A Social and Economic Analysis of Snapper Grouper Complex Fisheries in North Carolina South of Cape Hatteras

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TABLE OF CONTENTS

LIST OF TABLES	ii
ACKNOWLEDGEMENTS	iii
INTRODUCTION	1
Current SAFMC Seasonal Closure and Possession Limits	2
Study Area	3
Study Objectives	3
METHOD	4
Recruitment and Participation Rates	4
Survey Instrument	5
RESULTS	6
Socio-demographics	6
Characteristics of Fishing Operations	7
Targeted Species and Gear Combinations	9
Income	
Expenses	14
Important Issues Facing the Fishing Industry	
Opinions about Fisheries Management	
User Group Conflicts	
Community Support	
Future Optimism	
CONCLUSIONS	
REFERENCES	39
APPENDIX A	40

LIST OF TABLES

Table 1. Socio-demographic variables	7
Table 2. Average summary characteristics of vessels by size category	8
Table 3. Fishing locations and percent of effort for all vessels used by fisher	men
who target snappers and groupers south of Cape Hatteras	9
Table 4. Fisheries participation and major species landed by month	10
Table 5. Percent of fishing income earned by species	12
Table 6. Income from fishing	13
Table 7. Total household income	13
Table 8. Other forms of individual employment or income	14
Table 9. Average snapper/grouper trip expenses, 2002	15
Table 10. Average annual business expenses, 2002	16
Table 11. Ratings of issues facing the fishing industry	17
Table 12. Frequency of negative experiences with Federal regulations and	state
rules during 2002	18
Table 13. Frequency of negative experiences with other commercial and	
recreational fishermen during 2002.	33

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A Social and Economic Analysis of Snapper/Grouper Complex Fisheries in North Carolina South of Cape Hatteras

INTRODUCTION

North Carolina's coastal fishery resources are a source of economic and social importance to many individuals and coastal communities. The harvest of these resources could create a demand too difficult to maintain without harming the long-term viability of certain species if not properly controlled. The South Atlantic Fisheries Management Council (SAFMC) is charged with monitoring the snapper/grouper complex fisheries from south of Cape Hatteras in North Carolina to the Florida Keys. The SAFMC has recommended rules and placed restrictions on several species in this complex.

Knowledge of the social and economic impacts of the restrictions currently in place and potential impacts of proposed regulations is necessary to understand how individual commercial fishermen and the industry as a whole are affected. This information is important for the development of amendments to the SAFMC Fishery Management Plan for the snapper/grouper complex. The amendments are directed toward specific species, gears, and water bodies, or any combination of species, gears, and water bodies and are developed to be compliant under the Magnuson Fishery Management and Conservation Act of 1976 (reauthorized 1996).

The SAFMC snapper/grouper complex of fisheries contains over 60 different species, not all of which are common to North Carolina. The following is a list of the species in the complex frequently landed by North Carolina fishermen:

Amberjack (Seriola spp.)

(American) Red Snapper (*Lutjanus campechanus*)

Beeliner/Vermillion Snapper (*Rhomboplites aurorubens*)

Black Sea Bass (Centropristis striata)

Gag (Mycteroperca microlepis)

Golden Tilefish (Lopholatilus chamaeleonticeps)

Grunt (Haemulon spp.)

Hogfish/Hog Snapper (*Lachnolaimus maximus*)

Jolthead and Knobbed Porgies (Calamus bajonado/Calamus nodosus)

Pink Snapper/Red Porgy (Pagrus pagrus)

Red Grouper (*Epinephelus morio*)

Scamp (*Mycteroperca phenax*)

Snowy Grouper (Epinephelus niveatus)

Triggerfish (Balistes spp. & Canthidermis spp.)

Current SAFMC Seasonal Closure and Possession Limits

The following represents seasonal closure and possession limits put into place by the SAFMC as of January 2004. The SAFMC is currently considering other seasonal closures, possession and size limits affecting other species.

Amberjack. During April of each year, the possession of greater amberjack in or from the South Atlantic Exclusive Economic Zone (EEZ) on board a vessel with a Federal snapper/grouper permit (charter/headboat or commercial) is limited to one per day or one per person per trip, whichever is more restrictive. Also, greater amberjack can neither be sold nor purchased during the closed season. The recreational minimum size limit for greater amberjack is 28 inches fork length; the commercial size limit is 36 inches fork length.

Gag. During March and April each year, the possession of gag in or from the South Atlantic EEZ on board a vessel with a Federal snapper/grouper permit (charter/headboat or commercial) is limited to two gag, combined, per person per day or two per person per trip, whichever is more restrictive. Also, gag cannot be purchased or sold during the closed season. The minimum size limit for gag is 24 inches total length.

Red Porgy. During January, February, March, and April each year, the harvest or possession of red porgy in or from the South Atlantic EEZ on board a

vessel with a Federal snapper/grouper permit (charter/headboat or commercial) is limited to one per person per day or one per person per trip, whichever is more restrictive. Also, red porgy can neither be sold nor purchased during the closed season. The minimum size limit for red porgy is14 inches total length.

Study Area

In this study, interviews were conducted with fishermen who fish in the ocean south of Cape Hatteras in North Carolina from 3 to 200 miles offshore and land any of the species listed above. Many of these fishermen also fish in other water bodies, however, this study focused primarily on the snapper/grouper species.

Study Objectives

The specific objectives of this study were:

- To describe the socioeconomic aspects of the snapper/grouper complex fisheries in North Carolina south of Cape Hatteras. Descriptions include demographic characteristics of commercial fishermen, dependence on commercial fishing, and fishing activities;
- 2. To collect costs and earnings information from commercial fishermen in order to develop estimates of the costs, earning, and returns associated with these fisheries:
- To assess commercial fishermen's perceptions of current and pending fisheries regulations, conflict, and relevant issues including the future of the industry.

METHOD

Recruitment and Participation Rates

A list of 193 commercial fishing license holders with contact information was obtained from the NC DMF license database in winter of 2003. Each of the persons or businesses on the list reported landing at least \$200 ex-vessel value in a single SAFMC snapper/grouper complex species, or \$300 ex-vessel value in at least two of the snapper/grouper complex species in NC from waters south of Cape Hatteras. Each fisherman or business fished using a NC Standard Commercial Fishing License (SCFL) or Retired Standard Commercial Fishing License (RSCFL). Many of these fishermen held one or more Federal fishing permits.

This survey project was planned while a separate survey was already ongoing by the study authors. Ten persons who participated in previous survey were found to be eligible to participate in this data collection effort. Those 10 respondents were asked most of the additional questions from this survey.

Attempts were made to contact all 183 commercial fishing licensees not previously contacted. The telephone contacts occurred between March and May of 2003. Two of the licenses were discovered to be the same person with one license in the individual's name and the other license in the name of the business owned by the fisherman. Nine licensees were excluded either because they said they did not meet the study inclusion criteria or because the snapper/grouper landings were made by another individual who had been assigned the license. A total of 54 licensees did not make a decision about participating in the study. Reasons for not contacting included:

- 1) No response to messages left at the residence.
- 2) The interviewer was told the fisherman was never home by someone else at the residence. Typically, this was because the fisherman was out of the area fishing.
- The residential telephone line was disconnected and no other telephone number could be found.

4) The study data collection period ended prior to making contact.

There were 129 fishermen who were contacted by telephone and were eligible to participate in the study. Two (1.5%) refused to participate. Three (2.3%) were classified as "passive refusers" because the fishermen never stated they did not want to participate, but for various reasons data were not collected from them. Reasons included requests to call back and failure to keep scheduled interview appointments. A full-time interviewer was trained specifically to conduct the surveys for the project and completed surveys for 124 fishermen for a participation rate of 96.1%

Survey Instrument

A copy of the survey used to collect data from the fishermen is located in Appendix A. The survey used in this study was modeled after ones used in previous studies (Cheuvront, 2002; 2003). The survey was modified from the previous version to make it specific to snapper/grouper complex fisheries. Additionally, this survey provided a way to track a fisherman's movement through fisheries from month to month. The interviewer filled out the surveys based on the respondents' answers given over the telephone.

The data collected in the survey included information concerning:

- a) Individual socio-demographics
- b) Characteristics of the respondent's fishing business
- c) Fishing vessel characteristics and expenses
- d) Species landed and gear combinations
- e) Income from fishing
- f) Financial costs of doing business
- g) Attitudes regarding and recommendations for fisheries management
- h) User group conflicts
- i) Perceptions of the fishing industry

RESULTS

The interviewer keyed the completed surveys into a Microsoft Access (2000) data entry program designed to store and manage the data. The program checked for "out of range" responses, processed question skip patterns, and allowed the interviewer to record interview notes and the answers to open-ended questions. A random sample of 50% of the questionnaires was double-keyed by other project personnel. The data were analyzed using the Statistical Package for Social Sciences software (SPSS release 12.0.0 [SPSS, 2003]). SPSS has the ability to directly read Access files through open database connectivity (ODBC). Final data verification, assigning labels to variables and additional variable calculations were completed in SPSS. The primary analyses in this report include frequency and simple univariate quantitative and additional qualitative analyses.

