison of commercial hogfish catches by state from NMFS General Canvass data and logbook data. Data from 1978-92 are from NMFS General Canvass data and logbook estimates are shown for 1992 (first year of logbook program) and 1993. (SOURCE: NMFS General Canvass Data and NMFS Logbook Program; Harris et al., 1993 and 1994)

Commercial hogfish catches declined from 100,386 pounds in 1992 to 59,079 pounds in 1993, a 41% decrease (Table 1). This information is shown graphically in Figure 2.

Table 1. Commercial hogfish catch (pounds) from 1992 and 1993 logbook data. (SOURCE: NMFS Logbook Program; Harris et al., 1993 and 1994.)

Hogfish	Monthly Catch ('92 Logbook)	Monthly Catch ('93 Logbook)
January	6,357	4,418
February	4,241	2,480
March	2,815	3,967
April	3,282	4,828
May	8,069	2,287
June	17,282	5,485
July	12,941	6,694
August	7,671	5,983
September	11,162	4,952
October	8,617	7,509
November	12,013	5,587
December	5,936	4,889
Total	100,386	59,079

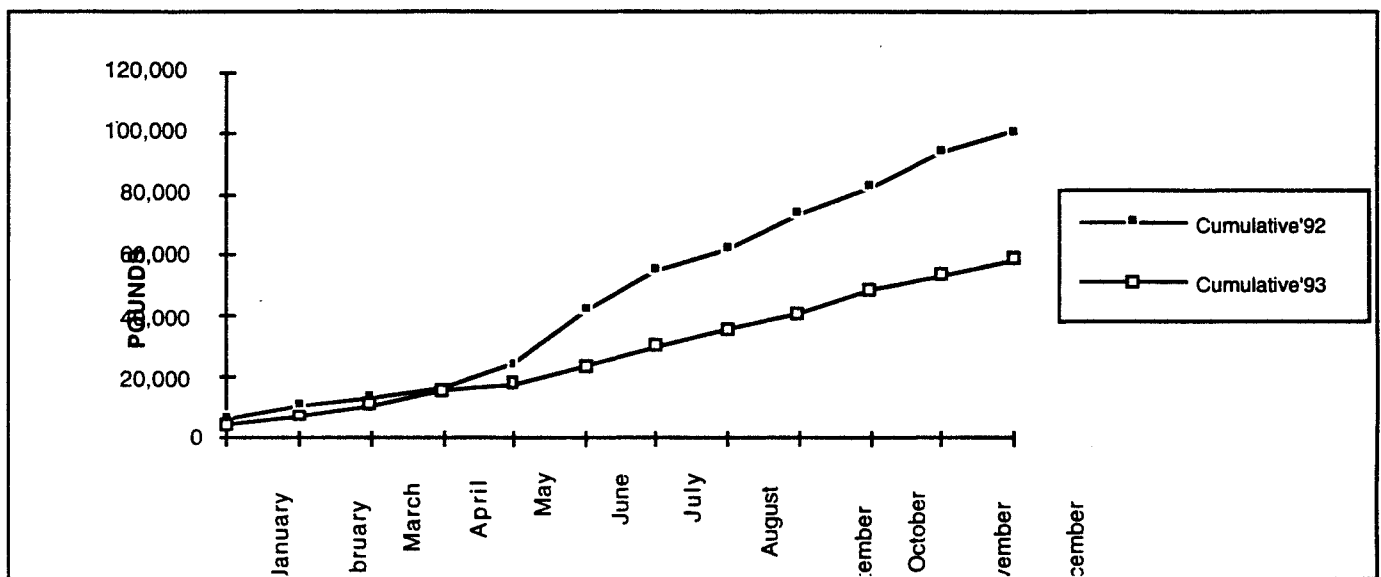


Figure 2. Cumulative monthly hogfish catches from 1992 and 1993 logbook data. (SOURCE: NMFS Logbook Program; Harris et al., 1993 and 1994.)

Hogfish are caught by a variety of gear types (Table 2) but diving accounts for the majority of total (recreational and commercial) current harvest.

Table 2. Hogfish commercial landings by gear from 1988-91 (SOURCE: NMFS general canvass data.)

	1988		1989		1990		1991	
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
Florida								
Fish pots & traps	224	\$282	3,185	\$4,014				
Unknown	64,002	\$96,372	75,305	\$110,190	76,056	\$117,857	62,710	\$97,521
Georgia								
Rod & reel	4	\$8	10	\$15			28	\$21
Unknown							14	\$14
South Carolina								
Fish Trawl	47	\$77						
Fish pots & traps	19	\$30			350	\$648		
Hand line	1,219	\$1,840	4,400	\$6,672	3,011	\$4,796		
Bottom longline					277	\$556		
Other diving	1,654	\$3,358	1,186	\$2,935				
North Carolina								
Otter Trawls			4	\$6				
Fish pots & traps			143	\$22	12,478	\$14,329	10,684	\$12,407
Other handline	5,518	\$6,883	8,862	\$11,416	11,032	\$13,747	8,170	\$10,411
Bottom longline	1,725	\$2,331	572	\$756	706	\$941	572	\$803
TOTALS	74,412	\$111,181	93,667	\$136,026	103,910	\$152,874	82,178	\$121,177

The State of Florida has the highest landings of hogfish (Table 3). In 1993, the total commercial hogfish catch was 59,079 pounds. Catches were landed in North Carolina (37%), South Carolina (13%), Florida east coast (7%) and Florida west coast (43%). No hogfish were landed in Georgia during 1992 or 1993.

Commercial catches of cubera snapper by state from NMFS General Canvass data 1978-1992 (Figure 3) were relatively low with peaks in the late 1980's and early 1990's. Logbook catches show a decline from 1992 to 1993 (Table 3). The State of Florida has the highest landings of cubera snapper in 1993 based on logbook data (Table 3). In 1993, the total commercial cubera catch was 1,749 pounds. Catches were landed in North Carolina (9%), South Carolina (12%), Georgia (15%) and the Florida east coast (64%). No hogfish were landed in the Florida west coast during 1993.

Table 3. Hogfish catch by state for 1992 and 1993 from logbook data. (SOURCE: NMFS logbook.)

	LOGBOOK DATA		%BY STATE
	1992	1993	1993
Hogfish			
NC	46,177	21,918	37%
SC	17,467	7,739	13%
GA	0	0	0%
FLEC	10,942	3,899	7%
FLWC	25,799	25,522	43%
TOTAL	100,385	59,079	100%
Cubera Snapper			
	1992	1993	
NC	265	150	9%
SC	2,824	205	12%
GA	53	269	15%
FLEC	5,233	1,125	64%
FLWC	459	0	0%
TOTAL	8,834	1,749	100%
Triggerfish*			
	1992	1993	
NC	325,586	169,393	49%
SC	110,995	69,892	20%
GA	20,181	17,903	5%
FLEC	210,554	80,565	23%
FLWC	5,382	5,853	2%
TOTAL	672,698	343,605	100%

*For 1993 the logbook data breaks our gray triggerfish. Unclassified triggerfish landings were 27,266 pounds.

Commercial catches of gray triggerfish by state from NMFS General Canvass data 1978-1992 (Figure 4) were relatively low with a slight increase in the early 1990's. Logbook catches show a decline from 1992 to 1993 (Table 3). The State of North Carolina had the highest landings of gray triggerfish in 1993 based on logbook data (Table 3). In 1993, the total commercial cubera catch was 343,605 pounds. Catches were landed in North Carolina (49%), South Carolina (20%), Georgia (5%), the Florida east coast (23%) and the Florida west coast (2%).

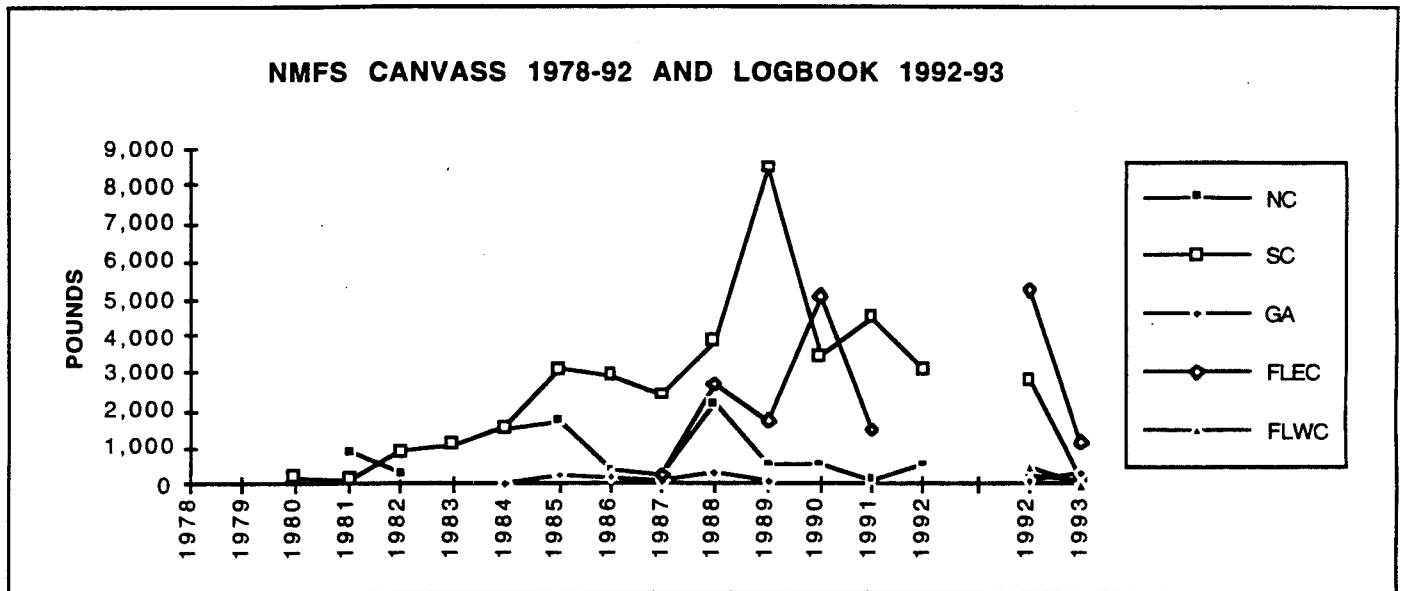


Figure 3. Comparison of commercial cubera snapper catches by state from NMFS General Canvass data and logbook data. Data from 1978-92 are from NMFS General Canvass data and logbook estimates are shown for 1992 (first year of logbook program) and 1993. (SOURCE: NMFS General Canvass Data and NMFS Logbook Program; Harris et al., 1993 and 1994)

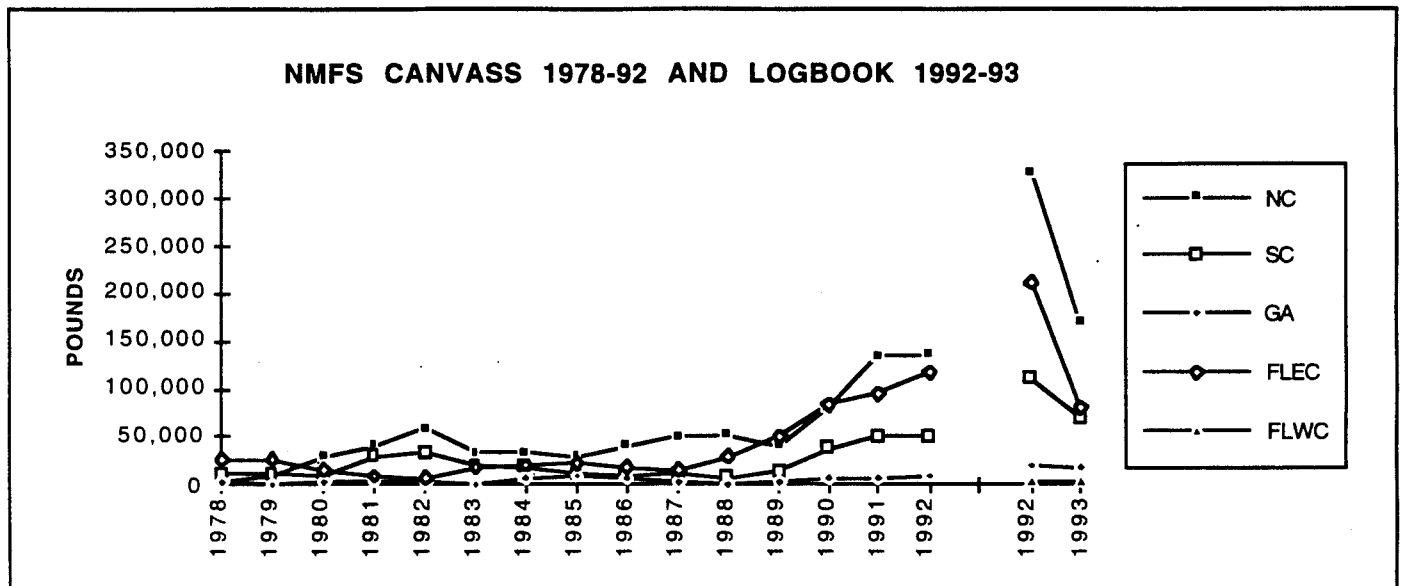


Figure 4. Comparison of commercial gray triggerfish catches by state from NMFS General Canvass data and logbook data. Data from 1978-92 are from NMFS General Canvass data and logbook estimates are shown for 1992 (first year of logbook program) and 1993. (SOURCE: NMFS General Canvass Data and NMFS Logbook Program; Harris et al., 1993 and 1994)

Commercial NMFS General Canvass data used to generate Figures 1, 3 and 4 are shown in Table 4. Table 4 also shows the percentage caught by state for 1992 data.

Table 4. Commercial landings in pounds by state for 1978-92 from NMFS general canvass data.

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1992
Hogfish																
NC		104			1,229	1,743	2,219	4,683	5,052	5,350	7,243	9,581	24,216	19,426	24,186	27%
SC	522	63	966	11,139	14,951	8,123	753	1,349	2,988	3,924	2,939	5,586	3,638	4,404	8,078	9%
GA										21	4	10		56	10	0%
FLEC	19,450	20,470	34,732	37,738	15,309	17,073	19,155	22,331	31,984	40,520	42,210	50,999	49,711	44,509	57,202	64%
FLWC																0%
TOTAL	19,972	20,637	35,698	48,877	31,489	26,939	22,127	28,363	40,024	49,815	52,396	66,176	77,565	68,395	89,476	100%
Cubera Snapper																
1978																
NC					899		1,469	1,689	335	224	2,184	557	502	114	513	14%
SC			188	117	898	1,066	1,513	3,111	2,929	2,374	3,814	8,516	3,460	4,469	3,101	86%
GA							16	216	172	45	291	80				0%
FLEC										221	2,706	1,689	5,070	1,473		0%
FLWC																0%
TOTAL	0	0	188	1,016	1,193	1,066	2,998	5,016	3,436	2,864	8,995	10,842	9,032	6,056	3,614	100%
Triggerfish																
1978																
NC	3,446	9,087	29,573	40,876	59,386	33,936	33,278	29,831	39,794	49,831	51,340	40,372	82,039	133,107	135,190	43%
SC	11,918	10,567	10,056	30,273	34,097	20,360	18,147	11,891	9,510	10,615	6,337	13,910	38,559	50,233	49,259	16%
GA	1,454	203	1,491	3,989	2,023	950	6,905	8,334	7,212	2,234	1,185	2,392	6,175	7,857	9,718	3%
FLEC	27,818	26,628	17,129	9,876	7,666	18,180	21,078	23,777	17,601	16,979	29,477	50,063	84,757	94,673	118,042	38%
FLWC																0%
TOTAL	44,636	46,485	58,249	85,014	103,172	73,426	79,408	73,833	74,117	79,659	88,339	106,737	211,530	285,870	312,209	100%

D. Recreational Fishery

Recreational total catches and catch rates for traditional snapper grouper species, such as red snapper, vermilion snapper, and several of the groupers, have declined during the 1980s. The average size of vermilion snappers, black sea bass, and groupers is quite small in recreational catches. The small average size of recreational fish is partly due to the habit of some species to stratify in size by depth. Another important reason is that total inshore fishing pressure is so high that fish are not allowed to grow to optimum size before capture. As soon as fish reach legal size they are caught. This is an example of growth overfishing.

