

2003 Summer Flounder, Scup, and
Black Sea Bass Specifications
Environmental Assessment
Regulatory Impact Review and
Initial Regulatory Flexibility Analysis
Essential Fish Habitat Assessment

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TABLE OF CONTENTS

ENVIRONMENTAL ASSESSMENT	1
1.0 Annual Specification Process	1
1.2 Purpose and Need	3
1.3 Management Objectives of the FMP	3
2.0 Methods of Analysis	3
3.0 Alternatives Being Considered	5
3.1 Alternative 1 (Preferred)	5
3.1.1 Summer Flounder	5
3.1.2 Scup	6
3.1.3 Black Sea Bass	8
3.2 Alternative 2 (Most Restrictive)	9
3.3 Alternative 3 (Least Restrictive)	10
3.4 No Action Alternative	11
3.5 Research Set-aside Program	12
4.0 Affected Environment	12
4.1 Description of the Physical Environment	12
4.2 Human Environment	12
4.2.1 Port and Community Description	12
4.2.2 Analysis of Permit Data/Human Environment	14
5.0 Description of Fisheries	19
5.1 Summer Flounder	19
5.1.1 Status of the Stock	20
5.1.2 Stock Characteristics and Ecological Relationships	20
5.1.3 Economic and Social Environment	22
5.1.4 Description of the areas fished	23
5.2 Scup	24
5.2.1 Status of the stock	24
5.2.2 Stock Characteristics and Ecological Relationships	25
5.2.3 Economic and Social Environment	26
5.2.4 Description of the areas fished	26
5.3 Black Sea Bass	26
5.3.1 Status of the Stock	27
5.3.2 Stock Characteristics and Ecological Relationships	28
5.3.3 Economic and Social Environment	28
5.3.4 Description of the areas fished	28
6.0 Environmental Consequences and Preliminary Regulatory Economic Evaluation (PREE) of Alternatives	28
6.1 Alternative 1 (Preferred)	29
6.1.1 Biological Impacts	29
6.1.2 Socioeconomic Impacts	35
6.1.3 EFH Impacts	43
6.1.4 Protected Resources Impacts	45
6.2 Alternative 2 (Most Restrictive)	47
6.2.1 Biological Impacts	47
6.2.2 Socioeconomic Impacts	51
6.2.3 EFH Impacts	57
6.2.4 Protected Resources Impacts	58
6.3 Alternative 3 (Least Restrictive)	59
6.3.1 Biological Impacts	59
6.3.2 Socioeconomic Impacts	61
6.3.3 EFH Impacts	64
6.3.4 Protected Resources Impacts	65

6.4	Research Set-aside	66
6.4.1	Summer Flounder	66
6.4.2	Scup	67
6.4.3	Black Sea Bass	69
6.4.4	GRAs for Scup, Black Sea Bass, and <i>Loligo</i>	71
6.6	Cumulative Impacts of Preferred Alternative	72
7.0	Essential Fish Habitat Assessment	75
8.0	List of agencies and persons consulted in formulating the action	76
9.0	List of preparers of the environmental assessment	76
10.0	Finding of no significant environmental impact	76
REGULATORY IMPACT REVIEW/INITIAL REGULATORY FLEXIBILITY ANALYSIS		79
1.0	INTRODUCTION	79
2.0	EVALUATION OF E.O. 12866 SIGNIFICANCE	79
2.1	Description of the Management Objectives	79
2.2	Description of the Fishery	79
2.3	A Statement of the Problem	79
2.4	A Description of Each Alternative	79
2.5	The Economic Effects of the Summer Flounder, Scup, and Black Sea Bass Effort Reductions	80
2.6	Analysis of Alternatives	81
2.6.1	Quota Alternative 1 (Preferred)	82
2.6.2	Quota Alternative 2 (Most Restrictive)	83
2.6.3	Quota Alternative 3 (Least Restrictive)	84
3.0	INITIAL REGULATORY FLEXIBILITY ANALYSIS	89
3.1	Introduction and Methods	89
4.0	DESCRIPTION OF QUOTA ALTERNATIVES	94
5.0	ANALYSES OF IMPACTS OF ALTERNATIVES	95
5.1	Quota Alternative 1	95
5.1.1	Commercial Impacts	96
5.1.2	Recreational Impacts	97
5.1.3	Summary of Impacts	103
5.2	Quota Alternative 2 (Most Restrictive)	105
5.2.1	Commercial Impacts	105
5.2.2	Recreational Impacts	107
5.2.3	Summary of Impacts	108
5.3	Quota Alternative 3 (Least Restrictive)	109
5.3.1	Commercial Impacts	109
5.3.2	Recreational Impacts	110
5.3.3	Summary of Impacts	111
6.0	OTHER IMPACTS	112
6.1	County Impacts	112
7.0	REFERENCES	115

ENVIRONMENTAL ASSESSMENT

1.0 Annual Specification Process

The purpose of this document is to examine the impacts to the environment that would result from the implementation of the 2003 management measures recommended for the summer flounder, scup, and black sea bass fisheries. These measures include harvest limits (commercial and recreational) and other measures to ensure that the annual fishing targets specified in the Fishery Management Plan for the Summer Flounder, Scup, and Black Sea Bass fisheries (FMP) are attained.