Socio-demographics

The average fisherman who responded to the survey was a 47-year-old white male who had been fishing for about 18 years (see Table 1). The youngest fisherman interviewed was 18, and the oldest was 73 years old. Only two respondents were women (1.6%). Two were Asian/Pacific Islanders (1.6%) and one was a Native American (.8%). All of the remaining respondents were white (97.6%). Nearly 80% of participants in the survey lived between Carteret and Brunswick Counties. All but two of the Dare County participants lived in Hatteras Island communities. Eleven (8.9%) of participants lived in North Carolina counties that do not border the Atlantic Ocean. Fewer than 3% of the survey respondents live outside of North Carolina. These respondents lived in their current community, on average, for over 26 years, but some had lived in their community for only two years and for as long as 65 years. The fishermen lived in households with a range of 1 to 6 people; however, over 84% of the fishermen lived in households with two to four people. Nearly 80% of the fishermen were currently married at the time of the interview. The remaining respondents were

divorced, never married, or widowed. Only about 10% of the respondents had less than a high school education. Approximately a third were high school graduates. Over a quarter had some college education and an additional 31.5% were college graduates. This level of education is higher than average among fishermen in NC and the general adult population of the state of North Carolina.

Table 1. Socio-demographic variables.

	Frequency	Percent			Frequency	Percent
Gender				Annual Household Income		
Male	122	98.4%		Less than \$15,000	4	3.2%
Female	2	1.6%		\$15,001 - \$30,000	26	21.0%
<u>Age</u>				\$30,001 - \$50,000	36	29.0%
Average	46.6			\$50,001 - \$75,000	22	17.7%
Minimum	18			\$75,001 - \$100,000	14	11.3%
Maximum	73			More than \$100,000	9	7.3%
Racial/Ethnic Background			L	Refused to Answer	13	10.5%
White	121	97.6%		County of Residence		
Asian/Pacific Islander	2	1.6%		Brunswick	16	12.9%
Native American	1	0.8%		Carteret	20	
<u>Education</u>				Craven	1	0.8%
Less than High School		10.5%		Currituck	1	0.8%
High School Graduate	40	32.3%		Dare	8	6.5%
Some College	32	25.8%		Hyde		1.6%
College Graduate	39	31.5%		New Hanover	27	21.8%
Marital Status				Onslow	24	19.4%
Married	98	79.0%		Pamlico	2	1.6%
Divorced	12	9.7%		Pender	11	8.9%
Separated	0	0.0%		Other NC County	9	7.3%
Widowed	2	1.6%	L	Out of State	3	2.4%
Never Married	11	8.9%		Years Fishing		
# of People in Household				Average	18.1	
One	10	8.1%		Minimum	1	
Two	51	41.1%	L	Maximum	60	
Three	30	24.2%	Į.	Years in Community		
Four	24	19.4%		Average		
Five	5	4.0%		Minimum	2	
Six	2	1.6%		Maximum	65	

Characteristics of Fishing Operations

The ownership of fishing businesses can generally be described by three categories: sole proprietorship, partnership, or corporation. A large majority of the fishermen work as sole proprietor businesses (92.7%). Slightly more than 2% worked as partnerships, but 4% of the businesses were incorporated.

All the fishermen in the study held a valid NC commercial fishing license that allowed them to land and sell what they catch. However, a fisherman who wishes to land more than a recreational bag limit of snapper/grouper complex fishes must possess a Federal permit. Over one fifth (21.8%) of the fishermen interviewed did not have any Federal fishing permits. Of the respondents interviewed who had at least one Federal permit, 85.6% had a snapper/grouper permit, 66% had a king mackerel permit and 30.9% had a Spanish mackerel permit.

Three of the fishermen interviewed did not own their own vessels. When they targeted snappers and groupers, they fished from someone else's boat. One reported that he sold his catches from charter boat trips. The majority of fishermen owned only one vessel for their fishing activities. Thirteen of the people interviewed owned more than one boat with one fisherman reported owning five vessels.

Vessels were classified according to size. Vessels less than 19ft. in length were classified as being "small." Vessels between 19 and 38 ft. in length were classified as being "medium." Vessels over 38 ft. in length were classified as being "large." Table 2 shows a summary of vessel characteristics based on vessel size. The average market value for the small boats was \$10,000, medium vessels average value was \$50,528, and large vessels on average, were valued at \$82,273.

Table 2. Average summary characteristics of vessels by size category.

	0	N A1!	1
	Small	Medium	Large
	(n=9)	(n=109)	(n=23)
Length (in feet)	17.00	29.00	43.43
Crew Size	1.44	1.94	2.26
Years Owned	6.00	7.13	10.59
Market Value	\$10,000	\$ 50,528	\$ 82,273

The fishermen interviewed in this study are fairly homogenous in the nature of their business. All respondents to the survey use at least one boat to fish for snappers and groupers in Federal waters south of Cape Hatteras. The

survey asked the fishermen about all the boats they own and use for any fishing activities. Approximately 61% of the vessels owned by these fishermen are used for fishing in Federal waters off the North Carolina coast south of Cape Hatteras. These same vessels also fish south of Cape Hatteras and average of 86.5% of the time (Table 3). About 22.4% of the vessels also fish in the state waters south of Cape Hatteras for about 26.6% of their percent of fishing effort. Approximately 9.3% of vessels fish in inshore state waters such as the bays, rivers, and sounds of the state. Those vessels used for inshore fishing tend to do so for over half of all their fishing effort. Only 3.4% of vessels mentioned were also used fish in Federal waters north of Cape Hatteras and these vessels fish in those waters only about 34.4% of the time.

Table 3. Fishing locations and percent of effort for all vessels used by fishermen who target snappers and groupers south of Cape Hatteras.

Water bodies fished	% who fish	% of time
S. of Cape Hatteras - Federal	61.0%	86.5%
S. of Cape Hatteras - State	22.4%	26.6%
N. of Cape Hatteras - Federal	3.4%	34.4%
N. of Cape Hatteras - State	3.4%	13.1%
Inshore waters	9.3%	54.5%
Out-of-state waters	0.5%	25.0%

Targeted Species and Gear Combinations

Eighty-one (65.3%) of the fishermen indicated year around fishing. Table 4 shows the main species landed by these fishermen in each month. The percentage listed for each month indicates the overall percentage of the respondents who reported fishing activity in that month in 2002. The species listed are the ones reported as being landed by at least 5% of the fishermen who fished in that month. Non-snapper/grouper complex species were included to show the fishermen's progression through fisheries during the year.

NC DMF trip ticket species codes were used to record the species fishermen said they targeted. Gag is the fish most frequently targeted by these fishermen. The season for gag is effectively closed for the months of March and

Table 4. Fisheries participation and major species landed by month.

January	85%	Мау	91%	September	92%
Gag	41%	Gag	46%	Gag	54%
Black Sea Bass		Beeliner		Beeliner	36%
King Mackerel	23%	Red Grouper	28%	Red Grouper	28%
Beeliner		King Mackerel		Scamp	18%
Red Grouper		Scamp		King Mackerel	18%
	1 - 7 -	Black Sea Bass		Black Sea Bass	18%
		Yellowfin Tuna		Grunts	10%
		Snowy		Triggerfish	7%
		,	0 / 0	Yellowfin Tuna	7%
				Shrimp	7%
				Dolphin	6%
February	83%	June	93%	October	95%
Gag	40%			Gag	56%
Black Sea Bass		Beeliner		Beeliner	33%
King Mackerel		Red Grouper		Red Grouper	27%
Beeliner		Scamp		Black Sea Bass	23%
Red Grouper		Black Sea Bass		King Mackerel	22%
Croaker		King Mackerel		Scamp	18%
Scamp		Yellowfin Tuna		Grunts	10%
Scamp	0 70	Dolphin		Dolphin	5%
		Snowy	00/ ₋	Triggerfish	5%
		Shrimp	70/ ₋	Shrimp	5%
March	020/	-		November	93%
King Mackerel		July		Gag	52%
Black Sea Bass		Gag Beeliner		Black Sea Bass	29%
				Beeliner	29% 29%
Beeliner		Red Grouper Scamp			25%
Red Grouper				Red Grouper King Mackerel	23%
Scamp Croaker		King Mackerel			23% 14%
		Black Sea Bass		Scamp	14% 8%
Gag	0%	Grunts	9%	Grunts	0%
		Yellowfin Tuna			
		Snowy	7%		
		Shrimp	7%		
Amril	060/	Dolphin	5%	Dagambar	000/
April King Mackerel		August		December	90% 46%
Beeliner		Gag Beeliner		Gag Black Sea Bass	32%
Black Sea Bass		Red Grouper		Beeliner	23%
Red Grouper		Scamp		King Mackerel	21%
Scamp		King Mackerel		Red Grouper	20%
Yellowfin Tuna		Black Sea Bass		Scamp	13%
Snowy		Grunts		Bluefin Tuna	10%
Gag	5%	Triggerfish		Grunts	6%
		Yellowfin Tuna	8%		
		Snowy	7%		
		Shrimp	7%		
		Dolphin	5%		

April because of the SAFMC restricted bag limit. Also, during those months it cannot be sold commercially. Beeliner and black sea bass are the next most frequently landed species. There is a significant number of fishermen who land king mackerel each month of the year. Over 20% of fishermen target king mackerel between October and May. During the gag closed season, king mackerel are targeted by about 35% of the fishermen. Other snapper/grouper complex species landed by at least 5% of the fishermen in any given month were red grouper, scamp, snowy grouper, grunts, and triggerfish. Nonsnapper/grouper complex species landed by at least 5% of the fishermen in any given month included Atlantic croaker (*Micropogonias undulates*), yellowfin tuna (*Thunnus albacares*), bluefin tuna (*Thunnus thynnus*), dolphin (*Coryphaena hippurus*), and shrimp (*Penaeid spp.*).