Recreational catches of hogfish, cubera snapper and gray triggerfish from 1991 through 1993 are shown in Tables 5-7. The recreational catch data is from the Marine Recreational Fishing Statistical Survey (MRFSS) conducted by the NMFS. All data are being reestimated and estimates for 1991-93 represent the available data as of this date.

Recreational catches of hogfish increased from 32,719 fish in 1991 to 191,284 fish in 1992, and declined slightly to 186,693 fish in 1993 (Table 5). No catches were reported from South Carolina and Georgia; only 531 hogfish were caught in North Carolina in 1992 and 587 in 1993.

Table 5. MRFSS Recreational hogfish catches (number of fish) for 1991, 1992 and 1993 (SOURCE: MRFSS).

	N. Carolina	S. Carolina	Georgia	Florida (EC)	Florida (WC)	Totals
1991	0	0	0	16,112	158,607	32,719
1992	531	0	0	52,180	138,573	191,284
1993	587	0	0	43,430	142,676	186,693

Recreational catches of cubera snapper decreased from 17,356 fish in 1991 to 3,250 fish in 1992, and increased to 17,772 fish in 1993 (Table 6). No catches were reported from South Carolina and Georgia; only 156 hogfish were caught in North Carolina in 1991.

Table 6. MRFSS Recreational cubera snapper catches (number of fish) for 1991, 1992 and 1993 (SOURCE: MRFSS).

	N. Carolina	S. Carolina	Georgia	Florida (EC)	Florida (WC)	Totals
1991	156	0	0	13,872	3,328	17,356
1992	0	0	0	0	3,250	3,250
1993	0	0	0	11,361	6,411	17,772

Recreational catches of gray triggerfish decreased from 760,189 fish in 1991 to 574,869 fish in 1992, and declined further to 462,100 fish in 1993. Catches increased from North Carolina, South Carolina and Georgia (Georgia 1993 declined slightly) while at the same time catches declined on the Florida east and west coasts.

Table 7. MRFSS Recreational gray triggerfish catches (number of fish) for 1991, 1992 and 1993 (SOURCE: MRFSS).

	N. Carolina	S. Carolina	Georgia	Florida (EC)	Florida (WC)	Totals
1991	2,656	4,378	2,178	109,186	641,791	760,189
1992	12,173	5,356	4,680	69,809	482,851	574,869
1993	44,781	5,161	8,840	46,983	356,335	462,100

Trends in hogfish headboat catch and average size are shown in Figure 5. Catches and average size have been variable with a large increase from 1990 to 1991 and a subsequent decrease in 1992 and 1993.

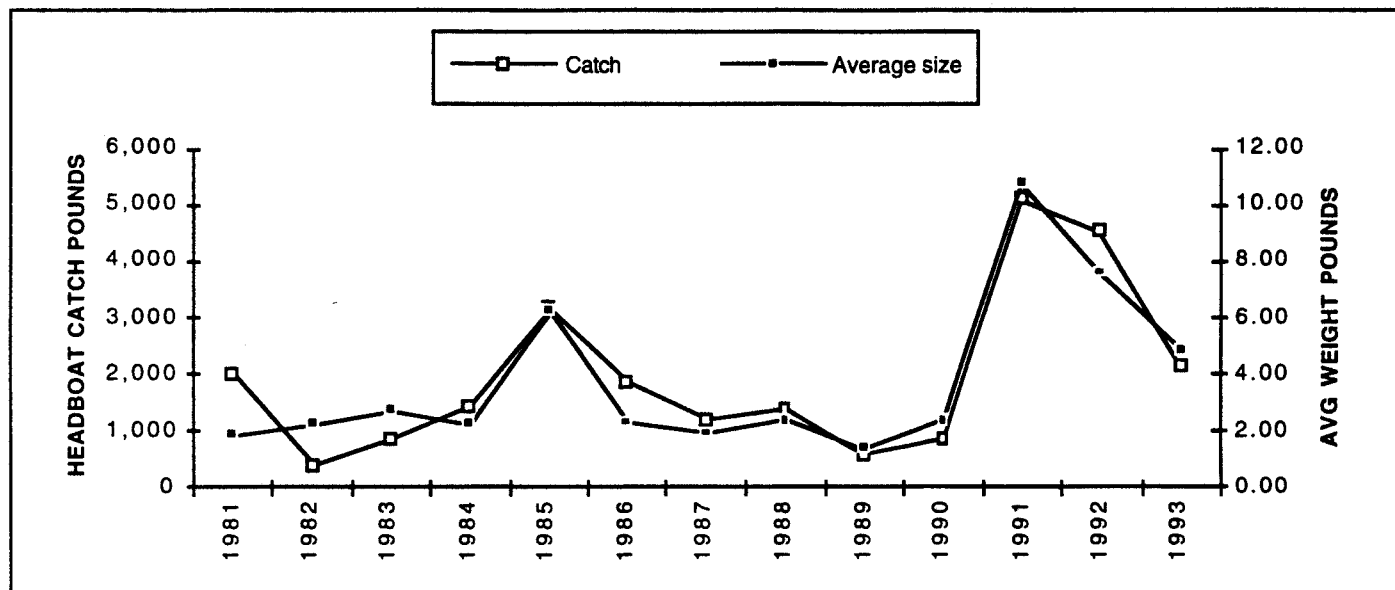


Figure 5. Headboat catches and average weight for hogfish from 1981-1993. (SOURCE: R. Dixon, NMFS Beaufort Lab, provided the headboat data.)

Trends in cubera snapper headboat catch and average size are shown in Figure 6. Catches were higher in the early 1980's and have been below 1,000 pounds since 1986. Average size has been variable.

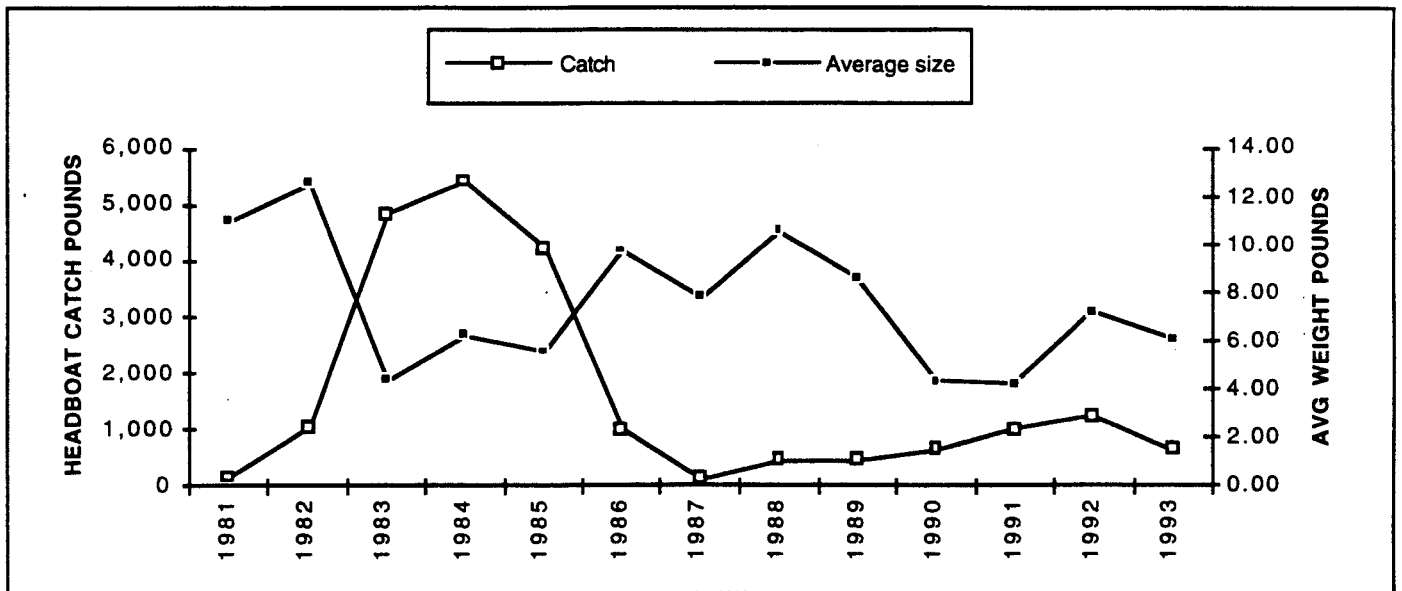


Figure 6. Headboat catches and average weight for cubera snapper from 1981-1993. (SOURCE: R. Dixon, NMFS Beaufort Lab, provided the headboat data.)

Trends in gray triggerfish headboat catch and average size are shown in Figure 7. Catches increased in the late 1980's and early 1990's, while average size has declined over time.

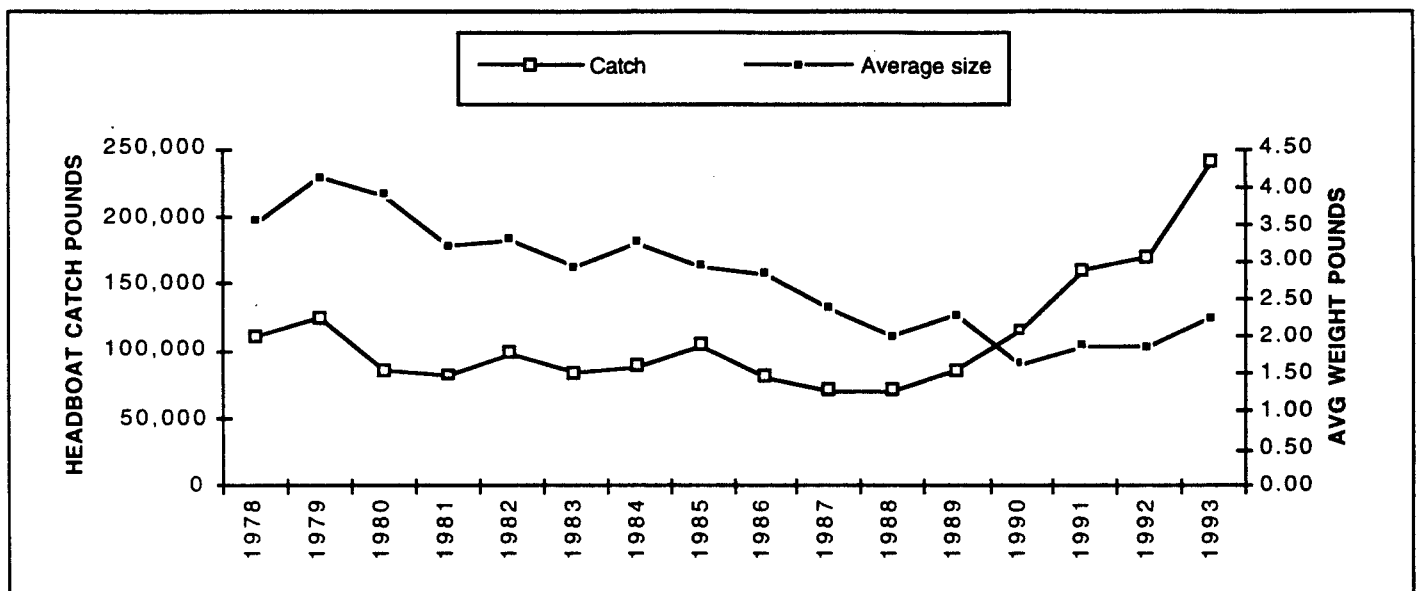


Figure 7. Headboat catches and average weight for gray triggerfish from 1981-1993. (SOURCE: R. Dixon, NMFS Beaufort Lab, provided the headboat data.)

E. Status of the Stocks

Spawning stock ratios (SSRs) from the 1992 assessment (Huntsman et al., 1992) which includes data through 1990, show that 12 of 19 species have spawning stock ratio values of less than 30% indicating overfishing; five species have values between 30% and 51%; and two have spawning stock ratio values of 58% and 61% (Table 2 in Amendment 7). Presently, 12 species are in a documented state of overfishing. Fifteen other species are thought to be overfished. Recreational fishing pressure by private boats will likely continue to increase as the coastal population continues to grow in the south Atlantic.

The spawning stock ratio for gray triggerfish, which is included in this regulatory amendment, is 27%. Sufficient data are not available to calculate SSRs for hogfish and cubera snapper. Although the spawning stock ratio is unknown, hogfish and cubera snapper are thought to be overfished.

Hogfish are dichromatic, protogynous hermaphrodites in which the transformation from females to males, as well as the color and morphology changes, occur at the same time. The size and age at which these changes occur have been declining based on input from fishermen. This indicates the species' attempt to adjust to high levels of fishing mortality. Commercial catches of hogfish from logbook data indicated a decline of 41% between 1992 and 1993. Based on the information available, the Council concluded that hogfish are overfished.

Cubera snapper information is severely lacking but input from fishermen indicated that they aggregate to spawn in a restricted area off the Florida Keys. High fishing mortality rates during the spawning season, and the fact that cubera snapper aggregate to spawn, led the Council to conclude that cubera snapper are overfished.

4.0 ENVIRONMENTAL CONSEQUENCES

A. Introduction

This section is divided into two major parts. The first part addresses management measures and alternatives considered by the Council. The second depicts the consequences of management. The regulatory impact review (RIR) analysis and information for analyses required by the Regulatory Flexibility Act are incorporated into the discussion under each of the proposed action items.

The Regulatory Impact Review (RIR) is part of the process of developing and reviewing fishery management plans and amendments and is prepared by the Regional Fishery Management Councils with assistance from the National Marine Fisheries Service, as necessary. The regulatory impact review provides a comprehensive review of the level and incidence of economic impact associated with the proposed regulatory actions. The purpose of the analysis is to ensure that the regulatory agency or Council systematically considers all available alternatives so that public welfare can be enhanced in the most efficient and cost effective way.

The regulatory impact review also serves as the basis for determining if the proposed regulations are major under Executive Order 12866 and whether the proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act of 1980 (RFA). The purpose of the Regulatory Flexibility Act is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record-keeping requirements, to the extent possible.

Each Action is followed by four subheadings: Biological Impacts, Enforcement Impacts, Socioeconomic Impacts, and Conclusion. These are self explanatory with the first three presenting the impacts of each measure considered. The Council's rationale is presented under the heading "Conclusion".

B. Management Measures

ACTION 1. HOGFISH

Establish a daily recreational bag limit of 5 hogfish per person. This would only apply in the EEZ off Florida.

Table 8. Percent reduction in recreational harvest off Florida if there were no other snappers mixed in the harvest (SOURCE: Florida Marine Fisheries Commission, Reef Fish Policy Decision, September 1993.)

Bag Limit	FL East Coast (N=114)	FL West Coast (N=489)
1	36	43
2	17	23
3	13	13
4	11	9
5	9	6
10	3	4

Biological Impacts

J.C. Davis (1976) completed a Master's Thesis on hogfish and the following material is quoted extensively from his work.