At some point in the year gag are targeted by 61.3% of fishermen. Red grouper were landed by 39.5%. Scamp were reported as being landed by 27.4%. All three species are primarily landed using vertical lines or diving spears. Black sea bass are targeted by 46% of the fishermen with 40% using fish pots and 60% using vertical line gear.

Beeliner was landed by 36.3% of fishermen. Likewise, 14.5% reported landing grunts, and 13.7% reported triggerfish. Less frequently mentioned species included golden tilefish (5.6%), amberjack, American red snapper (4.8%), pink snapper (1.6%), and jolthead and knobbed porgies (1.6%). Each of these species was primarily landed using vertical line gear.

Hogfish, targeted by 1.6% of the respondents were caught primarily using diving spears. Snowy grouper were targeted by 9.7% of the fishermen at some point in the year using primarily vertical lines or longline gears.

Income

Snapper/grouper complex species provide a significant source of income for the fishermen who participate in those fisheries. Table 5 shows the average percent of fishing income earned by fishermen who participate in those fisheries.

Table 5. Percent of fishing income earned by species.

Species	% of Income
Grunts	34.8%
Black Sea Bass	34.0%
Gag	33.1%
Beeliner	28.8%
Red Grouper	17.2%
Scamp	14.2%
American Red Snapper	13.5%
Hogfish (Hog Snapper)	13.5%
Amberjack	12.2%
Snowy Grouper	9.9%
Triggerfish	5.6%
Golden Tilefish	5.6%
Jolthead/Knobbed Porgies	4.0%
Pink Snapper	1.6%

Fishermen who participate in the grunt fishery earn the highest percentage of their fishing income from that fishery than any of the other fisheries in the snapper/grouper complex. Black sea bass, gag, and beeliner provide nearly as large percentage of individual fishing income for the fishermen who participate in those fisheries. While many fishermen mentioned landing triggerfish, tilefish, pink snapper and jolthead/knobbed porgies, these individual species did not contribute greatly to the average fisherman's overall fishing income.

Table 6 shows categories of self-reported individual income earned by the fishermen in the study year 2002. The most any fisherman stated as fishing earnings was \$85,000. The median individual income from fishing for all respondents was \$10,000. Five fishermen refused to answer the question. Four fishermen stated they lost income. The most any fisherman stated as losses was \$10,000. However, 21 fishermen said they broke even, that is, made no profit. Of those fishermen who did state they made a profit, the median income was \$17,000.

Table 6. Income from fishing.

	Frequency	Percent
\$0 or lost money	25	20.2%
\$1 - \$5,000	20	16.1%
\$5,001 - \$15,000	26	21.0%
\$15,001 - \$30,000	34	27.4%
More than \$30,000	14	11.3%
Refused	5	4.0%
Total	124	100.0%

The majority of households with a commercial fisherman have additional sources of income. Table 7 shows total household income for commercial fishermen in the study. The question about total household income was not answered by 10.5% of the respondents. Of those who did answer, 3.2% lived in households with less than \$15,000 total annual income and 7.3% lived in households with more than \$100,000 in total income. The minimum household income given was \$7,500 and the maximum was \$350,000. The median household income for this group of fishermen was \$40,000. This level of income is comparable to the median household income for all households in the study area of \$40,000 - \$50,000 (NC Dept of Commerce, 2004).

Table 7. Total household income.

	Frequency	Percent
Less than \$15,001	4	3.2%
\$15,001 - \$30,000	26	21.0%
\$30,001 - \$50,000	36	29.0%
\$50,001 - \$75,000	22	17.7%
\$75,001 - \$100,000	14	11.3%
More than \$100,000	9	7.3%
Refused	13	10.5%
Total	124	100.0%

Nearly 40% of the respondents did not indicate any other source of individual income other than fishing. Table 8 shows the range of occupations listed as other sources of individual income received by these fishermen. Some fishermen listed more than one additional income source. The most frequently mentioned other source of income was categorized as other fishing. The

majority of these respondents also used their fishing boats to run charter recreational fishing trips. The next two most frequently mentioned categories were construction and skilled labor (e.g. electrician) and landscaping/agriculture/manual labor. These are forms of non-fishing employment traditionally held by North Carolina fishermen. These fishermen were more likely to hold professional positions (e.g. banker) and own non-fishing related businesses compared to most other groups of North Carolina fishermen.

Table 8. Other forms of individual employment or income.

Other Employment	Frequency	Percent
Other fishing	14	16.9%
Landscaping/agriculture/ manual labor	12	14.5%
Construction/skilled labor	11	13.3%
Professional	10	12.0%
Retirement/disability/investments	9	10.8%
Retail	6	7.2%
Other business owner	6	7.2%
Real estate	5	6.0%
Other maritime	4	4.8%
Other	6	7.2%
Total	83	100.0%
No response	49	39.5%

Expenses

Fishermen were asked to report two kinds of expenses – typical snapper/grouper trip level expenses and annual expenses. Four of the 124 respondents did not provide any typical trip level expenditures. One respondent did not provide any annual business expenses. Not all of the remaining respondents provided data for each category. Presumably, since the fishermen answered the other expense questions, it is assumed they did not answer because they do not usually incur that category of expense. Typical snapper/grouper trip expenses were prorated to all 120 respondents who answered at least one of the typical trip questions. Annual business expenses were prorated to the 123 respondents who answered at least one of the annual expenses questions.

The greatest trip expense was for fuel at about \$150 per trip. Bait and tackle combined were the next highest expense at about \$90 per trip. The next largest expense was for groceries and then ice. Other expenses included things like travel from home of residence to the boat. Not all of the fishermen interviewed live close to where their vessels are docked. The total average trip expense was slightly over \$300 for those who mentioned travel costs.

Table 9. Average snapper/grouper trip expenses, 2002.

	# of	Avg. Trip	
Trip Expense	Respondents	Ė	xpense
Fuel	120	\$	150.13
Ice	67	\$	15.16
Groceries	116	\$	44.38
Bait	102	\$	67.53
Tackle	80	\$	23.28
Other	3	\$	3.00
Total		\$	303.49

The single largest expense on average for all snapper/grouper fishermen is labor payments. Even though only 47 respondents said they made crew payments, this averaged out to \$7,263 for all fishermen. The 47 fishermen who reported payments to crewmembers made average crew payments of just over \$19,000 each. This value is probably an underestimate of the actual payments to crewmembers. During the interview, several respondents noted that the do make payments to their crew, but were unwilling to tell us the amount. Many respondents also told us that they work with family members as crew. However, only one respondent indicated making actual payments to that household member. The household crewmember was usually the spouse and monies earned were held jointly.

The next largest business expense averaged over \$10,000 for repairs and for new gear. Loan payments alone, averaged \$2,694 per respondent. Only 58 (47%) of the respondents indicated making insurance payments, for an average annual payment of \$908. Underinsurance or no insurance is a common problem for many North Carolina fishermen. Four fishermen indicated they started up

their businesses in 2002. Average startup costs across the entire pool of fishermen who responded to the annual expense questions was only \$766, but those four fishermen paid an average of \$23,375 each in start up costs.

Table 10. Average annual business expenses, 2002.

	# of	Α	vg. Annual
Annual Expense	Respondents		Expense
Labor	47	\$	7,263
Payments to Household	1	\$	57
Licenses	122	\$	459
Startup (in 2002)	4	\$	766
Loan Payments	44	\$	2,694
Repairs	111	\$	5,222
Docking Fees	46	\$	565
New Gear	88	\$	4,941
Insurance	58	\$	908
Other Expense	16	\$	167
Total		\$	23,042

Important Issues Facing the Fishing Industry

The respondents were asked to rate 23 fishing and business-related concerns for how much they were affected by the issue. They were asked to rate each on a scale of 1 to 10 with 1 being "it is not important, or does not affect me" to 10 being "it is extremely important, or affects my business a great deal." The results are show in Table 11, rank ordered from highest average rating, indicating the greatest amount of importance to least importance.

Low prices paid to the fishermen for the seafood they landed was seen as the most pressing issue facing these fishermen, followed by keeping up with changes in rules and proclamations, and coping with the weather. Federal regulations were seen as the fourth most important issue and that concern was closely followed by pressures from imported seafood.

Specific regulatory type actions such as bag limits, size limits, quotas and seasonal/area closures were in the next tier of items in terms of importance.

They were rated similarly with business issues such as dealing with business costs, predicting the future of the business, and record keeping and paperwork.

Items that raised the least amount of concern included competition from other fishermen, environmental regulations, gear restrictions, labor issues, areas that are off limits to fishing, and the amount of respect they feel for their profession.

Table 11. Ratings of issues facing the fishing industry.

	Avg.
Issue	rating
Seafood prices	7.98
Keeping up with proclamations	
and rule changes	7.70
Weather	7.65
Federal regulations	7.34
Imported seafood	7.09
Predicting the future of fishing	
business	6.81
Buisness costs (taxes, licenses,	
etc.)	6.64
Bag limits	6.24
Record keeping/paperwork	6.16
Seasonal/area closures	6.11
State regulations	5.68
Overfishing	5.38
Quotas	5.22
Size limits	5.03
Initial startup costs	4.69
Obtaining financing for repairs/	
replacement of equipment	4.27
Outside competition	3.93
Environmental regulation	3.91
Local competition	3.37
Crew or other labor issues	3.28
Gear restrictions	2.81
Areas off limits to fishing	2.19
Respect for commercial	
fishermen	2.11

Fishermen were asked specifically to state how often they had negative experiences in the previous year with state rules and Federal regulations. Table 12 shows a summary of their responses. Most of these fishermen did not have conflict with state regulations. This finding is not surprising because the majority of fishing activity by these fishermen is conducted in waters under federal jurisdiction. Slightly fewer than 45% indicated no conflict with Federal regulations. The majority of respondents did say that they had conflict with

Federal regulations at least one time in the past year. The majority of people reported having conflicts with Federal regulations claimed the conflicts were a daily occurrence. Typically, when a fishermen reported daily conflicts it was in terms of disagreeing with how Federal fisheries are managed. The next section goes into this topic in much greater detail.

Table 12. Frequency of negative experiences with Federal regulations and state rules during 2002.

	Federal Regulations		State Rules	
	Frequency	Percent	Frequency	Percent
No Negative Experiences	55	44.7%	95	79.8%
< 10	8	6.5%	11	9.2%
10-50	4	3.3%	1	0.8%
> 50	12	9.8%	3	2.5%
Negative Experiences Every Day	44	35.8%	9	7.6%

Opinions about Fisheries Management

The snapper/grouper survey contained several questions pertaining specifically to amendments contained within the federal snapper/grouper management plan. The objective was to document and, hopefully, to understand snapper/grouper fishermen's views about current and proposed restrictions under the plan. The snapper/grouper questions focused on red porgy, snapper, gag, red grouper, scamp, golden tilefish, snowy grouper and black sea bass.

In addition to questions about proposed snapper/grouper regulations, respondents explained how fisheries management affects their line of work, and thus, their lives. On this more general line of questioning, some survey respondents said they objected to every regulation implemented by both state and federal governments. Most, however, agreed some regulation is necessary for preserving the fisheries, but said problems arise when restrictions become both ineffective and burdensome. Although these particular fishermen objected to current and proposed restrictions, most suggested alternative conservation methods.

In all, 114 individual surveys contain an assortment of viewpoints ranging from specific comments about the proposed snapper/grouper amendments to general opinions about fisheries management practices overall.

Survey respondents were asked to respond to questions about Amendments 12, 13B and 14 of the snapper/grouper plan. These amendments call for closures, catch limits, or both.

When the survey began, Amendment 12 already had been adopted. This amendment closed red porgy fishing from January through April. The remainder of the year, commercial fishermen are allowed to keep 50 pounds of red porgy per trip. Recreational fishermen are allowed to keep one fish per trip. Prior to passage of Amendment 12, the recreational bag limit was five.

Because Amendments 13B and 14 were only proposals when the survey began, fishermen were asked whether or not they understood the actions being proposed at the time of the study. Roughly three-fourths of the fishermen were completely unaware of the proposals in Amendments 13B and 14. These survey respondents were caught unaware and became angry and frustrated about probable adverse effects on their livelihoods. This resulted in a rash of heated and emotional remarks, some of which are included within this report.

The proposed restrictions in Amendment 13B were divided into three management units — snapper/grouper, tilefish/snowy grouper and black sea bass. Therefore, survey questions about Amendment 13B also were divided into three sections.

With respect to snapper/grouper, the SAFMC has recommended closure of the shallow-water fishery either February through March or March through April. Shallow water is considered to be roughly 100 to 200 feet deep. The proposed shallow-water closure would affect landings of red grouper, scamp and all snappers. Landing more than two gag during March and April already is prohibited. Should the SAFMC adopt this section of the amendment, no harvesting, possession, or selling of any snapper/grouper species will be allowed during the closure. Fishing will be allowed in deep water, but any of the above mentioned species caught in deep water cannot be landed or sold.

The second section of Amendment 13B proposed closure of the deep-water fishery. Deep water in this context is roughly 300 feet. If adopted, the deep-water closure will take effect July, August and possibly September. The closure primarily would affect fishermen landing golden tilefish and snowy groupers.

The third section affected the landing of black sea bass. These restrictions were similar to the red porgy restrictions in that the amendment proposes a January through April closure, a 50-pound catch limit and a recreational bag limit reduced from 20 fish to either one or two fish.

In addition to the closures outlined in Amendment 13B, Amendment 14 proposed to close a 100-square mile area of ocean located about 60 miles off Cape Fear at a place called "Snowy Wreck." This region would be designated a Marine Protected area (MPA) and would basically serve as a fish refuge. Although trolling would be allowed in this area, bottom fishing would be prohibited. In addition, no one trolling in the MPA can be in possession of any snapper/grouper species.

Additional issues the respondents commented on included fisheries management processes, size limits, bag and catch limits, closures, gear restrictions, and business problems. Fishermen were not specifically asked about these topics, but these were the topics focused on. Fewer respondents brought up the issues of fairness, overfishing, overpopulation, too much law enforcement, lack of law enforcement and illegal practices.

Fisheries management practices. The majority of fishermen who commented on fisheries management practices called SAFMC members "inexperienced and uninformed bureaucrats" from Florida who know next to nothing about the workings of North Carolina fisheries. They blamed the SAFMC for creating unacceptable regulations based upon incorrect and/or incomplete data.

"They (SAFMC) might have good intentions," said one fisherman. "But their data is not correct, so the rules and regulations don't help. They make things too complicated and move the pressure to other fisheries." The SAFMC receives data from the National Marine Fisheries Service (NMFS) and uses that data to protect marine fish stocks by preventing overfishing, decreasing bycatch and protecting habitat. But despite these "good intentions," many feel the SAFMC actually works against local fishermen. This is because the SAFMC creates one set of regulations to cover its entire area of control, rather than considering the variations of each geographical area, according to 76.3% fishermen who addressed this topic.

"Amendment 12 started in Florida where they've never even seen a pinkie," said one respondent. "They hired biologists who couldn't fish and they targeted fish in the wrong areas."

While fishermen along North Carolina's central and southern coast insist regulations should be based on data collected from those areas only, fishermen in the Cape Hatteras area are even more adamant that regulations should be specific to the area from Cape Hatteras to Cape Lookout, not to areas south of Cape Lookout. "We need all the right conditions to live here and make money because we're so close to the Gulf Stream," said a Cape Hatteras area fisherman. "That makes us self-regulated in this area. There are completely different fishing conditions here than in the south."

Data collection. Respondents identified data collection techniques as a "big problem." Of the fishermen who voiced concern about management practices, 36% complained about federal data collection problems, data analysis, refusing to use data already collected, and failure to communicate with the fishermen in general.

"Data collection techniques stink," said a man who opposes the black sea bass catch limit. "The feds tried to catch sea bass in traps, but they set pots in 200 feet of water when they should have been set in 30 to 60 feet of water. And they set them in the summer when the water was too warm. That's like saying, 'Why aren't there blue crabs in the middle of Highway 40?' "

"The biologists don't use common sense," said another respondent. "They might take sample drags in areas where no one fishes and call that data. Their sampling doesn't reflect where we fish. Obviously they're not living in my world."

Another method the federal government uses to collect data is the logbook. Fishermen are required by law to fill out logbooks containing their trip-level activities and expenses. Yet, fishermen said they detest the logbooks, lie on the logbooks and consider filling them out a waste of time. To make matters worse, fishermen reported that federal employees have told them outright that information submitted via the logbooks is disregarded. Verbal opinions about fisheries conditions also are ignored, because federal employees refuse to communicate with fishermen on a personal level, according to the respondents.