Abstract: "The hogfish, Lachnolaimus maximus (Walbaum), was collected by spearfishing during the 13 months, August, 1973, through August, 1974, from three reef areas near Islamorada, Florida. Distribution, age and growth, survival rate, reproductive biology, and feeding habits of the population were studied.

Mean length at capture was 284 mm for females and 369 mm for males. Hogfish were smaller and younger on the patch reefs than on the outer reefs. Where abundant, they aggregate by size, with a single male being the largest fish present. Age and growth in female hogfish were reliably determined through age group III, using the scale method of ageing. Annuli could not be determined on the male scales. Therefore, males were not aged. Mean back calculated length at ages I-III in females were 265 mm, 317 mm, and 360 mm. Length-weight relations differed with sex; males weighed less than females at a given length. Survival estimates, corrected for rejected females and sexual transformation were $S = 0.37$ and $S = 0.37 \pm 0.04$ for Heincke's estimate and Robson/Chapman's estimate.

Hogfish are dichromatic, protogynous hermaphrodites in which transformation of sex, color and morphology coincide. All males are sex-reversed females. Sexual transformation may be regulated by a combination of size and possibly social control, particularly in small and medium size fish. All females eventually transform. Peak spawning occurred in February and March with some spawning occurring from September to April. Fecundity, ranging from 41,061 to 146,813 in 12 females, increased approximately linearly with weight and exponentially with length. Mean relative fecundity was 158.3 ova/g and showed no relation to weight or length.

Hogfish are opportunistic, non-specific predators on hard shelled, sessile, or slow moving organisms, primarily pelecypods and crustaceans. Gut contents, particularly Crustacea and Echinoidea, varied directly with fish size, season, age, and area, but did not vary with sex."

Hogfish reach a weight of 11.4 kg or 25 pounds (cited from Randall and Warmke, 1967).

Approximately 9,900 kg (21,826 pounds) per year are landed commercially in Florida with 7,470 kg (16,468 pounds) landed in 1974 (cited from Snell, 1976). Davis noted that the amount of the sport catch is unknown, but it certainly exceeds the commercial landings.

Recent landings and value information is given in Appendix F (see Snapper Grouper Amendment 7; SAFMC, 1994). Commercial and recreational catch information is also presented in Tables 1 and 4, and Figures 1 and 2. The 1992 South Atlantic commercial catch was 89,476 pounds worth \$127,042 (see Appendix F in Snapper Grouper Amendment 7).

Davis' study area was off Islamorada, Florida between Alligator and Crocker reefs with a water depth between 6 and 18 m (18 and 54 feet). Hogfish were collected by spearfishing, free diving with a Hawaiian sling; SCUBA was not used. The length range of females collected during the study was 149 mm to 542 mm (6-22 in). Only four females less than 190 mm (8 in) were taken. Males ranged from 258 mm to 614 mm (10-25 in). Mean length of all fish was 290 mm (12 in).

Of the females examined, only one showed any indication of sex changes based on examination of the gonads. This fish, 137 mm (5 in) FL was taken from a grass bed in Biscayne Bay. The smallest fish to show any morphological characters of a male was 258 mm (10 in) which showed weak external male characters. The ratio of females to males decreased with length from 89.6:1 between 250 and 299 mm

(10-12 in) to 0.25:1 between 500 and 549 mm (20-22 in). No females that exceeded 550 mm (22 in) length were collected during Davis' study period. Length and weight at first maturity for females are approximately 198 mm (8 in) and 140 grams (5 oz). That was the size of the smallest female taken with ovaries near spawning condition. In males, size at first maturity probably coincides with size at sexual transformation. This occurs at no less than 258 mm (10 in) and 350 grams (12 oz), the size of the smallest transforming male. The smallest male taken which had completed sexual transformation was 295 mm (12 in) and 500 grams (18 oz).

A bag limit of 5 hogfish per person will reduce catches by 9% on the Florida east coast and 6% on the Florida west coast (Monroe County) thereby providing biological protection (Table 8). The bag limit will also provide protection as hogfish abundance increases by capping harvest per fisherman.

Enforcement Impacts

The Florida Marine Fisheries Commission has established a 5 hogfish/person/day bag limit effective July 1, 1994. The Council's proposed action would be compatible with Florida regulations and result in dockside enforcement. Having the same regulations in state and federal waters will enhance voluntary compliance.

Socioeconomic Impacts

MRFSS recreational hogfish catch data for 1991-1993 indicated that there was no reported landings of hogfish in Georgia and South Carolina for those years (Table 5). Hogfish catches were reported in North Carolina in 1992 and 1993, but the figures were insignificant compared to those reported for Florida east coast (Table 5). Florida east coast accounted for 99 percent of the reported recreational catches in the South Atlantic region during the 3-year period. Given this catch trend, any measure that will impact effort reduction in the recreational fishery for hogfish in the south Atlantic region should be directed at the fishery in Florida until there is evidence of increasing catches of hogfish by recreational fishermen in states north of Florida.

A recreational daily bag limit of 5 hogfish per person will reduce recreational harvest by nine percent (Table 8; Florida Marine Fisheries Commission, Reef Fish Policy Decision, September 1993). This assumes that there are no other snapper species mixed in the catches. Given the average annual recreational harvest of hogfish on the Florida east coast of 37,240 fish for the period 1991-1993, this action will likely reduce the annual recreational harvest by 3,350 fish. The number of recreational fishermen harvesting hogfish on the east coast of Florida is not available, thus the impact on individual recreational fishermen could not be determined. However, the reduction in the annual harvest in terms of number of fish indicate that the action will not have any significant impact on individual recreational fishermen.

Although this action would reduce annual recreational harvest of hogfish, it should be noted that any increase in the number of recreational fishermen targeting hogfish on the east coast of Florida, or in states north of Florida could offset this reduction and could possibly lead to an increase in annual harvest of hogfish. Presently, there is no federal regulation limiting the number of recreational fishermen in the snapper

grouper fishery, thus the possibility of an increase in recreational fishermen due to rising coastal population along the south Atlantic coast does exist.

Because this action will be compatible with Florida regulations, it would facilitate the coordination of enforcement efforts between federal and state officials and likely reduce enforcement costs. However, the nine percent reduction in recreational harvest as a result of this action will not offset the current average annual increase in recreational hogfish harvest of 104 percent from 1991 to 1993 on the Florida east coast. In the interim period, it will provide minimal protection to the hogfish resource until more information is available on its biological potential and state of exploitation. It should be noted that the 12" size limit to be implemented December 30, 1994 under Amendment 7 will reduce recreational catch by 46% on the Florida east coast (Table 10).

Conclusion

The 5-fish daily bag limit was chosen because it seems to be a reasonable limit given the level of reduction in catch and the Council's understanding of the status of the hogfish resource; the 5-fish bag limit also is consistent with the State of Florida bag limit regulation.

The Council considered having the bag limit apply in the EEZ from North Carolina through Florida. The NMFS general canvass data (Table 4) indicates that 64% of the 1992 commercial catch was from Florida while the 1993 logbook data (Table 3) indicates that 50% of the 1993 commercial catch was from Florida. The majority of hogfish are caught recreationally and as shown in Table 5, the MRFSS catch in 1993 was 186,693 hogfish with all but 587 being caught in Florida. Florida east and west coast are included because in the MRFSS survey, the east coast only goes down to the Dade/Monroe County line. Florida west coast includes the Keys and there is no standard methodology for figuring which portion of the catches are from the South Atlantic area of jurisdiction. In the past we have assumed 50% but it varies by species and probably more than 50% of the hogfish come from the Atlantic side. The 1994 logbook report (Harris et al., 1994) indicated that the 1993 commercial diver catch totaled 19,159 pounds with 5,362 pounds (28%) from North Carolina, 957 pounds (5%) from South Carolina, none from Georgia, 10,988 pounds (57%) from the Florida west coast and 1,852 pounds (10%) from the Florida east coast (Table 9). Given that the bulk of the catch is from Florida and that the information requesting management and indicating that hogfish are overfished is from Florida, the Council decided to propose the 5-fish daily bag limit for Florida only. Further justification is that there are many more fishermen in Florida that have ready access to the hogfish resource.

The Council concluded that the 5-fish daily bag limit combined with the 12" size limit to be implemented December 30, 1994 under Amendment 7, provides sufficient biological protection to rebuild the hogfish resource and that benefits resulting from protecting the resource and from compatible state/federal regulations outweigh any negative socioeconomic impacts. The Council will monitor the status of hogfish and if additional measures are required, they will be implemented by regulatory amendment.

Table 9. Estimated hogfish landings by state by divers. (SOURCE: NMFS Logbook Program; Harris et al., 1993 and 1994.)

Estimated hogfish landings by diver gear, by state		
	1993	Percentage
North Carolina	5,362	28.0%
South Carolina	957	5.0%
Georgia	0	0.0%
Florida East Coast	10,988	57.4%
Florida West Coast	1,852	9.7%
Total	19,159	

Rejected Options for Action 1

Rejected Option 1. No action.

Biological Impacts

Taking no action could have resulted in a decline in recruitment. In the long-term, the male population could have been reduced to the point where recruitment could have been seriously affected. The information presented for Action 1 indicated the importance of protecting the stock up to the size at first maturity and/or the size when females begin transforming to males. The minimum size limit will do this. The absence of a bag limit in federal waters would have negated some of the biological benefits of the State of Florida's bag limit.

Enforcement Impacts

The State of Florida designated hogfish as a "restricted species", established a minimum size limit of 12" fork length for hogfish and established a daily recreational bag limit of 5 hogfish per person, effective July 1, 1994. Amendment 7 to the snapper grouper plan proposed a 12" fork length size limit.

This option would not have tracked action by the Florida Marine Fisheries Commission thereby resulting in inconsistent state and federal regulations which would have hindered enforcement and reduced voluntary compliance.

Socioeconomic Impacts

With the current lack of knowledge on the state of exploitation of the hogfish resource in the EEZ and given the actions already taken by the State of Florida, taking no action would likely have resulted in a reduction in the long-term benefits that could be obtained from the resource. Table 5 shows that there was approximately a 485 percent increase in reported hogfish recreational harvest from 1991 to 1992. Although reported recreational harvest of hogfish declined by 2.4 percent from 1992 to 1993, there was an annual average increase of 104 percent from 1991 to 1993 on the Florida east coast. This trend will only accelerate the decline of the hogfish resource if it is already fully exploited.

Conclusion

There are no federal bag limit regulations in place for hogfish. Florida designated hogfish as a "restricted species", established a minimum size limit of 12" FL, and established a daily recreational bag

limit of 5 hogfish per person, effective July 1, 1994. The advisory panel felt that particularly in Florida, hogfish need to be considered for management due to the declining size at which females change to males. This declining size indicates a high harvest rate.

The information presented for the proposed action indicated the importance of protecting the stock. Failure to protect the stock would have led to decreased recruitment and would have resulted in continued overfishing. Therefore, the Council rejected taking no action.

Rejected Option 2. Establish a minimum size limit of 12" fork length (FL) and include this species in the 10 snapper aggregate recreational bag limit. (Amendment 7 proposed a 12" FL minimum size limit which should be implemented December 30, 1994. Thus, the minimum size limit portion of Rejected Option 2 is in the process of being implemented.)

Biological Impacts

A 12 inch minimum size limit would be equivalent to the smallest male that completed sex transformation from Davis' (1976) study. Davis noted that sexual transformation may be regulated by a combination of size and possibly social control, particularly in small and medium size fish. This size limit would allow fish to grow to a size where they begin to change from females to males based on morphology. Based on examination of gonads, males first mature at 10 inches and females at 8 inches. This size limit corresponds to a fish about age II (mean size at age II - 12.7 inches; Davis, 1976). This size limit allows females to mature before harvest and allows for females to begin transforming to males.

If only hogfish were captured on a trip, a maximum of 10 could be retained under the 10-snapper aggregate recreational bag limit. This would reduce the recreational catch by 3% on the Florida east coast and 4% on the Florida west coast (Table 8). If the catch was mixed, fewer hogfish could be included and the percentage reductions would be higher.

Enforcement Impacts

A 12" minimum size limit would put hogfish into the 12" grouping thereby not creating another minimum size grouping which reduces confusion and promotes compliance. This size limit would track the size limit proposed by the Florida Marine Fisheries Commission which will result in compatible state and federal regulations. This is especially important for hogfish because the majority of the harvest is off Florida.

Enforcement costs are expected to be low since fishermen are in favor of the minimum size limit. However, the States of North Carolina, South Carolina, and Georgia would have to implement similar regulations to be compatible so that enforcement can be done dockside.

The Florida Marine Fisheries Commission has established a 5 hogfish/person/day bag limit effective July 1, 1994. The bag limit portion of this option would have included hogfish in the 10 snapper aggregate bag limit recognizing that hogfish are not snappers but are a wrasse. This may have resulted in some confusion and some difficulty in enforcement.

Socioeconomic Impacts

It should be noted that implementation of Amendment 7 will put into effect a 12" size limitation on hogfish. Appendix H (see Snapper Grouper Amendment 7) contains SAFMC staff and NMFS analyses done for hogfish (pages 22-26). Across all gear, the 12" size limit would impact 20% of the commercially caught hogfish based on 1991-1992 landings. As a result, producer surplus to the commercial fishery could decrease by approximately \$24,000 during the first year. About 23% of the commercial "diving" catch was below 12" and 8% of the "other hand lines and spiny lobster traps" catch was below 12 inches. Commercial divers would lose approximately \$15,000 in producer surplus during the first year. Analysis of the MRFSS data indicate that the recreational catch on Florida's east coast would be reduced by 46% if a 12" size limit is implemented (Table 10). Approximately 7% of the headboat catch was below this size limit. No data is available on the value of recreational hogfish catches, thus the loss in recreational benefits from the 12" size limit cannot be determined.

A 12" size limit would likely cause some short-term losses in benefits as a result of the expected decrease in landings at least during the first year of implementation. In the long-term, landings are expected to increase if yield-per-recruit increases leading to higher stock density. If a higher stock density is sustained over time, landings would increase in the long-term and net benefits from the fishery would increase other things being equal.

Conclusion

The Council included the size limit portion of this option in Amendment 7 but rejected the bag limit portion because of inconsistency with State of Florida regulations and because they concluded that a separate bag limit for hogfish would better protect the resource.

Table 10. Cumulative percent reduction in hogfish recreational harvest off Florida from size limits based on MRFSS data 1979-91. Total length is about 2" greater than fork length (SOURCE: Florida Marine Fisheries Commission, Reef Fish Policy Decision, September 1993.)

Minimum Size Limit (Fork Length=FL)	FL East Coast (N=112)	FL West Coast (N=407)
10"	10.7	25.3
12"	46.4	56.8
14"	71.4	77.2
16"	80.4	87.0

ACTION 2. CUBERA SNAPPER

Establish a daily bag limit of two per person or boat, whichever is less, for all fishermen (recreational and commercial), for fish 30" in total length or larger (smaller cubera snapper are included in the 10-snapper aggregate recreational bag limit). This would only apply in the EEZ off Florida and the two large cubera snapper are in addition to the 10-snapper aggregate bag limit.

Biological Impacts

There is not sufficient information available to calculate the spawning stock ratio but the Council concluded that cubera snapper are overfished at this time (see Section 3.0 E. Status of the Stocks). The proposed action will provide biological protection and help rebuild the cubera snapper resource by reducing catches. Protecting larger individuals will protect the spawning potential and increase future recruitment.

Enforcement Impacts

Implementation of this option would result in compatible state/federal regulations and facilitate dockside enforcement thereby increasing voluntary compliance.