Stock assessments. Of the 32 people who talked about data collection issues, 17 questioned the validity of stock assessments, especially with respect to black sea bass and red porgy. Black sea bass are so plentiful that some fishermen are landing 3,000 or 4,000 pounds per trip. Red porgy are described as filling up square miles of the ocean.

"I can sink a boat with the black sea bass I catch in the winter," said one fisherman.

"They've lost their minds," said another. "The porgy are so thick you can't catch anything else out there."

Fishermen also disagree with the shallow- and deep-water assessments, saying fewer people than ever are ocean fishing.

"In the 80s, every ledge you went out to was crowded with boats," said one respondent. "Now you go out and never see a boat. There aren't enough bottom fishermen out there to stress those fish."

Even though the majority of fishermen complained about what they called government ineptitude and red tape, some went even further, saying government officials are much more than just "bumbling paper pushers." Instead, this group believes the federal government is outright conspiring against them.

Questionable data combined with endless rule changes has led many to conclude that the government plans to eliminate commercial fishing altogether, using over regulation as its method of attack.

"The feds keep trying to get information about what fishermen specifically target so they can further restrict that species," one fisherman said. "They can't

get it into their heads that we don't target any one species. We fish the bottom and troll on top at the same time, landing whatever happens to be biting. Anyone who targets one species will quickly go out of business, and putting us out of business is their ultimate goal."

Over the past decade, accumulated actions by the federal government have led to a deep sense of distrust and a fear for their livelihoods, fishermen said. But, unlike the conspiracy theorists, the remaining respondents said the government is simply indifferent to fisheries as a whole.

"The government doesn't care how these regulations affect people and it doesn't care about the fish," said one. "If they cared they would give the rebuilding times longer and make less stringent regulations. But they're using the entire management of fisheries—size limits, closures, MPAs; using all the tools combined instead of finding out what works.

"They haven't given any of their previous regulations time to work, and now they've taken even more drastic steps. It's all gotten so complicated since they took control in1993."

Size limits. Complaints about the growing number of regulations stopped short of including size limits as an unnecessary restriction. In fact, all 38 people who commented specifically on this issue said size limits are essential for protection of all species. About half of those 38 respondents said size limits are the only restrictions needed, because restricting size is the same as closing an area. Size limits are necessary, but should be combined with closures, catch limits or both, according to the other half of the respondents.

Twice as many people (66.6%) commented on the catch limit issue as those who responded to size limits. Only a few agreed with the proposed 50-pound catch limit for black sea bass and the 50-pound limit now in effect for red porgy.

"Because people are catching so many pinkies, and because they die when you throw them back, people are just chunking them up and using them for grouper bait," said one fisherman. "So, there's not much conservation going on there."

One person suggested using an individual transferable quota (ITQ) as an alternative conservation method. "We're throwing over dead fish all day long just to keep the few that are allowed. We should be allowed to bring in all the dead fish and put them against a quota like they do on the West Coast and Alaska," he said. "That way you can catch your quota at any time of the year and that time would depend on the weather and the market."

Another fisherman said a catch limit should specify a certain number of fish rather than a certain number of pounds because "we don't have scales out there in the ocean."

Only a few respondents approved of a recreational bag limit of one for black sea bass and red porgy.

Closures. While half of those surveyed spoke on the issue of catch limits, 97.3% talked about closures. These respondents gave a variety of reasons for opposing closures for certain species such as: closures place pressure on other species; areas scheduled for closure already are closed one-third of the year due to weather, current, tides, etc.; the proposed closures are too long; too many closures already are in effect; spawning times are in question; and the regulated species need no protection whatsoever.

"They say these closures are based on spawning seasons, but I don't think they are," said one fisherman. "I've caught fish that have roe in them every month, so there is no consistency to the spawning. If they knew the actual time of the spawning, I would agree with a closure."

"It's already at a point where it's just too much work to keep up with all the closures," said another. "People still fish for other species when one is closed. They catch the protected fish as bycatch and those fish will die anyway."

Shifting pressure among species. Because closures and catch limits do little more than switch pressure from one species to another, a solution would seem to be a multi-species management plan, according to 42 respondents. Red porgy restrictions already have placed pressure on snapper, grouper and black sea bass, resulting in the proposed closures of those species. In turn, some respondents say the proposed closures of snapper, grouper, and black sea

bass will put enormous pressure on king mackerel and, to a lesser extent, yellowfin tuna. In addition, some felt the proposed deep-water closure of snowy grouper and tilefish in the summer will force those fishermen into the shallow water fishery in hopes of landing snapper/grouper.

Some respondents explained how the dogfish closure forced fishermen to target croaker, bluefish and trout. Other fishermen said closures will force charter boat fishermen closer inshore to target the smaller fish in the breeding grounds.

"It don't make a lick of sense," said one fisherman. "When they close the shallow water, I'll have to go farther out for the snowies, and when they close the deep water I'll have to go inshore."

"They already took away my flounder and dogfish, now they're closing me out of bottom fishing," said another. "The bottom closures will finish us off."

Economic impacts. In short, the proposed regulations will be devastating to individual fishermen, as well as to the economy of North Carolina, according 72 % of the fishermen who commented either on their own livelihoods, the local economy or both. The regulations will force all fishermen into one fishery, causing a flooded market. A flooded market, combined with a variety of closures, means loss of revenue for fishermen, and for businesses catering to fishermen.

"The closure and catch limit on black sea bass would probably put several thousand people out of business — me for one," said one respondent. "It will kill my commercial fishing business and it will kill my charter business. It will put headboats out of business. And if they do this, North Carolina will be in bad trouble because of losing the tourism business."

Fishermen who commented felt the regulations would be expected to adversely affect tourism, because the proposed recreational bag limit allows keeping only one or two black sea bass. Recreational bag limits covering the remaining snapper/grouper species will range from 1 to 20 fish. But because black sea bass is described as one of the more popular fish caught in the recreational fishery, owners of charter boats say a one fish bag limit is completely

unacceptable. With the current 20-fish bag limit, costs of a recreational fishing trip seem reasonable. The question is, if recreational fishermen are allowed to keep only one fish, some wondered whether those fishermen will continue to pay for fishing trips.

"The fishing people won't want to pay all that money just to keep one fish while throwing back dozens," said one fisherman. "They (SAFMC) won't save enough fish to justify the number of tourists who will quit coming here to go fishing."

Another aspect of the amendments that affects fishermen's livelihoods is the sheer number of red porgy in the water, according to 39 respondents. Fishermen say red porgy restrictions have led to an overabundance of the species. In fact, trying not to catch red porgy is the problem, said the fishermen.

"Because they are the first fish to bite, we meet the 50-pound limit in half a day. The rest of the day is spent trying to get away from red porgy and throwing back dead red porgy. Red porgy caught in deeper water usually is pulled up dead."

Overfishing. While many complained about the overabundance of red porgy some, albeit only 14%, said overfishing is a problem.

"I agree in part with red porgy restrictions, because they were hurting a few years ago," said one. "The pinkies aren't even close to recovering. I've seen a decline in them, but there's no way to keep from catching them. There is no shortage of pinkies, they are just too small. It should be closed another year or 2 to give them time to get bigger."

"Closing the shallow water is a good idea because these species need a break," said another. "The guys are hammering them around here and you don't see them like you did 15 years ago. I used to get 1,000 pounds of gag a day, now I get 200 pounds. Grouper is way overfished. I have to go farther out all the time."

"The sea bass are tremendously stressed because there are too many sea bass trap permits," said still another. "They need to get rid of 90 % of the trap permits."

While most fishermen doubt black sea bass are stressed, many do foresee a problem with overfishing in the future. Either way, 38.5 % of fishermen who are concerned about present or future overfishing of black sea bass say gear restrictions should be mandatory. However, none of the snapper/grouper amendments advise placing gear restrictions on the fishermen. None of the survey respondents suggested that gear restrictions be used in connection with any species other than black sea bass.

Nearly every fisherman who did speak about gear restrictions complained about fish pots. A few placed blame on the trawlers north of Cape Hatteras.

"If they did away with the potters there would be no need for these restrictions," said one fisherman. "They have pots covering square miles of ocean.

"We need to do something quick, especially about the pots. I'm a diver and you should see the traps left out there."

"A person needs to carry the pots back every trip. They think that where their pots are, that's their territory, their section of the ocean, whether they check the pots or not. And there's not enough room for that."

Other possible alternatives to pot restrictions included closing an area for one month only, closing it only in December or January, and restricting trawling north of Cape Hatteras. Trawling for black sea bass is allowed north of Cape Hatteras, but that area is located outside the SAFMC jurisdiction.

Fairness. Fairness complaints were an issue of 15% respondents. Commercial fishermen said an area closed to commercial fishermen should be closed to all fishing, meaning commercial fishing under the recreational bag limit, as well as sport fishing. People fishing under the recreational bag limit, claim to land such a small percentage of fish that the catch has no affect on the fisheries.

"I think the regulations are targeting the wrong group — the hook and liners and the recreational people," said a fisherman who lands using the recreational bag limit. "It's the people with the pots who need to be targeted. Why should we have a limit of only one fish?"

"Recreational bag limits mean nothing because the Marine Patrol doesn't enforce bag limits on the recreational fishermen," said a commercial fisherman. "They bring in over their catch limit and sell it. Why aren't they checking the sports fishermen? They're always catching over their limit and illegally selling. They never check the headboats. And Marine Patrol doesn't mess with the dealers who buy from the recreational fishermen either."

In addition to commercial versus recreational complaints, some commercial fishermen blamed developers for polluting the water and thereby killing fish.

"It's easy to point the finger at commercial fishermen," one respondent said. "They're competing against each other every day. They're never organized. But no one ever looks at development — where the big money is. That's what's killing the fish."

Issues of fairness and law enforcement go hand-in-hand, according to 15 fishermen who voiced concern over illegal actions by fishermen and non-enforcement by state and federal officers.

"There is almost no enforcement at all," said one fisherman. "The NMFS is almost totally useless. More fish is sold illegally than legally. The charter boats and sports fishermen are all selling illegally. And they never check the head boats."

Role of nature in management. While many do see a need for regulations, some bottom fishermen insist regulations are unnecessary, because nature regulates the fisheries.

"We can only fish four months total as it is due to the weather, the current, the tide and the wind," said one. "It really puts a limit on us."

"What they need, as far as statistics, is to have a weather report of all days a person can go ocean fishing. Then they'll realize we can only go out fishing 50% of the year. Sometimes it blows so hard you can't get out. That's enough to keep the species protected."

In addition to commenting on fisheries management issues, respondents talked specifically about SAFMC amendments 12, 13B and 14.

Amendment 12. Amendment 12 took effect in 1999 when emergency action was taken to reduce the harvest of red porgy, otherwise known as pinkies or silvers. At the time, red porgy was classified as overfished by the NMFS. Then, in 2002, a review of the red porgy stock assessment concluded that red porgy remained overfished.

Yet, most respondents dispute the findings about overfished red porgy. Instead fishermen described the red porgy variously as "ravenous" and "Piranha's of the ocean" and said, "There are just as many pinkies as there are leaves on trees." In addition, red porgy restrictions have killed that market. As a result, each time the season reopens, fish houses will pay only about 50 cents a pound for red porgy," fishermen said.

"I ran from them all winter long, threw away a lot and they died because of the deep water," one fisherman said. "I'm paying a dollar a pound in bait to feed the pinkies. I hate the sight of them. I throw back 200 pounds a day."

With 111 of the respondents commenting on Amendment 12's closure from January through April, 10 said it is a good idea, 8 recommended a shorter 60-day closure, and 44 opposed it altogether saying red porgy need no protection. The remaining respondents said red porgy need protection but by size limit alone.

Regarding the catch limit on red porgy, 35 respondents said 50 pounds is too restrictive. The catch limit considered most fair ranged from 100 pounds to 400 pounds. The majority recommended a 200-pound limit.

Although most said a size limit is all that is necessary, a few fishermen said the issue actually is much more complicated.

"It's a difficult fish to protect," said one fisherman. "They eat anything, so you can't go into certain areas. If you catch one, you catch a million and you can't catch anything else. Also, 75% of the ones you bring up will die. Fishermen don't have the time to aerate each one so it will survive. There are just too many."

Amendment 13B – shallow water. The first survey question about Amendment 13B asked for comments about closing the snapper/grouper fishery

either from February to March or from March to April. This would occur the same time as the gag closure, which currently takes place March and April. If adopted, the closure will affect people fishing in the shallow water at a depth of 100 to 200 feet. Of the 76 fishermen who might be affected by this closure 70% were completely opposed. The remaining 30% said a closure would be beneficial to the fishery, but insisted on stipulations. Those stipulations included: the area should be closed to all fishermen — commercial, recreational and sports fishermen; the closure should take effect only during spawning season; and the closure should include all species.

Fishermen who insisted on a closure to all fishermen and all species believe this is the only type of closure that will prevent overfishing.

"It's the unenforceable laws that are causing the decline in fish stocks," said one fisherman. "Like right now, when gag is closed, they still allow people to keep two fish. Because of this, people fish over the limit and can sell them through people with other licenses. No one should be allowed to keep a single fish during a closure."

The majority of shallow-water fishermen are opposed to the closure because they need income during those 60 days. Fishermen are able to catch king mackerel, tuna, dolphin and wahoo in April, but "it's real spotty," they say.

Access to variety of fish is essential, because most fishermen are unable to make a living targeting only one species. Another area of consideration is what impacts these closures place on the market. Upon re-opening the shallow water, fishermen in the entire SAFMC area will immediately start bottom fishing. With the market flooded, fishermen face yet another obstacle to making a living — rock-bottom prices.

Some think a shorter closing in December and January might be acceptable. Because more snapper/grouper are caught during those months, those months are the best times to protect them.

Amendment 13B – deep water. The proposed deep-water closure drew comments from 48 fishermen. As with the proposed shallow-water closure,

10 (20.8%) supported a closure, but only if the closure occurs during spawning season, and only if the closure shuts down all fishermen.

"Every month I catch snowies that have roe in them, so there's no consistency to the spawning season and this is all apparently based on the spawning season," one fisherman said.

Many of the remaining 38 respondents disagreed with the timing of the closure, preferring a closure in the winter months to one in the summer months. During the winter, when the seas are rough, fishermen generally fish the shallow water. During the summer, the water is calm, enabling fishermen to routinely make the six to seven hour trip. Therefore, summer is the safest time to fish for snowy grouper and tilefish.

Besides the safety issue, a summer closure means fishermen will lose three-months income or roughly 20 to 30% of a yearly income, they said. In addition, because few people fish the deep water, fishermen believe a closure is unnecessary.

"I have found only three fishing spots in deep water and that was by blind luck," said one fisherman. "That's just stupid because there aren't enough bottom fishermen out there to stress those fish. The stock is not depleted."

"Out there I'm targeting the beeliners," said another. "But I do bring up a lot of snowies as bycatch and they're already dead when I pull them up. So the mortality rate won't change. The only thing this will affect is the fishermen's ability to make a living."

Still, a few fishermen outright agreed with the closure. "I don't think a two-month closure is asking too much," said one man. "A lot of people will have to bite the bullet to keep the fishery healthy".

Amendment 13B – black sea bass. The black sea bass proposal, by far the most controversial of all the issues, generated responses from 86 (75.4%) fishermen. Of those, 44 adamantly opposed the January through April closure. Another 37 (43%) opposed the closure, but suggested alternatives that might put a stop to overfishing. Alternative measures consisted of limiting the number of pots, further restricting pot sizes, forcing fishermen to bring pots in overnight, and

enforcing a summer, not a winter, closure. Only five fishermen approved of a winter sea bass closure.

Most commercial fishermen target black sea bass during the winter months. Black sea bass migrate to the north when the water turns warm and return to North Carolina in December or January, according to fishermen. As a result, winter is prime time for black sea bass potting. In addition, hook-and-line fishermen target black sea bass in the winter when the water is too rough to fish farther out.

Another concern within the black sea bass proposal is the 50-pound commercial catch limit. Fishermen, who face an enormous expense when targeting this species, variously called the restriction shocking, ridiculous and destructive.

"They're killing us," said one fisherman. "We need to land a minimum of 800 pounds to even justify our expenses, and that would only get us by. Fifty pounds is a joke. That wouldn't even pay for the pots."

Because many commercial fishermen also run charter boats, commercial fishermen equally objected to the proposed recreational bag limit.

"If this passes, 50% of the charter business and 15% of the commercial business will be gone," said one fisherman. "And why? There is no shortage of black sea bass. The number out there is directly proportional to the water temperature, because black bass come from the north."

To sum it up, fishermen say the proposed black sea bass restrictions will hurt North Carolina's economy, adversely affecting commercial fishing, charter boats, headboats, bait and tackle shops, boat repair shops and all tourism businesses such as motels and restaurants

Amendment 14 – MPA (Snowy Wreck). This amendment proposes closing of an area 60 miles out in the ocean off Cape Fear known as the Snowy Wreck drew responses from 66 fishermen. Of that number 51 (77.2%) opposed the idea and 15 (22.7%) agreed. The main reasons for opposing this MPA included no proof the area needs protection, too many areas already closed, no

way to enforce a closure 60 miles from the beach, and the government custom of refusing to return a closed area to the public.

"This is a touchy subject," said one fisherman. "All four places they've selected for MPAs provide a lot of income. A lot of that fish we need economically, so it will hurt us. Why don't they choose an area that doesn't have such an economic impact?"