Socioeconomic Impacts

MRFSS recreational catch data for 1991–1993 (Table 6) indicated that the State of Florida accounted for virtually all the reported catches of cubera snapper by recreational fishermen in the south Atlantic region. There was no reported recreational catch in Georgia and South Carolina during this period. In North Carolina, 156 fish were reported caught by recreational fishermen in 1991. Also, recreational catches on Florida's east coast declined by 18 percent from 1991 to 1993 with no catch reported in 1992. At the same time, recreational catches on Florida's west coast increased 93% from 1991 to 1993 (Table 6).

Commercial landings of cubera snapper increased from 1980 to 1985, declined in 1986 and 1987, and increased again in 1988 and 1989 (Table 4). There has been a large decrease since 1991, with landings in 1992 declining by 67 percent compared to the peak landing in 1989 (NMFS General Canvass data; Table 4). The NMFS Logbook data for 1992 and 1993 indicated commercial landings of 8,843 pounds and 1,749 pounds respectively (Table 3). The 1992 logbook catch was 144 percent higher than the General Canvass data for the same year. Florida's east coast accounted for over 60 percent of the commercial landings in 1992 and 1993.

Although limited knowledge on the biological status of cubera snapper is available, it is expected that this action will provide some protection for the resource until more information becomes available to evaluate its biological potential and the state of exploitation. This action will likely cause some reduction in both commercial and recreational catches. Since catches for both sectors have been fluctuating in the last three years, it is hard to determine which sector will absorb more of the impact. There will be some losses in short-term benefits due to reduction in catches, but this would likely lead to increased long-term benefits if the action results in stock improvement and higher sustained yields. The magnitudes of the short-term losses

and the possible long-term increased benefits to the commercial and recreational sectors cannot be determined because of lack of data.

Also, this action will track Florida's regulation and will provide for effective coordination and enforcement of federal and state regulations. This will likely reduce enforcement costs. Since commercial landings of cubera snapper occur in South Carolina, North Carolina and Georgia, it may become necessary to implement this action throughout the region and request state authorities north of Florida to implement similar measures to facilitate effective enforcement throughout the south Atlantic region. This would likely increase overall long-term benefits from exploiting the cubera snapper resource.

Conclusion

Cubera snapper are rare north of Cape Canaveral although some are caught north of Florida. The prime fishery that goes on in Florida is a May to August fishery that concentrates on spawning aggregations of cubera snapper. This has, for years, been a catch and release fishery. The concerns raised by the guides, charterboat fishermen and recreational fishing groups in Florida were that since this was a good and profitable fishery at certain times of the year, they saw very little need for retaining fish. In some cases the fish were being retained simply for their advertising purposes, just to bring back to the dock and hang up. A vast majority of the people who utilize the cubera snapper resource in Florida do not think this is an appropriate use. In fact, the fishing mortality that does occur, occurs on spawning aggregations to the extent those fish do occur as stragglers north of Florida. It is likely any reduction in fishing mortality of those spawning aggregations will help increase that remnant population that may migrate north of Florida.

The reason for having the 30" size limit is that the fish are encountered very rarely in the inshore commercial fisheries in Florida. Commercial fishermen testified they had no objection to the two-fish bag limit. They had no desire, in fact, to retain large cubera snapper. However, in multi-species catches and inshore catches, all fishermen did not feel confident they could, especially at small sizes, distinguish cubera snapper from other species. They felt by having the bag limit only apply above 30" would insulate the minimal commercial catches from being impacted by this. The fish are more distinguishable as they grow older in terms of the size of their canines (teeth) and other more easily recognizable physical features. This is why the 30" minimum size limit was put in place in the State of Florida.

The Council considered having the bag limit apply in the EEZ from North Carolina through Florida. The NMFS general canvass data (Table 4) indicated that only 3,614 pounds were caught commercially in 1992, all from North and South Carolina. The 1993 logbook data (Table 3) indicates that 64% of the commercial catch of 1,749 pounds was from Florida. The majority of cubera snapper are caught recreationally. The MRFSS catch in 1993 was 17,772 fish with all caught in Florida (Table 6). Given that the bulk of the catch is from Florida and that the information presented by fishermen requesting management and indicating that cubera snapper are overfished is from Florida, the Council decided to propose the bag limit for Florida only. Further justification is that there are many more fishermen in Florida that have ready access to the cubera snapper resource.

The two large cubera snapper are not included in the 10-snapper aggregate bag limit because the 2-fish limit applies to both recreational and commercial fishermen.

The Council concluded that the benefits resulting from protecting the resource and from compatible state/federal regulations outweigh any negative socioeconomic impacts. The bag limit will provide a cap on potential harvest thereby providing biological protection and the size limit will increase future recruitment. The Council will monitor the stock of cubera snapper and if additional measures are required, they will be implemented by regulatory amendment.

Rejected Options for Action 2

Rejected Option 1. No action.

Biological Impacts

There is not sufficient information available to calculate the spawning stock ratio but the Council concluded that cubera snapper are overfished at this time (see Section 3.0 E. Status of the Stocks). This option would have continued the 12" minimum size limit that is currently in place for both recreational and commercial fishermen. In addition, cubera are included in the 10-fish aggregate snapper bag limit. The absence of the bag limit of 2-fish over 30" in federal waters would have negated some of the biological benefits of the State of Florida's bag limit.

Enforcement Impacts

Effective March 1, 1994, Florida established a daily bag limit for cubera snapper of two per person or boat, whichever is less, for all fishermen, for fish 30" in length or larger (smaller cubera snapper are included in the 10-snapper aggregate recreational bag limit). The no action option would have resulted in incompatible state/federal regulations and would have reduced voluntary compliance.

Socioeconomic Impacts

There is inadequate information to determine the reasons for the recent declines in commercial and recreational catches of cubera snapper in the south Atlantic region. It is likely that there has been a reduction in directed effort for this species because of the 12" size limit currently being implemented. Also, poor and/or incomplete reporting of landings for both the commercial and recreational fisheries could be another reason for such significant decline in landings. Given the downward trend in landings, taking no action would likely cause further reduction in benefits if the trend continues. This would have led to dissipation of rents from the fishery in the long-term.

Conclusion

The 1993 stock assessment did not include any information on cubera snapper. Also, the Advisory Panel did not propose taking any action. In Amendment 7 the Council deferred action until the State of Florida adopts new regulations. Now that Florida has adopted regulations, the Council concluded that the benefits resulting from resource protection and compatible state/federal regulations outweigh any negative socioeconomic impacts. The Council also concluded that the absence of a bag limit in federal waters would

have negated some of the biological benefits of the State of Florida's bag limit. Therefore, the Council rejected taking no action.

Rejected Option 2. Establish a spawning area closure off north Key Largo, a 42" minimum size limit, and a bag limit of one fish per person per day including crew members in the case of a charter vessel.

Biological Impacts

There is not sufficient information available to calculate the spawning stock ratio but the Council concluded that cubera snapper are overfished at this time (see Section 3.0 E. Status of the Stocks). Management of cubera snapper was suggested by Capt. Larry Dukehart (letter of 27 November 1992). Capt. Dukehart suggested a spawning area closure, a 42" size limit and a bag limit of one fish. A spawning season closure would have protected spawning and increased recruitment. A 42" minimum size limit and a 1-fish bag limit would have reduced fishing mortality.

Enforcement Impacts

Parts of this would be incompatible with regulations implemented by the State of Florida.

Socioeconomic Impacts

There is hardly any information to evaluate the impact of this proposed action. However, the spawning area closure, size and bag limit would likely have resulted in a large reduction in fishing effort directed at cubera snapper. This would have caused catches to decline. The magnitude of such decline could not be determined. This action would likely have caused some hardship to fishermen without first knowing whether it would have increased benefits from exploitation of the fishery in the long-term.

Conclusion

The Council concluded that the proposed action provides sufficient protection at this time and rejected this option in favor of the less restrictive proposed action. The framework will be used to modify regulations if it becomes necessary in the future.

Rejected Option 3. A daily bag limit of 2/boat and a minimum size limit of 42" TL.

Biological Impacts

There is not sufficient information available to calculate the spawning stock ratio but the Council concluded that cubera snapper are overfished at this time (see Section 3.0 E. Status of the Stocks). A bag limit and 42" minimum size limit would have reduced fishing mortality.

Enforcement Impacts

Implementation of this option would have resulted in incompatible state/federal regulations and would not have facilitated dockside enforcement thereby reducing voluntary compliance.

Socioeconomic Impacts

The impact of the bag limit is discussed under Action 2. The inclusion of a minimum size limit of 42" TL in this action would have further reduced catches. The latter could have been restrictive and could have caused undue hardship to fishermen. There was no information to indicate that this size limitation was

necessary or that it would have increased benefits to be obtained from the fishery. The magnitude of likely losses due to reduced catches could not be determined.

Conclusion

The Council concluded that the proposed action provides sufficient protection at this time and rejected this option in favor of the less restrictive proposed action. The framework will be used to modify regulations if it becomes necessary in the future.

ACTION 3. GRAY TRIGGERFISH

Establish a minimum size limit of 12 inches for gray triggerfish off Florida and continue with no minimum size limit for North Carolina through Georgia.

Biological Impacts

The 1992 assessment (most recent assessment for gray triggerfish) concluded that ... "The SSR declined slightly (0.30 in 1988, 0.27 in 1990) and gray triggerfish now fall in the overfished category. There are no regulations on gray triggerfish, but a size limit of 12 inches (11.2 inches, 285 mm) fork length with complete survival should achieve the desired SSR of 0.30 as will a reduction in F of 12 percent to 0.59."... "Analysis of headboat data suggest a one fish bag limit would reduce the gray triggerfish catch by about 14 percent, but 20 observations in the MRFSS data set (1990) suggest a three fish bag limit would provide the same catch reduction. An 18 percent gain in yield per recruit (and a projected SSR of 0.45) could result from a 15 inch size limit but only a 12 percent gain results from 12 inch limit."

Length frequency data for gray triggerfish from the headboat fishery, the recreational fishery (MRFSS) and the commercial fishery (TIP) were provided by the NMFS Beaufort Laboratory and are included as Appendix C. More of the headboat catch was below 12" off south Florida (above 65% of the sample in each season) and north Florida (28-44% of sampled fish) than off the Carolinas (10-17% less than 12"). Commercial fish sampled show few fish below 12" in the Carolinas.

The 12" size limit will reduce fishing mortality by reducing headboat catches by 66% off south Florida and 28% off north Florida based on 1993 headboat data (Appendix C, Figure 3). Fishing mortality in the recreational fishery is expected to decline from reductions in the recreational catch on the order of 14% in south Florida and 4% in north Florida (Appendix C, Figure 4). Commercial fishing mortality is not expected to be reduced because virtually none of the commercial catch is below 12" (Appendix C).

Enforcement Impacts

The gray triggerfish minimum size limit will be 12" TL in the State of Florida effective January 1, 1995. Establishment of a 12" size limit in the Exclusive Economic Zone (EEZ) off Florida will result in compatible state and federal regulations and facilitate dockside enforcement. This will increase voluntary compliance.

Socioeconomic Impacts

Analysis of headboat data indicated that 80 percent, 78 percent and 66 percent of catches in south Florida were below 12" in 1991, 1992 and 1993 respectively. For north Florida, 44 percent, 40 percent and 28 percent of the catches were below 12" during the same time period. Also, in the Carolinas, 10 percent, 17 percent and 12 percent of the catches were below 12" during the same time period (Appendix C, Figures 1-3). MRFSS data were sparse for gray triggerfish, but essentially showed higher percentages of catches under 12" in south Florida (37 percent, 31 percent and 14 percent) in 1989, 1991 and 1992 respectively. Four percent of the 1992 catches were below 12" in Georgia and north Florida, while 21 percent of the 1992 catches were below 12" in the Carolinas (Appendix C, Figure 4). Commercial fish samples from TIP data indicated that two percent and one percent of the catches in the Carolinas were below 12" in 1989 and 1990 respectively. Samples size for south Florida was inadequate to arrive at any conclusion (Appendix C, Figure 5). These analyses showed that catches in south Florida accounted for a much higher incidence of gray triggerfish under 12". Thus, a 12" minimum size limit would be most effective for Florida and should have significant impact in terms of improving recruitment to the fishery.

Socioeconomic impacts were evaluated in terms of net present value and the effects on catches over time by Dr. James Waters, NMFS Beaufort Lab (Appendix J; Snapper Grouper Amendment 7). This option would track that proposed by the Florida Marine Fisheries Commission and provide protection for gray triggerfish in an area where the resource requires management without impacting fishing unnecessarily in the other states. It should be noted that the evaluation was done based on figures for the entire south Atlantic region and not just for the State of Florida. However, since Florida accounts for a good percentage of the total catch of gray triggerfish in the region and given the fact that the greater percentage of the total catch under 12" occurs in Florida, the results while predicting the expected impacts of this action for the region, are also indicative of implementing this action in Florida.

Waters (1993) predicted that commercial landings and revenues would decline for the first 3-4 years and then exceed levels predicted without the size limit. The magnitude of the long-term increase would depend on the release mortality. With a 12" size limit and a 10 percent discount rate, the model predicted that the net present value of commercial revenues would increase for all release mortalities over a 20 year period. The increase in net present value would range from \$74,200 (3.7 percent) for no release mortality, to \$7,700 (0.4 percent) for 40 percent release mortality.

The model also predicted that the proposed minimum size limit would affect the catches of recreational fishermen more than commercial fishermen. This is because recreational fishermen catch relatively more fish at younger ages and smaller size classes. The weight of gray triggerfish caught by recreational fishermen was predicted to decline initially by approximately 15 percent. It would increase marginally in the long-term only with release mortalities of 10 percent or less. As a result, the proposed minimum size limit was predicted to redistribute catches from recreational to commercial fishermen.

The increase in producer surplus in the long-term would likely attract new entrants to the fishery given its open access nature. Excess capacity will lead to stock depletion over time unless the open access nature of the fishery is addressed.

Conclusion

The Council considered having the size limit apply in the EEZ from North Carolina through Florida. The NMFS general canvass data (Table 4) indicates that 312,209 pounds were caught commercially in 1992, 38% of which was caught off Florida. The 1993 logbook data (Table 3) indicates that 25% of the commercial catch of 343,605 pounds was from Florida. The majority of gray triggerfish are caught recreationally. The MRFSS catch in 1993 was 462,100 fish with 403,318 caught in Florida (Table 7). Given that over half of the catch is from Florida and that the information presented by fishermen requesting management is from Florida, the Council decided to propose the bag limit for Florida only. Further justification is that there are many more fishermen in Florida that have ready access to the gray triggerfish resource. The impacts of this higher fishing effort in Florida is reflected in the trends in MRFSS catches in Table 7. The Florida east coast catch declined from 109,186 fish in 1991 to 69,809 in 1992 and 46,983 in 1993. Catches also declined on the Florida west coast but increased in North and South Carolina and Georgia.

The information presented in Appendix C showed that there was a greater incidence of fish less than 12" observed in headboat catches off South Florida (above 65% of the sample in each season) and North Florida (28-44% of sampled fish). This further supports taking initial steps off Florida.

The Council concluded that regulations are only necessary off Florida at this time given that this is a first step to manage the fishery and will reduce fishing mortality in the area with the majority of catch and effort. In addition, the size limit will reduce overfishing, and increase future yield and recruitment off Florida. The Council will monitor the status of gray triggerfish in states north of Florida and if regulations become necessary, they will be implemented through the framework procedure. The Council concluded that the benefits resulting from protecting the gray triggerfish resource and from compatible state/federal regulations outweigh any negative socioeconomic impacts.