"We'd be a lot better off making new MPAs, instead of cutting out places where we already catch fish," said another fisherman. "They should make a reef and fish will inhabit that area. They need those new structures to grow. Turn those places into nurseries."

"The feds have figured out everywhere the fish live in abundance and they want to close it," said another. "If they get their way, there won't be any place left to fish in the ocean. An MPA will mean that more fishing will be concentrated into some other area, which will, in turn, become overfished."

The 15 respondents who did favor an MPA basically agree with one fisherman who said, "This might be a good idea. I am, at the very least, in favor of a sanctuary. My concern is that a closed area might stay closed forever, and that some fishermen will be penalized more than others because of the geographical location of an MPA."

User Group Conflicts

The fishermen were given an opportunity to state the frequency with which they had negative experiences with other commercial and recreational fishermen in 2002. The results are shown in table 13.

Table 13. Frequency of negative experiences with other commercial and recreational fishermen during 2002.

	Comme	ercial	Recreational		
	Fisher	men	Fishermen		
	Frequency	Percent	Frequency	Percent	
No Negative Experiences	98	79.7%	88	71.5%	
< 10	17	13.8%	22	17.9%	
10-50	5	4.1%	9	7.3%	
> 50	1	0.8%	2	1.6%	
Negative Experiences Every Day	2,	₃ 1.6%	2	1.6%	

Nearly 80% of the fishermen reported having no conflicts with other fishermen and those who did typically reported fewer than 10 incidents in the past year. Most often conflicts with other commercial fishermen were related to competition for resources such as vertical line fishermen complaining that other fishermen have too many fish pots in the water and catch too many black sea bass.

More fishermen reported conflicts with recreational fishermen than with commercial fishermen, however, the majority (71.5%) reported no conflict incidents. Nearly 18% had fewer than 10 conflicts with recreational fishermen. Most of these conflicts were related to perceived lack of boat handling ability or threats received from recreational fishermen accusing the commercial fishermen of "taking all the fish."

Community Support

The majority of fishermen in this study live in small communities of no more than a few thousand peoples, some in communities of only a few hundred. The notable exception to this is the 21 (16.9%) of respondents who live in Wilmington, NC. Fifteen respondents were from Sneads Ferry (2000 population: 2,248; NC Department of Commerce, 2004) and this represented the next largest group of respondents from any single town. Hampstead (unincorporated and a part of Topsail Township) and Morehead City (2000 population: 7,691) each had 8 respondents and Southport (2000 population: 2,351) had 7 survey respondents. No other community had more than 5 respondents. Most had only 1 or 2 respondents.

All fishermen were asked to rate how important fishing was historically and economically to their community. They were also asked to rate "how much fishermen are respected in their community", and "how much their community supports commercial fishing." All ratings were made on a scale of 1 to 10, with 1 being "no support at all" to 10 being "extremely supportive."

On average, fishermen felt that fishing was very important historically (mean = 8.76) and economically (mean = 7.96) to their community. Ratings were less positive in terms of community respect for commercial fishermen (mean = 6.92) and community support for commercial fishing activities (mean = 6.73). When asked about the community support for commercial fishing activities, some mentioned the different seafood festivals held in their area.

Future Optimism

Fishermen were asked questions to assess their optimism about a future in commercial fishing. They were asked to use a 1 to 10 scale to rate how hard they work now to land the same amount of their targeted species compared to a few years ago. A rating of 5 means that there is no difference. A rating less than 5 means it is getting easier. A rating greater than 5 means it is getting more difficult. The average rating of 7.08 from these respondents indicates that the majority of fishermen feel it is more difficult to land their targeted species compared to a few years ago.

The fishermen were asked directly whether they believe they will be able to make a living in fishing in the future. The average rating was 3.51 on a 10-point scale indicating a slight amount of pessimism.

The fishermen were asked whether they felt they would be fishing 10 years from now. The majority (60.2%) thought they would be. Those who thought they would not be fishing 10 years from now were asked why they believed this to be true. Several said they would be retiring from commercial fishing. A few were going to give up commercial fishing to use their boat for charter trips. Some worried that they would not be able to make enough money from commercial fishing to support their families due to rising costs of being in business while seafood prices were falling. Many others though they would "regulated out" of fishing.

CONCLUSIONS

The North Carolina fishermen who target species in the SAFMC snapper/grouper complex differ in several ways from many other groups of fishermen already surveyed by NC DMF (Cheuvront, 2002; 2003; Diaby, 2000, 2002). These fishermen tend to be more educated and earn more money, but they also tend to have a lot more business related expenses.

Many fishermen agreed that some regulation is necessary for conservation of the fisheries. Fully one-third of all respondents said size limits are essential for protection of all species. On the issue of overfishing, 14% said overfishing of the snapper/grouper species is a problem and 38% believe overfishing of black sea bass either is currently a problem or will become a problem in the near future. Of the 38% concerned about black sea bass overfishing, all said gear restrictions are the answer. Only a few agreed with either the proposed commercial catch limits or the recreational bag limits of black sea bass. And although 70% of shallow-water fishermen opposed closure of that fishery, 30% said a closure, with stipulations, would be beneficial to that fishery. Regarding the deep-water fishery, 80% disagreed and 20% disagreed with stipulations

So, even though fishermen vehemently complained about restrictions and proposed restrictions, many do approve of conservation measures and suggested alternative measures attesting to that fact. Regulations are necessary, but the types of restrictions, combined with the growing number of restrictions are responsible for creating dissension between fishermen and fisheries management, respondents said.

Disagreement over the types of snapper/grouper restrictions led 72% of survey respondents to conclude that the management plan will adversely affect North Carolina's economy. They felt it will hurt commercial as well as recreational fishermen, especially with respect to black sea bass restrictions. Severe recreational limitations will upset the North Carolina tourism industry, directly affecting headboats, charter boats, motels, restaurants, etc. Commercial

restrictions will force fishermen into fewer fisheries, resulting in flooded markets. Flooded markets, in turn, combined with a variety of closures, could mean a limited livelihood for fishermen, and for businesses catering to fishermen.

According to respondents, this worst-case scenario of impending economic downturn is the result of confusing fisheries management practices combined with inadequate communication by government employees. Most fishermen were stunned to learn about the proposed snapper/grouper regulations. Some respondents said the communication problem is caused by SAFMC members who are either inept, unconcerned, or promoting their own agenda — namely putting fishermen out of business.

Granted, the inept government official represents a prevalent stereotype. In this case, however, fishermen from across the board have basically similar types of complaints: inaccurate data collection, the drudgery of log books, refusing to use information collected from log books, switching pressure from one fishery to another, making regulations without regard for disparate geographical locations, convoluted rules, overly complicated and unenforceable rules. In short, federal regulations are as ineffective as they are burdensome, according to most respondents.

The main problems mentioned were switching pressure and inadequate gear restrictions. Because restrictions on one species result in more pressure on another, many fishermen advocate implementation of a multi-species management plan.

A multi-species management might have prevented the chain of events that began with red porgy restrictions. Those restrictions switched pressure to snapper, grouper and black sea bass, resulting in the proposed closures of those species. In turn, the proposed closures of snapper, grouper, and black sea bass could put enormous pressure on king mackerel and, to a lesser extent, yellowfin tuna. In addition, the proposed summer closure of snowy grouper and tile fish will force deep-water fishermen into the shallow water fishery in hopes of landing snapper/grouper.

As for black sea bass, some fishermen believe the problem of overfishing in North Carolina is caused by potters, as well as by the trawlers north of Cape Hatteras. Along with limiting the number of allowable pots, some suggested fishermen should be required to carry their pots back every night. In addition, some felttrawling for black sea bass should be prohibited.

Many survey respondents agreed to elaborate on the issues only after learning that federal law requires fisheries managers to consider socio-economic survey results before deciding on new regulations. But even while devoting a great deal of time explaining their views on fisheries issues, some respondents said it was all a waste of time, because no one takes their responses seriously.

As one fisherman put it, "They are going to do what they want to do no matter what. The public meetings are just a formality to make it legal. I don't trust anyone...The bottom line is, we just don't need more regulation."

In spite of the pessimism noted in many of the comments made by the fishermen, the majority does feel they will continue as commercial fishermen for at least the next 10 years.