Rejected Options for Action 3

Rejected Option 1. No action.

Biological Impacts

The 1992 assessment report noted a slight decline in spawning stock ratio (SSR) from 30% in 1988 to 27% in 1990 which results in gray triggerfish falling into the overfished category (SSR<30%). The absence of the same minimum size limit in federal waters would have negated some of the biological benefits of the State of Florida's bag limit.

Enforcement Impacts

The gray triggerfish minimum size limit will be 12" TL in the State of Florida effective January 1, 1995. If there was no regulation in federal waters, enforcement would have been difficult and voluntary compliance would have decreased.

Socioeconomic Impacts

There are currently no regulations in place for triggerfish. Amendment 4 included an evaluation of management measures but due to the overwhelming public comment that no regulation was necessary, the Council took no action. A 12" FL size limit was discussed in Amendment 7 by the Council to track action by the Florida Marine Fisheries Commission which would have resulted in consistent state and federal regulations. However, in Amendment 7 the Council deferred action until the State of Florida adopts new regulations. Now that Florida has adopted regulations, the Council concluded that compatible federal regulations would provide benefits that outweigh any costs. If no action was taken, long-term benefits as a result of any likely increase in sustained yield would have been forgone.

Conclusion

The Council approved taking no action in states north of Florida based on overwhelming public comment and due to the fact that the most recent estimate of spawning stock ratio (SSR=27%) indicated minimal overfishing and that the Florida Fishery appears to have the largest impact on the resource. If action is necessary in the future, the framework provision will be used to implement regulations. However, the Council rejected no action in Florida due to the reduction in voluntary compliance that would have resulted from incompatible state/federal regulations and because the absence of the same bag limit in federal waters would have negated some of the biological benefits of the State of Florida's bag limit.

Rejected Option 2. Establish a minimum size limit of 12 inches for gray triggerfish for the entire EEZ from North Carolina through Florida.

Biological Impacts

See proposed action.

Enforcement Impacts

Establishment of a 12" size limit would have resulted in compatible state and federal regulations off Florida and facilitate dockside enforcement off Florida. However, the other states would have to adopt similar regulations in order to have compatible regulations.

Socioeconomic Impacts

Appendix H (Snapper Grouper Amendment 7) contains South Atlantic Council staff and National Marine Fisheries Service analyses done for gray triggerfish (pages 6-10). Across all gears, the 12" limit would impact 3% of the commercially caught gray triggerfish based on 1991-1992 catch data. About 4% of the commercial "electric & hydraulic reels" catch was below 12 inches and none of the "bottom longline" catch was below 12 inches. Analyses from the MRFSS data indicate that 23% of the catch was below 12 inches. Approximately 30% of the headboat catch was below this size limit. The impacts in terms of net

present value and the effects on catches over time are shown in Appendix J (Snapper Grouper Amendment 7). Commercial landings and producer surplus were predicted to decline only for the first 3–4 years with the 12” size limit, and would then exceed levels expected without the size limit, with the magnitude of the long-term increases dependent on the survival rates for released fish. The net present value of commercial revenues with a 12” size limit was predicted to increase for all release mortalities and discount rates considered, with the increase ranging from 4.8 percent over a 20 year period with 100 percent survival of released fish and no discounting, to 0.4 percent with a 60 percent survival rate and a 10 percent discount rate.

The 12” size limit would have affected the catches of recreational fishermen relatively more than it would commercial fishermen because recreational fishermen catch relatively more fish at younger ages and smaller sizes. Catches of recreational fishermen were predicted to decline initially by 15 percent and to increase marginally in the long-term only with release mortalities of 10 percent or less.

Conclusion

The Council concluded that the proposed action provides sufficient protection at this time and rejected this option in favor of the less restrictive proposed action. The framework will be used to modify regulations if it becomes necessary in the future.

Rejected Option 3. Evaluate a 12” FL minimum size limit and a 1-3 fish bag limit.

Biological Impacts

See proposed action and Rejected Option 2.

Enforcement Impacts

See Rejected Option 2 above. The bag limit would have been incompatible with all states unless they adopted the same bag limit.

Socioeconomic Impacts

See Rejected Option 2 above for the impact of the 12” size limit. No information was available on the impact of a bag limit. It was expected that a bag limit in addition to the minimum size limit would have resulted in further reduction in benefits than what is predicted under Rejected Option 2 for both commercial and recreational fishermen. The overall impact could not be determined.

Conclusion

The Council concluded that the proposed action provides sufficient protection at this time and rejected this option in favor of the less restrictive proposed action. The framework will be used to modify regulations if it becomes necessary in the future.

C. Unavoidable Adverse Effects

Without management, fishing effort would increase and catches of hogfish, cubera snapper and gray triggerfish would decline. The spawning stock ratio (SSR) value for gray triggerfish declined between the 1990 and 1992 assessments. In the absence of additional management measures limiting fishing mortality rates, such declines would be expected to continue and stocks could reach such low levels that these fisheries would no longer be economically feasible. If this situation were allowed to continue, the fisheries for these species would ultimately collapse.

Implementation of recreational bag limits for hogfish and cubera snapper will have minimal impacts on fishermen. The gray triggerfish minimum size limit will reduce catches in the short-term but the net present value of commercial revenues will increase over a 20 year period. The size and bag limits will increase recruitment which should prevent growth and recruitment overfishing and will ultimately lead to a higher yield.

D. Relationship of Short-term Uses and Long-term Productivity

Short-term uses will be impacted slightly. This level of reduction is necessary to rebuild these overfished stocks to non-overfished status to ensure the long-term productivity of these important species. Without such reductions, the long-term yield would be jeopardized.

The Council weighed the short-term losses to fishermen against the long-term productivity and stability of these species and concluded that the proposed actions would result in net benefits to society.

E. Irreversible and Irretrievable Commitments of Resources

There are no irreversible or irretrievable commitments of resources associated with the proposed actions. If the Council had not taken action to reduce fishing mortality on these overfished species and to establish the other regulations, substantial reductions in catches and future net benefits would be expected.

F. Effects of the Fishery on the Environment

Damage to Ocean and Coastal Habitats

The proposed actions, and their alternatives, are not expected to have any adverse effect on the ocean and coastal habitats. Habitat concerns are included in Appendix D in Snapper Grouper Amendment 7.

Trawling for snapper grouper species was prohibited in Amendment 1 (SAFMC, 1988b) and bottom longline gear for wreckfish was prohibited by emergency action effective April 19, 1991 and subsequently in Amendment 5 (SAFMC, 1991b) because of habitat damage. Bottom longline gear was restricted to waters deeper than 50 fathoms in Amendment 4 (SAFMC, 1991a) primarily to protect the live bottom habitat. Part of the rationale for the fish trap prohibition was habitat damage caused by deployment and retrieval of traps (SAFMC, 1991a).

Regulations within the existing *Oculina* Habitat of Particular Concern (HAPC) were strengthened with the measure in Amendment 6 to close the area to all bottom fishing and to prohibit fishing while anchored within the habitat area of particular concern (HAPC). Although aimed at reducing violations in the closed area, the limitations on anchoring will reduce damage to the fragile *Oculina* coral.

The fishery, as presently prosecuted, does not substantially impact the live bottom habitat that is essential to the reef species under Council management. The *Oculina* habitat area of particular concern (HAPC) is discussed in Amendment 6 (SAFMC, 1993). The Council will continue to monitor the fishery and if it becomes apparent that a particular gear or fishing practice results in habitat damage, action will be proposed through the framework procedures to mitigate or minimize damage.

Public Health and Safety

The proposed actions, and their alternatives, are not expected to have any substantial adverse impact on public health or safety. The Council discussed concerns about the impact sale of bag limit caught fish may have on seafood safety during development of Amendment 7 (SAFMC, 1994). After extensive public input, presentations, and discussion, the Council concluded, given that all seafood sold must meet Federal Drug Administration (FDA) requirements, sale of bag limit caught fish did not pose any substantial adverse risk on public health or safety.

Endangered Species and Marine Mammals

The proposed actions, and their alternatives, are not expected to affect adversely any endangered or threatened species or marine mammal population.

Cumulative Effects

The proposed actions, and their alternatives, are not expected to result in cumulative adverse effects that could have a substantial effect on the snapper grouper resource or any related stocks, including sea turtles. In fact, the proposed measures will improve status of stocks and minimize habitat damage because overall fishing mortality will decrease.

G. Summary of Expected Changes in Net Benefits (Summary of Regulatory Impact Review-RIR)

ACTION	POSITIVE IMPACTS	NEGATIVE IMPACTS	NET IMPACTS
<u>ACTION 1. HOGFISH</u>			
A. Recreational bag limit of 5 hogfish per person. EEZ off Florida only.	Provide minimal protection to hogfish stock.	Not likely to have any significant negative impact.	Possible increase in long-term benefits.
B. No Action	None	Possible acceleration in the decline of hogfish resource.	Possible reduction in long-term benefits.
C. 12" size limit and inclusion in 10 snapper aggregate recreational bag limit.	Possible increase in benefits in the long-term.	Possible loss in benefits in the short-term.	Possible increase in benefits in the long-term.
<u>ACTION 2. CUBERA SNAPPER</u>			
A. Daily bag limit of 2 fish and 30" length or larger.	Possible long-term increase in benefits.	Possible decrease in benefits in the short-term.	Possible increase in long-term benefits.
B. No Action	None	Reduction in benefits.	Dissipation of economic rent in the long-term.
C. Spawning area closure, 42" TL size limit and 1-fish per person per day bag limit.	Unknown	Possible decrease in short-term benefits.	Unknown
D. Daily bag limit of 2/boat and min. size limit of 42"	Unknown	Some hardship to fishermen. Possible decrease in benefits.	Unknown
<u>ACTION 3. GRAY TRIGGERFISH</u>			
A. 12" size limit in the EEZ off Florida.	Increase in benefits in the long-term.	Decrease in benefits in the short-term.	Increase in benefits in the long-term.
B. No Action	Likely decrease in benefits.	None	Likely decrease in benefits in the long-term.
C. Min. size limit of 12"	Marginal increase in benefits.	Reduction in short-term benefits.	Marginal increase in benefits in the long-term.
D. 12" min. size limit and 1-3 fish bag limit.	Possible increase in benefits.	Reduction in benefits in the short-term.	Unknown

H. Public and Private Costs

The preparation, implementation, enforcement and monitoring of this and any federal action involves expenditure of public and private resources which can be expressed as costs associated with the regulation. The majority of costs associated with specific actions in this regulatory amendment are shown as costs in Snapper Grouper Amendment 7 as the public hearings were held at that time. Additional costs are shown on the next page.

Council costs of document preparation, meetings, public hearings and information dissemination (Majority of costs shown as Amendment 7 costs.)	\$5,000
NMFS administrative costs of document preparation, meetings and review	\$2,500
NMFS law enforcement costs (costs should decline in Florida)	\$0

Total	\$7,500

Enforcement costs in the State of Florida will decline because regulations will be enforceable dockside; the proposed actions bring federal regulations into conformance with State of Florida regulations.

I. Effects on Small Businesses

Introduction

The purpose of the Regulatory Flexibility Act is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. The category of small entities likely to be affected by the proposed plan is that of recreational hogfish fishermen, and recreational/commercial cubera snapper and gray triggerfish fishermen. The impacts of the proposed action on these entities have been discussed under each action in Section 4. The following discussion of impacts focuses specifically on the consequences of the proposed actions on the mentioned business entities. A "threshold-type analysis" is done to determine whether the impacts would have a "significant or non-significant economic impact on a substantial number of small entities." If impacts are determined to be significant, then an Initial Regulatory Flexibility Analysis (IRFA) is conducted to analyze impacts of the proposed action and alternatives on individual business entities. In addition to analyses conducted for the Regulatory Impact Review (RIR), the IRFA provides an estimate of the number of small businesses affected, a description of the small businesses affected, and a discussion of the nature and size of the impacts.

Determination of Significant Economic Impact on a Substantial Number of Small Entities

In general, a “substantial number” of small entities is more than 20 percent of those small entities engaged in the fishery (NMFS, 1991). For the 1993 fishing year, the most recent year for which data on numbers of participants are available for all south Atlantic states, there were 2,722 individuals and corporations holding snapper grouper permits (Harris et al., 1994). The Small Business Administration (SBA) defines a small business in the commercial fishing activity as a firm with receipts of up to \$2.0 million annually. All 2,722 holders of snapper grouper permits readily fall within the definition of small business. Since the proposed action will directly and indirectly affect many of these permittees, the “substantial number” criterion will be met.

Economic impacts on small business entities are considered to be “significant” if the proposed action would result in any of the following: a) reduction in annual gross revenues by more than 5%; b) increase in total costs of production by more than 5% as a result of an increase in compliance costs; c) compliance costs as a percent of sales for small entities are at least 10% higher than compliance costs as a percent of sales for large entities; d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or e) as a rule of thumb, 2% of small business entities being forced to cease business operations (NMFS, 1991).

The Council examined the following actions and alternatives: (1) Hogfish bag limit, (2) Cubera snapper bag/size limit and (3) Gray triggerfish size limit.

Given that for each action (a) any impact would be equivalent to much less than a 5% reduction in annual gross revenues, (b) any increase in compliance costs would be much less than a 5% increase in total costs of production, (c) all entities involved are small entities, (d) capital costs of compliance represent a very small portion of capital, and (e) no entities are expected to be forced to cease business operations, the Council determined that the resulting impacts will not have a significant economic impact on a substantial number of small entities.

Explanation of Why the Action is Being Considered

Refer to Section 1.0, Purpose and Need. Basically, this amendment addresses overfishing of hogfish, cubera snapper and gray triggerfish, and improving compliance with fishing regulations.

Objectives and Legal Basis for the Rule

Refer to Section 1.0 and Appendix A for the Management Objectives. Objectives addressed in this amendment are: (1) Prevent overfishing in all species and (2) Promote voluntary compliance. The Magnuson Fishery Conservation and Management Act of 1976 as amended provides the legal basis for the rule.

Demographic Analysis

Refer to the Source Document (SAFMC, 1983b) and Section 3.0 of this amendment. Data on fishermen is very limited. A costs and returns survey will be completed by the end of calendar year 1994 and a sociodemographic survey will be conducted during 1995. Results of these studies will be incorporated into future amendments.

Cost Analysis

Refer to the summary of the impacts (Section 4.0, Subsections F and G) and the summary of government costs (Section 4.0, Subsection H). The Council concluded that the benefits of the preferred alternatives outweigh the costs.

Competitive Effects Analysis

The industry is composed entirely of small businesses (harvesters and fish houses). Since no large businesses are involved, there are no disproportional small versus large business effects.

Identification of Overlapping Regulations

The proposed action does not create overlapping regulations with any state regulations or other Federal laws.

Conclusion

The proposed measures will not have a significant effect on small businesses.

5.0 LIST OF PREPARERS

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The work of the Council's Snapper Grouper Plan Development Team, Scientific and Statistical Committee, and Advisory Panel is recognized. Members are as follows:

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6.0 LIST OF AGENCIES AND ORGANIZATIONS

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List of Agencies and Persons Consulted:

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Atlantic States Marine Fisheries Commission
SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
SAFMC Snapper Grouper Plan Development Team
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Department of Natural Resources
Florida Marine Fisheries Commission
Georgia Department of Natural Resources
South Carolina Wildlife and Marine Resources Department
Marine Fish Conservation Network
North Carolina Department of Environment, Health, and Natural Resources
National Marine Fisheries Service
 - Southeast Region
 - Southeast Center
United States Coast Guard
United States Environmental Protection Agency, Region IV
Center for Marine Conservation
Gulf of Mexico & Mid-Atlantic Fishery Management Councils
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South Atlantic Fisheries Development Foundation
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National Coalition for Marine Conservation
North Carolina Fisheries Association, Inc.
Southeastern NC Waterman's Association
Organized Fishermen of Florida
Southeastern Fisheries Association
Sportfishing Institute

7.0 APPLICABLE LAW

A. VESSEL SAFETY CONSIDERATIONS

PL. 99-659 amended the Magnuson Act to require that a fishery management plan or amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safety of the vessels.

No vessel will be forced to participate in the fishery under adverse weather or ocean conditions as a result of the imposition of management regulations set forth in this amendment to the Snapper Grouper Fishery Management Plan. Therefore, no management adjustments for fishery access will be provided.

There are no fishery conditions, management measures, or regulations contained in this amendment which would result in the loss of harvesting opportunity because of crew and vessel safety effects of adverse weather or ocean conditions. No concerns have been raised by people engaged in the fishery or the Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions. Therefore, there are no procedures for making management adjustments in this amendment due to vessel safety problems because no person will be precluded from a fair or equitable harvesting opportunity by the management measures set forth.

There are no procedures proposed to monitor, evaluate, and report on the effects of management measures on vessel or crew safety under adverse weather or ocean conditions.

B. COASTAL ZONE CONSISTENCY

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 requires that all federal activities which directly affect the coastal zone be consistent with approved State coastal zone management programs to the maximum extent practicable. While it is the goal of the Council to have complementary management measures with those of the states, federal and state administrative procedures vary and regulatory changes are unlikely to be fully instituted at the same time. Based upon the assessment of this amendment's impacts in previous sections, the Council has concluded that this amendment is an improvement to the federal management measures for the hogfish, cubera snapper and gray triggerfish fisheries.

This amendment is consistent with the Coastal Zone Management Plan of the State of Florida. The proposed action is only applicable in the EEZ off Florida.

This determination was submitted to the responsible state agency, during development of Snapper Grouper Amendment 7, under Section 307 of the Coastal Zone Management Act administering approved Coastal Zone Management Programs in the State of Florida. Florida responded that "the project is in accord with State plans, programs, procedures and objectives."

C. ENDANGERED SPECIES AND MARINE MAMMAL ACTS

The following information summarizes the Section 7 consultation process under the Endangered Species Act on this biological assessment of the snapper–grouper fisheries of the South Atlantic Region and the proposed management measures contained in Amendment 7 to the Fishery Management Plan for the Snapper–Grouper Fishery of the South Atlantic Region (SOURCE: Memorandum to Gregg Waugh, SAFMC Staff from Peter Eldridge, NMFS Southeast Region dated April 1, 1994). The proposed actions were included in Amendment 7.

1.0 Snapper–Grouper Fishery of the South Atlantic

1.1 Description of the Fishery

The primary gears in the fishery are sea bass pots (north of Cape Canaveral only), longlines (seaward of 50 fathoms), hook and line and spear guns. Fish traps, entanglement nets, roller trawls and destructive gear, such as explosives and poisons, are prohibited. There is a requirement that one must have at least 50% of earned income derived from fishing or gross sales of \$20,000 annually for one of the preceding three years before one can obtain a vessel permit. Managers are in the process of restricting fishing pressure to the level that is consistent with providing a sustainable yield without damaging the reproductive capability of the snapper–grouper resource. Section 1.1 in memo to Jeffery Brown from Michael E. Justen (both NMFS Southeast Region) dated April 24, 1991 provides information on other aspects of the snapper–grouper fishery:

The snapper grouper fishery has more than 70 species of fish from the families: snappers, Lutjanidae; temperate basses, Percichthyidae; sea basses and groupers, Serranidae; porgies, Sparidae; grunts, Haemulidae; tilefishes, Malacanthidae; triggerfishes, Balistidae; wrasses, Labridae; and jacks, Carangidae.

The primary user groups are commercial and recreational fishermen. Commercial fishermen generally operate in water depths between the shoreline and about 2,500 feet while recreational fishermen tend to fish in waters with depths less than 200 feet. Both groups of fishermen operate throughout the year, and range from the North Carolina/Virginia border to the Gulf of Mexico/Atlantic Ocean boundary off the Florida Keys. Commercial fisheries for tilefish and the temperate sea basses generally operate in waters with depths greater than 300 feet.

Commercial fishermen operate from ports along the east coast of Florida, Georgia, South Carolina, and Georgia. In 1988, landings were 9,053,000 pounds with an exvessel value of \$13,937,000. Estimated number of vessels in this fishery is 700. Fishermen on commercial vessels use handlines, longlines, and traps. Most fish landed were caught by handline gear.

The “for-hire” recreational fleet consists of charter and headboats. Charter vessels carry up to 6 passengers. Headboats carry more than 6 passengers. During 1990, the estimated number of charter vessels operating in this area was 1,072 with 694 operating from ports in Florida, 262 from ports in North Carolina, 80 from ports in South Carolina, and 36 from ports in Georgia. The average length of charter vessels was 35 feet. the predominate gear used were rod and reels and spear guns. Snappers and groupers account for about 8% of the catch by these fleets.

During 1990, the estimated number of headboats in this area was 200 with 164 operating out of ports in Florida, 24 from ports in North Carolina, 7 from ports in Georgia, and 5 from ports in South Carolina. The average length of these vessels was 51 feet. The predominate gear used is rod and reel. Snappers and groupers account for a significant portion of the catch by these fleets.

Recreational fishermen from Florida, Georgia, North Carolina, and South Carolina, consider snappers and groupers to be a primary target. These fishermen generally use rod and reels, and spear guns to catch these fish. During 1990, this group accounted for approximately 906,000 trips. There is no foreign fishing in U.S. waters.

1.2 Interactions with Endangered Species

Section 1.2 in the memo from Michael E. Justen dated April 24, 1991 provides the following:

Five species of sea turtles regularly spend part of their lives in U.S. coastal waters of the Atlantic Ocean and Gulf of Mexico. These species are Kemp's ridley, *Lepidochelys kempii*; loggerhead, *Caretta caretta*; green turtle, *Chelonia mydas*; hawksbill, *Eretmochelys imbricata*; and leatherback, *Dermochelys coriacea*. These sea turtles are either threatened or endangered and are protected under the Endangered Species Act.

NMFS does not have any information to show that the snapper grouper fisheries kill any sea turtles. The potential for such situations to develop exists because hook-and-line gear may catch some turtles. Presumably, the fishermen would release the turtles. Although some species of sea turtles may enter fish traps and eat the catch, NMFS does not have any records of incidental capture. Amendment 1 prohibited use of trawl gear in these fisheries in 1989.

Collisions between commercial and recreational vessels and sea turtles may occur. The extent of this activity and the impact on the populations of sea turtles is unknown.

1.3 Federal and State Regulatory Jurisdictions

The Federal government, Florida, Georgia, North Carolina, and South Carolina regulate the snapper-grouper fisheries. Most species occur in commercial quantities in the waters of these states and the adjoining EEZ. Federal waters extend from 3 to 200 nautical miles in the south Atlantic and include the vast majority of the fishery.

Federal regulations are based on the Snapper-Grouper FMP. Final regulations implemented the FMP on September 28, 1983; Amendment 1 on January 12, 1989; Amendment 2 on October 30, 1990; Amendment 3 on January 31, 1991; Amendment 4 on January 1, 1992; Amendment 5 on April 6, 1992; and Amendment 6 on June 6, 1994 for trip limits and June 27, 1994 for the remainder of the items.

1.4 Amendment 7 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic

Amendment 7 will establish a minimum size limit of 12" fork length (FL) for hogfish; increase the mutton snapper minimum size limit from 12" to 16" TL; require dealers, who want to purchase species in the management unit taken in the EEZ, to obtain a federal dealer permit; require a federal permit to sell species taken in the EEZ; require charter and headboats to obtain a federal permit; specify allowable gear; establish a procedure for testing of gear; allow sink net fishermen, only off North Carolina, to make multi-gear trips and allow retention of all fish harvested with BSB pots and/or bandit gear that meet the minimum size limits; modifies the management unit for scup; and modifies the framework procedure to allow within season adjustments.

1.5 Previous Section 7 Consultations

In 1983, a Section 7 consultation under the ESA with NMFS concluded that the management actions contained in the Snapper– Grouper FMP was not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction or adverse modification of habitat that may be critical to those species. These documents are incorporated by reference as authorized in 50 CFR Part 402.12(g).

On April 28, 1989, NMFS conducted a Section 7 consultation on the effects of commercial fishing activities in the southeast region on threatened and endangered species. This action was taken with the implementation of the Marine Mammal Protection Act, Fishery Exemption Amendment. The Biological Opinion concluded that the snapper–grouper fisheries are not likely to adversely affect endangered and threatened species. This document is incorporated by reference.

On July 6, 1990, a Section 7 consultation under the ESA with NMFS concluded that Amendment 3 to the Snapper–Grouper FMP was not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction or adverse modification of habitat that may be critical to those species. This document is incorporated by reference.

On July 6, 1990, a Section 7 consultation under the ESA with NMFS concluded that an emergency rule to curtail the harvest of wreckfish in the south Atlantic was not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction or adverse modification of habitat that may be critical to those species. This document is incorporated by reference.

On March 7, 1991, a Section 7 consultation under the ESA with NMFS concluded that an emergency rule to ban use of longline gear to harvest wreckfish in the south Atlantic was not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction or adverse modification of habitat that may be critical to those species. This document is incorporated by reference.

On May 3, 1991, a Section 7 consultation under the ESA with NMFS concluded that management measures in Amendment 4 to the FMP were not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction or adverse modification of habitat that may be critical to those species. This document is incorporated by reference.

On September 19, 1991, a Section 7 consultation under the ESA with NMFS concluded that management measures in Amendment 5 to the FMP were not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction or adverse modification of habitat that may be critical to those species. This document is incorporated by reference.

On December 30, 1992, a Section 7 consultation under the ESA with NMFS concluded that management measures in an emergency rule to define sea bass pots, allow multi–gear trips, and allow retention of incidentally caught fish provided they were of legal size were not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction or

adverse modification of habitat that may be critical to those species. This document is incorporated by reference.

On September 21, 1993, a Section 7 consultation under the ESA with NMFS concluded that management measures in Amendment 6 to the FMP were not likely to adversely affect the continued existence of threatened or endangered sea turtles or marine mammals or result in the destruction of adverse modification of habitat that may be critical to those species. This document is incorporated by reference.

1.6 Conclusion

Insofar as we can determine, the directed fisheries nor the measures in Amendment 7 or Regulatory Amendment 6 for snapper-grouper will adversely affect the recovery of endangered or threatened species, or their critical habitat.

D. PAPERWORK REDUCTION ACT

The purpose of the Paperwork Reduction Act is to control paperwork requirements imposed on the public by the federal government. The authority to manage information collection and record keeping requirements is vested with the Director of the Office of Management and Budget. This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications.

The Council does not propose additional permit and data collection programs within this amendment.

E. FEDERALISM

No federalism issues have been identified relative to the actions proposed in this amendment and associated regulations. The affected state have been closely involved in developing the proposed management measures and the principal state officials responsible for fisheries management in their respective states have not expressed federalism related opposition to adoption of this amendment.

F. NATIONAL ENVIRONMENTAL POLICY ACT — FINDINGS OF NO SIGNIFICANT IMPACT (FONSI)

The discussion of the need for this amendment, proposed actions and alternatives, and their environmental impacts are contained in Sections 1.0 and 2.0 of this amendment/environmental assessment. A description of the affected environment is contained in Section 3.0.

The proposed amendment is not a major action having significant impact on the quality of the marine or human environment of the South Atlantic. The proposed action is an adjustment of the original regulations of the fishery management plan to protect the snapper grouper resource from depletion. The proposed action should not result in impacts significantly different in context or intensity from those described in the Environmental Impact Statement (EIS) published with the initial regulations implementing the approved fishery management plan. The preparation of a formal Supplemental Environmental Impact Statement

(SEIS) is not required for this amendment by Section 102(2)(c)(c) of the National Environmental Policy Act or its implementation regulations.

Mitigating measures related to proposed actions are unnecessary. No unavoidable adverse impacts on protected species, wetlands, or the marine environment are expected to result from the proposed management measures in this amendment.

The proposed regulations will protect the resource from depletion, better achieve the objectives of the fishery management plan, and lessen the environmental impacts of the fishery. Overall, the benefits to the nation resulting from implementation of this amendment are greater than management costs.

Finding of No Significant Environmental Impact (FONSI)

The Council's preferred action is to manage hogfish and cubera snapper with bag limits, and gray triggerfish with a minimum size limit. Section 4.0 describes the Council's management measures in detail.

Section 1508.27 of the CEQ Regulations list 10 points to be considered in determining whether or not impacts are significant. Impacts of these actions are relative to the individuals that will be required to forego catches in the short-term and to the individuals, and society, in the long-term, because higher and more stable catches will be maintained. The analyses presented below are based on the detailed information contained in Section 4.0 Environmental Consequences including the Regulatory Impact Review and Regulatory Flexibility Determination.

Beneficial and Adverse Impacts

There are beneficial and adverse impacts from the proposed actions. The impacts are described for each action in Section 4.0 (See Section 4.0, Items G. Summary of Impacts and I. Effects on Small Businesses) and summarized in Section 2.0. Overall, the adverse impacts of the minimum size and bag limits are expected to be minor. Beneficial impacts are unquantifiable but preventing overfishing will ensure the long-term economic viability of the recreational and commercial fisheries.

The beneficial and adverse impacts as analyzed in Section 4.0 are not significant.

Public Health or Safety

The proposed actions are not expected to have any significant adverse impact on public health or safety.

Unique Characteristics

The proposed actions are not expected to have any significant adverse impact on unique characteristics of the area such as proximity to historic or cultural resources, park lands, wetlands, or ecologically critical areas. Appendix D in Snapper Grouper Amendment 7 (SAFMC, 1994) contains information on habitat concerns. The Council's positions on a number of habitat related issues are presented

in that appendix. The Council evaluated the effects of the fishery on the environment (Section 4.0, Item F) and concluded that the fishery, as presently prosecuted, does not significantly impact the live bottom habitat that is essential to the reef species under Council management.

Controversial Effects

The proposed actions are not expected to have any significant controversial issues. The Council has provided for extensive input by the public through committee and Council meetings that are open to the public, by providing copies of the amendment to the list of agencies and organizations listed in Section 6.0, through meetings with the snapper grouper advisory panel, by holding 13 public hearings, and by providing the opportunity for interested persons to provide written comments. Appendix E (in Snapper Grouper Amendment 7; SAFMC, 1994) contains a summary of public hearing and written comments received by the Council. During development of this amendment, the Council has incorporated suggestions from the public, and the final document addresses all comments and suggestions received.

Uncertainty or Unique/Unknown Risks

The proposed actions are not expected to have any significant effects on the human environment that are highly uncertain or involve unique or unknown risks. Benefits from management cannot be quantified but the direction and relative magnitude are known and are positive. If the proposed actions were not implemented there would be a high level of uncertainty as to the future status of the species being managed.

Precedent/Principle Setting

The proposed actions are not expected to have any significant effects by establishing precedent and do not include actions which would represent a decision in principle about a future consideration.