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APPENDIX A

Snapper Grouper Survey

Die	d you land snappers, groupers, porgies or black sea bass in 2002? □ No □ Yes
	(If "No", tell the fisherman that this survey is only for people who targeted at least one of those species. End Survey.
1.	How many years have you been a commercial fisherman?
2.	Besides a commercial fishing license, do you also hold a dealer's license?
	(If "Yes", tell the fisherman that these initial questions only relate to the part of their business related to fishing.)
6	Compare yourself to other fishermen using a scale of 1 to 10. With 1 being fnot at all successful as a commercial fisherman" to 10 being "no one has more success than I do", how successful do you think you are?
6.	In a typical year, what species do you target in each month?
	□ January
	□ February
	□ March
	□ April
	□ May
	□ June
	□ July
	□ August
	□ September
	□ October
	□ November
	□ December

15. Which gears did you use in 2002 in the ocean.16. What species did you target in 2002 in the ocean (Copy from above or ask to clarify)

clarify.)		
Gears	Targeted Species	Percent of total commercial fishing income in 2002
		%
		%
		%
		%
		%
		%

100 % Total

		Total	100 /
7.	Have you had to change the species you target becauregulations? (This question is not specific to fishing in to Specific to Fishing in the Species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you target becaute you had to change the species you had to change the you had to change the species you had to change the your had to change the species you had to change the your had to ch	•	s in
	If "Yes", record any comments		
FI	SHERY PARTICIPATION		
8.	What is the ownership type that best describes your fis ☐ Sole Owner ☐ Partnership ☐ Corporation	hing operation	n?
	How many vessels do you own that are registered for ι fishing operation? How many vessels?	ıse in your oc	ean

Fill this out starting with the vessel used most often for ocean fishing.

Years Market Value Crew Operator
Owned (incl. all gear) Length Size* Status**

 Vessel #1
 1 2 3

 Vessel #2
 1 2 3

 Vessel #3
 1 2 3

 Vessel #4
 1 2 3

** 1. Captain/Owner 2. Hired Captain 3. Other

10. What percent of your fishing activities occur in

	Vessel 1	Vessel 2	Vessel 3	Vessel 4
State waters <u>south</u> of Cape Hatteras				
Federal waters <u>south</u> of Cape Hatteras				
State waters <u>north</u> of Cape Hatteras				
Federal waters <u>north</u> of Cape Hatteras				
Inside waters				
Out-of-state waters Total	100%	100%	100%	100%

^{*} Include the captain (Minimum crew size for every vessel is 1.)

OPERATING EXPENSES

11. Please provide the average operating expense for **an average snapper grouper fishing trip in 2002** (for the vessel you use the most). Round off your answers to the nearest dollar.

Expense categories for vessel that is used the most
Fuel and oil
Ice
Groceries
Bait
Other

12.Do you use a share system to pay the crew and captain of the $^{ m v}$	vessel you use
the most when you are targeting snappers/groupers?	

□ No → How do you pay the captain and crew?	
(Skip to Question 13)	

☐ Yes → Which of the following expenses were subtracted from your gross revenues before calculating the crew and captain's shares?

	Deducted	Not Deducted	N/A
Fuel and oil	1	2	99
Bait	1	2	99
Ice	1	2	99
Groceries	1	2	99
Other	1	2	99

What percentage of the net share (gross total revenues minus the expenses

Describe other

Boat share:	%	Captain's share:	%	Crew's share:	%

indicated above) goes to

13. Total expenditures for 2002 for the vessel used the most when you catch snapper/groupers.

Expense Category	
Labor - Capt. & crew (not in your household)	
Payments to people in your household	
Licenses, Permits, Leases	
Start up (only 2002)	
Vessel loan payments	
Vessel/Gear Repairs	
Docking fees	
New Gear/Equipment	
Insurance	
Other Professional Expenditures/Fees	

4.	What	percer	itage of	f your	total	indivi	dual	incor	ne d	o you	earn	from	comn	nercial
1	fishing	(that is	, sale d	of fish	taker	า with	com	merc	ial fi	shing	gear)?		
											%	(0 -	100%)

14a. What percent of your fishing income did you earn from fishing in the ocean? ____%

If the answer to question #4 above is anything other than 100%, ask the following question:

5. What other kinds of work do you do to earn income other than commercial fishing?

	nly profit, that is, aft		vear just from fishing, tell me expenses associated with
Read these numb	\$5,000 \$15,000 \$30,000 \$50,000 \$75,000 \$100,000	Mark here: \$100,000	1. \$0 or lost money 2. \$1 - \$5,000 3. \$5,001 - \$15,000 4. \$15,001 - \$30,000 6. \$30,001 - \$50,000 7. \$50,001 - \$75,000 8. \$75,001 - \$100,000 9. > \$100,000 99. Refused
 Recreat Federal This fish 	nappers and/or grou ional bag limit 225-lb. nontransfer transferable permit nerman only works a and snappers and/o	able permit	the er on snapper grouper trips
□ I don't ha □ Snapper □ Spanish □ King Mad	Mackerel Ekerel Indorsement for King In Dister	in fishing permit	
			re contained in Amendment agement Plan (FMP)?
□ No → ski □ Yes	p to question 23		
		, ,	ree" to 10 being "extremely with the following statement
20. I agree with	n Amendment 12's r	estriction of red	porgy harvest.

14. I'm going to read some numbers. When I reach a number **equal to or**

(Details: Closed season from Jan-Apr. Rest of the year: 50-lb. bycatch/trip

limit.)

21.Do you think that Red Porgy Needs Protection? □ No □ Yes (If "Yes" answer the following question)				
22. What would you suggest be done to protect red porgy?				
Comments about Amendment 12				
23. Are you aware that the South Atlantic Marine Fisheries Council (SAMFC) is preparing Amendment 13 involving seasonal and area closures and additional bag and size limits? (Refer to the note sheet for details.) □ No □ Yes				
Comments about Amendment 13				
24. Are you aware that the South Atlantic Marine Fisheries Council (SAMFC) is considering Amendment 14 involving dealing with Marine Protected Areas (MPA's)? □ No □ Yes (Refer to the note sheet for details.)				
Comments about Amendment 14				
Demographic Questions 25. How old are you?				
25a. (<i>Don't ask, just mark</i>) □ Male □ Female				
26. What do you consider to be your ethnic background? □ Hispanic/Latino (all races) □ White/Caucasian □ African-American/Black				
27. What was the highest grade you completed in school? □ Less than high school diploma □ Some college/technical school □ High school diploma □ College diploma (or more)				

28. What is your marital st ☐ Currently married ☐ Divorced		□ Widowed □ Never marri	•	
29. How many people live as students away at school business or vacation, etc., somewhere else.)	ol, someone in th	ne hospital, o	r currently away on	
30. How many people do y household? (e.g. your parents, student parent)	-		•	
31. Of the people who live part time in some aspect of	•	•		
32. What is the total incom	ne of everyone v	vho lives in y	our household?	
Read these numbers:	\$15,000 N \$30,000 \$50,000 \$75,000 \$100,000 More than \$10	0,000	1. ≤ \$15,000 2. \$15,001 - \$30,000 3. \$30,001 - \$50,000 4. \$50,001 - \$75,000 5. \$75,001 - \$100,000 6. > \$100,000 99. Refused	
33. What is the name of the	ne community/to	wn/city where	e you live?	
34. Which county is that ir	າ?			
35.How many years have	you lived in this	county?		
OPINIONS ABOUT COM	MERCIAL FISHI	NG		
36. Do you think you will b ☐ Yes	oe a commercial s □ No (w	fisherman 10 vhy?	years from now?	
Use a scale of 1 to 10, wit how much you agree or di			ing "extremely" and tell me wing statements.	
37. I believe I will be able	to make a living	in fishing in	the future.	
38. Commercial fishing is important <u>economically</u> in my community.				

39. Commercial fishing has an important role	in the history of my community
40. Commercial fishermen are respected in m	y community.
41. My community actively supports commerc seafood festivals, memorials to fishermen lost etc.	
Other community support activities	
42. I have to work harder now to land the sam years ago. (If you think there is no difference,	
In the last year, how many times have you had	d negative experiences:
43. with other commercial fishermen	# x's (explain,)
44. with recreational fishermen	# x's (explain,)
45. involving federal regulations	# x's (explain,)
46. involving state regulations	# x's (explain,)
Use the scale of 1 to 10 and tell me how impoissues to your fishing business. 1 means "it's and 10 means "it's extremely important or it af	not important or doesn't affect me"
47 Overfishing	
48 Local competition	
49 Outside competition	
50. — Environmental regulation	
51 Keeping up with proclamation	s or changes in rules
52 Gear Restrictions	

53	Areas off limits to fishing	
54. ——	Seasonal/area closures	
55	Bag limits	
55A	Size limits	
56	Quotas	
57	Federal regulations	
57A	State regulations	
58	Seafood prices	
59.	Imported seafood	
60.	Initial start up costs	
61. ——	Obtaining financing for repair/replacement of equipment	
62	The costs of doing business (business taxes, licenses, etc.)	
63	Record keeping or other paperwork	
64	Crew or other labor issues	
65	Respect for commercial fishermen	
66	Weather	
67. ——	Predicting the future for your fishing business	
68. Use a scale of 1 to 10 again. This time the scale ranges from 1 meaning "n		

68. Use a scale of 1 to 10 again. This time the scale ranges from 1 meaning "not at all likely" to 10 meaning "extremely likely". If a young person came to you and said they wanted to be a commercial fisherman, how likely is it that you would recommend being a fisherman?