Relationship/Cumulative Impact

The proposed actions are not expected to have any significant cumulative impacts that could have a substantial effect on the snapper grouper resource or any related stocks, including sea turtles. (See Section 4.0, Item G. Summary of Impacts and Item I. Effects on Small Businesses) In fact, the proposed measures will improve status of stocks and minimize habitat damage because overall fishing mortality will decrease.

Historical/Cultural Impacts

The proposed actions are not expected to have any significant effects on historical sites listed in the National Register of Historic Places and will not result in any significant impacts on significant scientific, cultural, or historical resources.

Endangered/Threatened Impacts

The proposed actions are not expected to adversely affect any endangered or threatened species or marine mammal population. (See Section 7, Item C. Endangered Species and Marine Mammal Acts.) A Section 7 consultation was conducted with the NMFS Southeast Regional Office. A biological assessment was prepared which concluded that the proposed actions will not adversely affect any threatened or endangered species or marine mammals.

Interaction With Existing Laws for Habitat Protection

The proposed actions are not expected to have any significant interaction which might threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment. The Council has adopted a number of positions that protect the habitat supporting the snapper grouper resources. These positions are contained in Appendix D. Habitat Concerns (Snapper Grouper Amendment 7; SAFMC, 1994).

Additional points analyzed by the Council in determining that a Supplemental Environmental Impact Statement (SEIS) was not necessary are presented below. The Council will be preparing a Supplemental Environmental Impact Statement (SEIS) as a part of the next amendment to the snapper grouper fishery management plan. Additional information is being collected during 1994 that will allow analyses necessary for a Supplemental Environmental Impact Statement (SEIS).

Effects of the Fishery on the Environment

Appendix D (Snapper Grouper Amendment 7; SAFMC, 1994) contains information on habitat concerns. The Council's positions on a number of habitat related issues are presented in this appendix. The Council evaluated the effects of the fishery on the environment (Section 4.0, Item F) and concluded that the fishery, as presently prosecuted, does not significantly impact the live bottom habitat that is essential to the reef species under Council management.

Bycatch

The measures in this Regulatory Amendment will not impact bycatch and do not have bycatch considerations.

Having reviewed the environmental assessment and the available information relating to the proposed actions, I have determined that there will be no significant environmental impact resulting from the proposed actions.

Approved: _____

Assistant Administrator for Fisheries

Date

8.0 REFERENCES

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9.0 APPENDIXES

Appendix A. Existing FMP Problems (Issues) & Objectives

The problems (issues) of the Snapper Grouper Fishery Management Plan as modified by Amendment 4 (SAFMC, 1991a) are:

1. Excessive fishing mortality is jeopardizing the biological integrity of the snapper grouper resource of the South Atlantic. First, thirteen species in the complex are in a documented state of overfishing, i.e., spawning stock ratio (SSR) is less than 30%. This group consists of black sea bass, gray snapper, vermilion snapper, red snapper, red porgy, gray triggerfish, gag, scamp, red grouper, speckled hind, snowy grouper, warsaw grouper, and greater amberjack. Second, fourteen species are thought to be overfished even though the SSRs are unknown. This group consists of golden tilefish, yellowedge grouper, misty grouper, Nassau grouper, black grouper, yellowmouth grouper, yellowfin grouper, schoolmaster snapper, queen snapper, blackfin snapper, cubera snapper, dog snapper, mahogany snapper and silk snapper. Third, the jewfish resource is thought to be severely overfished throughout the Gulf of Mexico and South Atlantic even though the SSR is unknown. Fourth, the rapid increase in number of vessels, effort, and catch in the newly developed wreckfish fishery threatens the wreckfish resource with overfishing even though the SSR is unknown. Fifth, additional species may be overfished or likely to experience overfishing in the near future.
2. Adequate management has been hindered by lack of current and accurate biological, statistical, social, and economic information. Data necessary to document growth and/or recruitment overfishing, and to calculate SSRs are very limited. Since the universe of participants is unknown, scientists are unable to estimate catch, effort, and other important information with desired accuracy. The present system of fishery dependent and fishery independent data collection provides limited information for assessment purposes and practically no economic or social data.
3. Intense competition exists among recreational, part-time, and full-time commercial users of the snapper grouper resources; and between commercial users employing different gears (hook and line, traps, entanglement nets, longlines, and powerheads/bang sticks).
4. Habitat degradation caused by some types of fishing gear and poor water quality have adversely affected fish stocks and associated habitat.
5. The existence of inconsistent State and Federal regulations makes it difficult to coordinate, implement and enforce management measures and may lead to overfishing. Inconsistent management measures create public confusion and hinders voluntary compliance.

The following problems were added in Amendment 5 (SAFMC, 1991b):

1. Excess Capacity: The size and capacity of the wreckfish fleet exceeds that needed for present TAC as well as the range of TACs the Council is likely to approve in the foreseeable future. Additional vessels in the future would exacerbate this situation since the derby nature of an open access fishery encourages fishermen to add harvest capacity even when gains in production are marginal or when economies of scale are not necessarily realized.
2. Inefficiency: Past and present measures to control harvest (TAC, gear restrictions, trip limits) and future measures that would likely be needed under continued open access, increase fishing costs and decrease potential consumer and producer benefits from the fishery.
3. Low Conservation and Compliance Incentives: Under open access, incentives to promote conservation and voluntary compliance with regulations are low because the benefits from doing so may be appropriated by other fishermen or new entrants.
4. Potential Conflicts: Competitive fishing conditions may eventually lead to gear and area conflicts as a large number of vessels compete for available TAC.

5. **High Regulatory Costs:** Management and enforcement costs are unnecessarily high and are expected to increase under open access as the number of vessels increases and stricter management measures are needed to control excess fishing effort.

6. **Low Marketing Incentives:** Efforts by fish dealers to augment consumer acceptance of wreckfish have been thwarted by short-run oversupply and lack of product continuity. The likelihood of additional harvest restrictions under open access increases uncertainty and instability and discourages long-run planning and investment by dealers.

The management objectives of the Snapper Grouper Fishery Management Plan as modified by Amendment 4 (SAFMC, 1991a) are:

1. Prevent overfishing in all species by maintaining the spawning stock ratio (SSR) at or above target levels.
2. Collect necessary data to develop, monitor, and assess biological, economic, and social impacts of management measures designed to prevent overfishing, obtain desired SSR levels, and address the other stated problems.
3. Promote orderly utilization of the resource.
4. Provide for a flexible management system that minimizes regulatory delays while retaining substantial Council and public involvement in management decisions, and rapidly adapts to changes in resource abundance, new scientific information, and changes in fishing patterns among user groups.
5. Minimize habitat damage due to direct and indirect effects of recreational and commercial fishing activities.
6. Promote public comprehension of, voluntary compliance with, and enforcement of the management measures.

The following limited entry objectives were added in Amendment 5 (SAFMC, 1991b) and now become numbers seven through 12:

7. Develop a mechanism to vest fishermen in the wreckfish fishery and create incentives for conservation and regulatory compliance whereby fishermen can realize potential long-run benefits from efforts to conserve and manage the wreckfish resource.
8. Provide a management regime which promotes stability and facilitates long-range planning and investment by harvesters and fish dealers while avoiding, where possible, the necessity for more stringent management measures and increasing management costs over time.
9. Develop a mechanism that allows the marketplace to drive harvest strategies and product forms in order to maintain product continuity and increase total producer and consumer benefits from the fishery.
10. Promote management regimes that minimize gear and area conflicts among fishermen.
11. Minimize the tendency for over-capitalization in the harvesting and processing/distribution sectors.
12. Provide a reasonable opportunity for fishermen to make adequate returns from commercial fishing by controlling entry so that returns are not regularly dissipated by open access, while also providing avenues for fishermen not initially included in the limited entry program to enter the program.

Although not an explicit objective at this time, the Council believes that portions or all of management and administrative costs should be recovered from those who hold individual quota shares in the wreckfish fishery, should recovery of those costs become permissible under future Magnuson Act (MFCMA) revisions. Those costs, or portions of them, would be recovered through such means as transfer fees or ad valorem taxes or other means available.

Appendix B. History of Management

The Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC, 1983a) was prepared by the South Atlantic Fishery Management Council and implemented by the Secretary of Commerce on August 31, 1983 [48 Federal Register 39463]; final regulations became effective on September 28, 1983. The Fishery Management Plan was prepared to prevent growth overfishing in thirteen species in the snapper grouper complex and to establish a procedure for preventing overfishing in other species. The Fishery Management Plan established a 12" total length minimum size for red snapper, yellowtail snapper, red grouper and Nassau grouper; an 8" total length minimum size for black sea bass; and a four inch trawl mesh size to achieve a 12" minimum size for vermilion snapper. Additional harvest and gear limitations were also included in the original plan.

Regulatory Amendment 1 (SAFMC, 1987) was implemented by the Secretary of Commerce effective March 27, 1987. This amendment established special management zones around artificial reefs off South Carolina and Georgia. Certain gear types were prohibited within designated special management zones.

Regulatory Amendment 2 (SAFMC, 1988a) implemented two special management zones around artificial reefs off Ft. Pierce, Florida effective March 30, 1989 [54 Federal Register 8342]. The Council submitted this amendment February 26, 1988 but regulations were not effective until March 30, 1989.

Amendment 1 (SAFMC, 1988b) was implemented by the Secretary effective January 12, 1989 [54 Federal Register 1720] to address the problems of habitat damage and growth overfishing in the trawl fishery. The amendment prohibited use of trawl gear to harvest fish in the directed snapper grouper fishery south of Cape Hatteras, North Carolina (35° 15' N Latitude) and north of Cape Canaveral, Florida (Vehicle Assembly Building, 28° 35.1' N Latitude). A vessel with trawl gear and more than 200 pounds of fish in the snapper grouper fishery (as listed in Section 646.2 of the regulations) on board was defined as a directed fishery. The amendment also established a rebuttable presumption that a vessel with fish in the snapper grouper fishery (as listed in Section 646.2 of the regulations) on board harvested its catch of such fish in the Exclusive Economic Zone (EEZ).

Regulatory Amendment 3 (SAFMC, 1989) was submitted by the Council on December 14, 1989 and established a special management zone around an artificial reef off Dade County, Florida. Regulations were effective November 12, 1990 [55 Federal Register 40394].

Amendment 2 (SAFMC, 1990a) prohibited the harvest or possession of jewfish in or from the exclusive economic zone (EEZ) in the South Atlantic due to its overfished status and defined overfishing for jewfish and other snapper grouper species according to the NMFS 602 guidelines requirement that definitions of overfishing be included for each fishery management plan. The harvest or possession of jewfish was prohibited by emergency rule. The amendment was approved on October 10, 1990 and final regulations were effective October 30, 1990 [55 Federal Register 46213].

Amendment 3 (SAFMC, 1990b) established a management program for the recently developed wreckfish fishery. The Council was concerned that the rapid increase in effort and catch threatened the wreckfish resource with overfishing and that the concentration of additional vessels in the relatively small

area where the resource is located also would create problems with vessel safety because of overcrowding. Actions included: (1) adding wreckfish to the management unit, (2) defining optimum yield, (3) defining overfishing for wreckfish, (4) requiring an annual permit to fish for, land or sell wreckfish, (5) collecting data necessary for effective management, (6) establishing a control date of March 28, 1990 after which there would be no guarantee of inclusion in a limited entry program should one be developed (this was later limited to the area bounded by 33° and 30° N Latitude based on public hearing testimony), (7) establishing a fishing year beginning April 16, (8) establishing a process whereby annual total allowable catch (annual quotas) would be specified, with the initial quota set at 2 million pounds, (9) establishing a 10,000 pound trip limit and (10) establishing a spawning season closure from January 15 through April 15. Actions (7), (9) and (10) were based on public testimony. An emergency rule effective August 3, 1990 [55 Federal Register 32257] added wreckfish to the management unit, established a fishing year for wreckfish commencing April 16, 1990, established a commercial quota of 2 million pounds and established a catch limit of 10,000 pounds per trip. The Secretary of Commerce closed the fishery for wreckfish in the EEZ effective August 8, 1990 when the 2 million pound TAC was reached [55 Federal Register 32635]. The Council requested an extension of the emergency rule which was approved [55 Federal Register 40181]. Amendment 3 was approved on November 9, 1990 and final regulations were effective January 31, 1991 [56 Federal Register 2443].

Amendment 4 (SAFMC, 1991a) was prepared to reduce fishing mortality on overfished species, to establish compatible regulations, where possible, between state and federal agencies, to identify the universe of fisherman, and to gather the data necessary for management. Amendment 4 prohibits: (1) use of fish traps in the South Atlantic federal waters with the exception of black sea bass traps when used north of Cape Canaveral, Florida; (2) use of entanglement nets, which includes gill and trammel nets; (3) use of longline gear inside 50 fathoms (300 feet) in the snapper and grouper fishery in South Atlantic federal waters; (4) use of bottom longlines for wreckfish; and (5) use of powerheads and bangsticks in all designated special management zones (SMZs) off the South Carolina coast. In addition, fishermen who fish for other species with gear prohibited in the snapper-grouper fishery may not have bycatches of snapper and grouper species in excess of the allowed bag limit. No bycatch would be allowed for those species that have no bag limit or that are prohibited.

The amendment established the following minimum sizes: 8" total length for lane snapper and black sea bass; 10" total length for vermilion snapper (recreational fishery only); 12" total length for red porgy, vermilion snapper (commercial fishery only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany and silk snappers; 20" total length for red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers; 28" fork length for greater amberjack (recreational fishery only); 36" fork length or 28" core length for greater amberjack (commercial fishery only); and no retention of Nassau grouper. Amendment 4 also requires that all snappers and groupers possessed in South Atlantic federal waters must have head and fins intact through landing.

Bag limits established under Amendment 4 for the recreational fishery are: a bag limit of 10 vermilion snapper per person per day; a bag limit of three greater amberjack per person per day; a snapper aggregate bag limit of 10 fish per person per day, excluding vermilion snapper and allowing no more than two red snappers; and a grouper aggregate bag limit of five per person per day, excluding Nassau grouper and jewfish where no retention is allowed. Charter and head boats are allowed to have up to a two-day possession limit as long as there are two licensed operators on board and passengers have receipts for trips in excess of 12 hours. Excursion boats would be allowed to have up to a three-day possession limit on multi-day trips. Fish harvested under the bag limit may be sold in conformance with state laws if they meet the commercial minimum sizes. The commercial harvest and/or landing of greater amberjack in excess of the three-fish bag limit is prohibited in April south of Cape Canaveral, Florida. The commercial harvest and/or landing of mutton snapper in excess of the snapper aggregate bag limit is prohibited during May and June.

To exceed bag limits in the snapper-grouper fishery, an owner or operator of a vessel that fishes in South Atlantic federal waters is required to obtain an annual vessel permit. For individuals to qualify for a permit they must have at least 50% of their earned income, or \$20,000 in gross sales, derived from commercial, charter, or headboat fishing. For a corporation to be eligible for a permit, the corporation or a shareholder or officer of the corporation or the vessel operator would be required to have at least \$20,000 in gross sales derived from commercial fishing. For partnerships, the general partner or operator of the vessel is required to meet the same qualifications as a corporation. A permit, gear, and vessel and trap identifications are required to fish with black sea bass traps. Amendment 4 also addresses enforcement concerns that surfaced with the wreckfish trip limit. Amendment 4 was approved on August 26, 1991 by the Secretary of Commerce and all regulations were effective on January 1, 1992 except the bottom longline prohibition for wreckfish was implemented on October 25, 1991 [56 Federal Register 56016].

Bottom longline gear was being used to a limited extent in the wreckfish fishery and fishermen indicated that gear loss, habitat damage and lost gear continuing to fish were problems. The Council subsequently requested and was granted emergency regulations [56 Federal Register 18742] that prohibit the use of bottom longline gear in the wreckfish fishery effective April 19, 1991 and were granted an extension on July 19, 1991 [56 Federal Register 33210].

A control date of July 30, 1991 for possible future limited entry was established for the entire snapper grouper fishery excluding wreckfish [56 Federal Register 36052].

Amendment 5 (SAFMC, 1991b) established an Individual Transferable Quota (ITQ) management program for the wreckfish fishery. The Council submitted the amendment to the Secretary of Commerce on September 12, 1991. Amendment 5 was implemented with an effective date of April 6, 1992, except that the sections dealing with permits and fees, falsifying information, and percentage shares was effective March 5, 1992 [57 Federal Register 7886]. The amendment included the following: (1) a limited entry program for the wreckfish sector of the snapper grouper fishery consisting of transferable percentage shares of the annual total allowable catch (TAC) of wreckfish and individual transferable quotas (ITQs) based on a

person's share of each TAC; (2) required dealer permits to receive wreckfish; (3) removed the 10,000-pound (4,536-kilogram) trip limit for wreckfish; (4) required that wreckfish be off-loaded from fishing vessels only between 8:00 a.m. and 5:00 p.m.; (5) reduced the occasions when 24-hour advance notice must be made to NMFS Law Enforcement for off-loading of wreckfish; and (6) specified the procedure for initial distribution of percentage shares of the wreckfish TAC. The wreckfish fishery is currently under a 2 million pound TAC for fishing year 1993/94.

Implementation of Amendment 4 resulted in a prohibition on black sea bass pot fishermen making multi-gear trips and retaining other species which resulted in large, unintended economic losses. The Council subsequently requested emergency regulations on July 8, 1992 to modify the definition of black sea bass pot, allow multi-gear trips, and allow retention of incidentally caught fish. These regulations became effective on August 31, 1992 [57 Federal Register 39365] and were extended on November 30, 1992 [57 Federal Register 56522]. On December 11, 1992 the Council submitted Regulatory Amendment 5 (SAFMC, 1992b) implementing the above changes on a permanent basis. An interim final rule and request for comments was published on March 2, 1993 with an effective date of March 1, 1993 [58 Federal Register 11979]. The final rule was published in the federal register on July 6, 1993 [58 Federal Register 36155] with an effective date of July 6, 1993.

The Council submitted Regulatory Amendment 4 (SAFMC, 1992b) requesting implementation of eight special management zones off South Carolina on August 12, 1992. The proposed rule was published in the federal register on March 15, 1993 [58 Federal Register 13732]. The final rule was published in the federal register on July 2, 1993 [58 Federal Register 35895] with an effective date of July 31, 1993.

Amendment 6 (SAFMC, 1993) was submitted to the Secretary of Commerce on December 13, 1993. The amendment was developed to rebuild the snowy grouper, golden tilefish, speckled hind, warsaw grouper, misty grouper, and yellowedge grouper resources and proposed to phase-in quotas over a three year period beginning January 1994. Commercial trip limits, recreational bag limits, and an experimental closed area were also proposed to manage and rebuild these economically and ecologically important resources. Data will be collected to evaluate shifts in fishing effort (effort shifts) among fisheries and for future evaluation of an individual transferable quota (ITQ) type of management approach. Amendment 6 was approved on May 5, 1994 with the exception of the 100% logbook coverage and the anchoring prohibition within the Oculina Bank. Commercial trip limits were effective June 6, 1994 and the balance of the regulations became effective June 27, 1994 [59 Federal Register 27242].

Amendment 7 (SAFMC, 1994) was submitted to the Secretary of Commerce on June 16, 1994. Amendment 7 establishes a 12" fork length size limit for hogfish; increases the mutton snapper size limit from 12" to 16" total length; requires dealer, charter and headboat permits; allows sale under specified conditions; specifies allowable gear and makes allowance for experimental gear; makes allowance for multi-gear trips in North Carolina; adds localized overfishing to the list of problems and objectives; adjusts the bag limit and crew specification for charter and headboats; modifies the management unit for scup to apply South

of Cape Hatteras, North Carolina; and modifies the framework procedure to increase the timeliness of action by the Council. The proposed rule was published in the federal register on September 19, 1994 [59 Federal Register 47833]. Written comments must be received on or before October 31, 1994. Final regulations will be effective on December 30, 1994.

Appendix C. Gray Triggerfish Length Frequency Data

Length Frequency for Gray Triggerfish from Headboat Fishery, MRFSS,
and TIP Commercial Landings by Year and Subareas

Prepared by:
NMFS Beaufort Lab

SAFMC has proposed a size limit for gray triggerfish in Regulatory Amendment 6 to the Snapper-Grouper FMP. The proposed size limit is to apply only off Florida's east coast. To aid the Council in its deliberations, we retrieved length frequency data for the gray triggerfish and prepared the appended materials.

Headboat biological data from 1991-93 are included for the areas South Florida, North Florida, and the Carolinas (Figures 1-3). The greater incidences of fish less than 12" were observed in catches off South Florida (above 65% of sample in each season) and North Florida (28-44% of sampled fish). Carolinas ranged from 10-17% less than 12".

MRFSS length frequency data 1989-93 (Figure 4) were more sparse for gray triggerfish but a similar south to north trend is suggested in the data. Sample sizes were inadequate to plot for several areas and years.

Commercial fish samples (TIP) from 1989-90 (Figure 5) show low incidence of fish under 12" in the Carolinas. Sample sizes elsewhere were inadequate to plot.

Figure 1. Length Frequencies for Gray Triggerfish from Headboat Fishery - 1991.

South Florida

LCLASS	FRSQ	CUM FRSQ	PERCENT	CUM PERCENT
0	***	6	3.14	3.14
7	*	7	0.92	3.66
8	*****	9	4.71	8.38
9	*****	41	21.47	29.86
10	*****	59	30.89	60.73
11	*****	37	19.37	40.10
12	*****	15	7.85	87.96
13	*****	10	5.24	93.19
14	***	6	3.14	96.34
15	**	3	1.57	97.91
16	*	2	1.05	98.98
17	*	1	0.52	99.48
19	*	1	0.52	100.00

FREQUENCY

North Florida

LCLASS	FRSQ	CUM FRSQ	PERCENT	CUM PERCENT
9	**	4	1.51	1.51
10	*****	38	14.34	15.85
11	*****	74	27.92	43.77
12	*****	63	23.77	67.55
13	*****	45	16.98	84.53
14	*****	21	7.92	92.45
15	***	5	1.89	94.34
16	*****	11	4.15	98.49
17	*	1	0.38	98.87
18	*	1	0.38	99.25
19	*	2	0.75	100.00

FREQUENCY

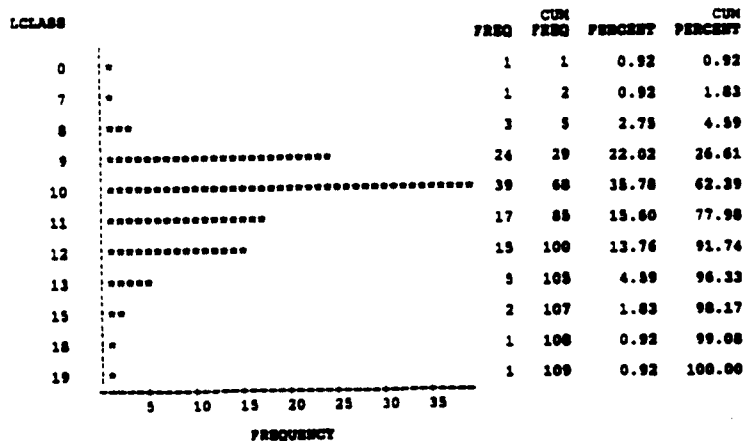
Carolinas

LCLASS	FRSQ	CUM FRSQ	PERCENT	CUM PERCENT
9	*	2	0.89	0.89
10	***	6	2.68	3.57
11	*****	14	6.25	9.82
12	*****	19	8.48	18.30
13	*****	30	13.39	31.70
14	*****	45	20.09	51.79
15	*****	41	18.30	70.09
16	*****	20	8.93	79.02
17	*****	22	9.82	88.84
18	****	8	3.57	92.41
19	***	5	2.23	94.64
20	***	6	2.68	97.32
21	*	1	0.45	97.77
22	*	2	0.89	98.66
35	*	1	0.45	99.11
147	*	1	0.45	99.56
175	*	1	0.45	100.00

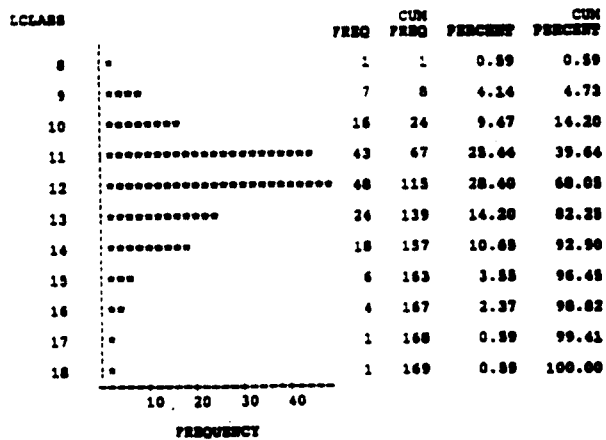
FREQUENCY

Figure 2. Length Frequencies for Gray Triggerfish from Headboat Fishery - 1992.

South Florida



North Florida



Carolinas

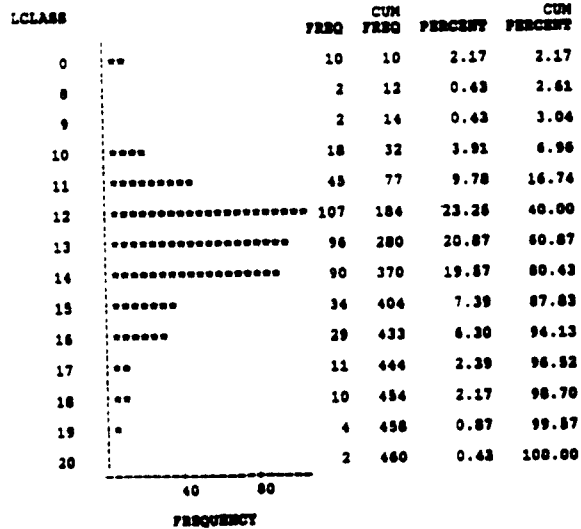


Figure 3. Length Frequencies for Gray Triggerfish from Headboat Fishery - 1993.

South Florida

LCLASS	FREQ	CUM FREQ	PERCENT	CUM PERCENT
8	3	3	3.33	3.33
9	18	21	20.00	23.33
10	24	45	26.67	50.00
11	14	59	13.86	63.86
12	15	74	16.67	80.53
13	3	77	3.33	83.86
14	3	80	3.33	87.19
15	4	84	4.64	91.83
17	4	88	4.64	96.47
18	2	90	2.22	100.00

FREQUENCY

North Florida

LCLASS	FREQ	CUM FREQ	PERCENT	CUM PERCENT
8	2	2	1.57	1.57
9	8	10	6.30	7.87
10	12	22	9.45	17.32
11	13	35	10.26	27.58
12	46	81	36.22	63.78
13	18	99	14.17	77.95
14	12	111	9.45	87.40
15	3	114	2.36	89.76
16	3	117	2.36	92.13
17	6	123	4.72	96.85
18	3	126	2.36	99.21
20	1	127	0.79	100.00

FREQUENCY

Carolinas

LCLASS	FREQ	CUM FREQ	PERCENT	CUM PERCENT
0	6	6	1.02	1.02
9	2	8	0.34	1.36
10	12	20	2.03	3.39
11	50	70	8.47	11.86
12	140	210	23.73	35.59
13	152	362	23.76	59.35
14	110	472	18.64	78.00
15	92	564	8.81	86.81
16	29	593	4.92	91.73
17	21	614	3.56	95.29
18	5	619	0.85	96.14
19	5	624	0.85	97.00
20	3	627	0.51	97.51
21	1	628	0.17	97.68
22	2	630	0.34	100.00

FREQUENCY

Figure 4. Length Frequencies of Gray Triggerfish from MRFSS.

South Florida 1989-92

1989

LCLASS	FRBQ	CUM FRBQ	PERCENT	CUM PERCENT
10	9	9	33.33	33.33
11	1	10	3.70	37.04
13	10	20	37.04	74.07
15	1	21	3.70	77.78
16	5	26	18.52	96.30
20	1	27	3.70	100.00

1991

LCLASS	FRBQ	CUM FRBQ	PERCENT	CUM PERCENT
7	1	1	7.69	7.69
10	1	2	7.69	15.38
11	2	4	15.38	30.77
13	3	7	23.08	53.85
14	1	8	7.69	61.54
16	3	11	23.08	84.62
17	1	12	7.69	92.31
22	1	13	7.69	100.00

1992

LCLASS	FRBQ	CUM FRBQ	PERCENT	CUM PERCENT
8	1	1	7.14	7.14
9	1	2	7.14	14.29
12	1	3	7.14	21.43
13	1	4	7.14	28.57
14	1	5	7.14	35.71
15	3	8	21.43	57.14
16	1	9	7.14	64.29
17	2	11	14.29	78.57
19	3	14	21.43	100.00

Georgia and North Florida 1992

LCLASS	FRBQ	CUM FRBQ	PERCENT	CUM PERCENT
11	1	1	3.70	3.70
12	1	2	3.70	7.41
13	1	3	3.70	11.11
19	24	27	88.89	100.00

Carolinas 1992

LCLASS	FRBQ	CUM FRBQ	PERCENT	CUM PERCENT
8	1	1	2.27	2.27
10	3	4	6.82	9.09
11	5	9	11.36	20.45
12	9	18	20.45	40.91
13	4	22	9.09	50.00
14	2	24	4.55	54.55
15	1	25	2.27	56.82
16	2	27	4.55	61.36
17	1	28	2.27	63.64
20	2	30	4.55	68.18
23	1	31	2.27	70.45
30	13	44	29.55	100.00

Figure 5. Length Frequencies of Gray Triggerfish from Commercial Landings (TIP).

South Florida 1990

LCLASS	FREQ	CUM FREQ	PERCENT	CUM PERCENT
12	1	1	33.33	33.33
13	1	2	33.33	66.67
19	1	3	33.33	100.00
-----		1		

FREQUENCY

Carolinas 1989

LCLASS	FREQ	CUM FREQ	PERCENT	CUM PERCENT
11	7	7	2.13	2.13
12	16	23	4.00	7.01
13	22	45	6.71	13.72
14	38	83	11.89	25.60
15	55	138	16.77	42.07
16	56	194	17.07	59.18
17	55	249	16.77	75.91
18	37	286	11.20	87.20
19	23	309	7.01	94.21
20	8	317	2.44	96.65
21	8	325	2.44	99.09
22	2	327	0.61	99.70
23	1	328	0.30	100.00

FREQUENCY

Carolinas 1990

LCLASS	FREQ	CUM FREQ	PERCENT	CUM PERCENT
9	1	1	0.15	0.15
11	6	7	0.81	1.07
12	26	33	3.90	5.03
13	69	102	10.82	15.85
14	115	217	17.53	33.00
15	134	351	20.43	53.81
16	112	463	17.07	70.88
17	86	551	13.41	83.99
18	45	596	6.86	90.85
19	20	616	3.08	93.90
20	25	641	3.81	97.71
21	7	648	1.07	98.78
22	8	656	1.23	100.00

FREQUENCY