The management regime is detailed in the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP) and subsequent Amendments to the FMP. Comprehensive measures enacted by Amendment 2 and modified in Amendments 3 through 7 and 10 were designed to rebuild the severely depleted summer flounder stock. Amendments 8 and 9 to the Summer Flounder, Scup and Black Sea Bass FMP implemented recovery strategies to rebuild the scup and black sea bass stocks, respectively. The FMP specifies for summer flounder a target F for 2003 of F_{MAX} (the level of fishing that produces maximum yield per recruit). Best available data indicate that F_{MAX} is currently equal to 0.26. The target is attained by specification of the total allowable landings (TAL) allocated to the commercial (60 percent) and the recreational (40 percent) sectors. The commercial sector's quota is allocated to the coastal states based on percentage shares specified in the FMP.

The FMP established a target exploitation rate for scup in 2003 of 21 percent. The total allowable catch (TAC) associated with that rate is allocated 78 percent to the commercial sector and 22 percent to the recreational sector. Discard estimates are deducted from both TACs to establish TALs for both sectors. The commercial TAL is allocated to three different periods.

The FMP specifies a target exploitation rate of 25 percent for black sea bass in 2003. This target is to be attained through specification of a TAL level that is allocated to the commercial (49 percent) and recreational (51 percent) fisheries. Currently the commercial quota is specified on a coastwide basis by quarter. Under Amendment 13, approved by the Council and Commission June 12, 2002 and submitted to NMFS August 20, 2002, a federal coastwide quota will be implemented to facilitate a state by state quota system administered by the Commission. If Amendment 13 is not approved by January 1, 2003 the current quarterly system will remain in effect for Federal permit holders.

The FMP established Monitoring Committees which meet annually to review the best available scientific data and make recommendations regarding the TALs and other management measures in the plan. The Committee's recommendations are made to achieve the target fishing mortality or exploitation rates established in the amendments to reduce overfishing. The Committee bases its recommendations on the following information: (1) commercial and recreational catch data; (2) current estimates of fishing mortality; (3) stock status; (4) recent estimates of recruitment; (5) virtual population analysis (VPA); (6) target mortality levels; (7) levels of regulatory noncompliance by fishers or individual states; (8) impact of fish size and net mesh regulations; (9) sea sampling data; (10) impact of gear other than otter trawls on the mortality of each species; and (11) other relevant information.

Based on the recommendations of the Monitoring Committee, the Mid-Atlantic Council's Demersal Species Committee makes a recommendation to the Council which in turn makes a recommendation to the Regional Administrator. The

Regional Administrator reviews the recommendation and may revise it if necessary to achieve FMP objectives. In addition, because the FMP is a joint plan with the Commission, the Commission's Summer Flounder, Scup and Black Sea Bass Board (Board) adopts complementary measures. The Council met jointly with the Board and adopted recommended measures at the August 2002, meeting.

1.1 Introduction

The management measures contained in the Summer Flounder, Scup, and Black Sea Bass FMP are intended to address the overfished condition of these stocks. The summer flounder measures are based on a management plan originally drafted by the State/Federal Summer Flounder Management Program pursuant to a contract between the New Jersey Division of Fish, Game, and Wildlife, and the National Marine Fisheries Service (NMFS). The State/Federal draft was adopted by the Atlantic States Marine Fisheries Commission (Commission) in 1982. The Mid-Atlantic Fishery Management Council (Council) adopted the FMP in April 1988 and NMFS approved it in September 1988. The FMP has been amended several times since its initial implementation. Amendment 2 enacted management measures for the summer flounder fishery through final regulations implemented on December 4, 1992 (57 FR 57358). Amendment 8 enacted management measures for the scup fishery north of Cape Hatteras Light through final regulations implemented on September 23, 1996 (61 FR 43420). Amendment 9 enacted management measures for the black sea bass fishery north of Cape Hatteras Light through final regulations implemented on December 16, 1996 (61 FR 58461). Each of these amendments enacted comprehensive management measures to attain annual fishing targets and address overfishing. Each of the amendments was adopted jointly by the Council and the Commission, so state regulatory actions complement federal management actions. Amendment 13, which was submitted to NMFS on August 20, 2002, revises the quarterly commercial quota system for black sea bass implemented in Amendment 9; removes permit restrictions for fishermen that have both a Northeast Region Black Sea Bass (NER BSB) permit and a Southeast Region Snapper/Grouper (SER S/G) permit and fish for black sea bass north and south of Cape Hatteras, North Carolina; and brings the FMP into compliance with the EFH provisions of the Sustainable Fisheries Act (SFA) [Section 303(a)(7)].

Framework 1 to the Summer Flounder, Scup, and Black Sea Bass FMP, which was approved by NMFS on August 10, 2001, established a procedure through which research set-aside amounts up to 3-percent would be set annually as part of Council's quota-setting process. The intent of the program is to support the collection of new information that will benefit both the commercial and recreational fisheries for these species. Collaborative efforts between the public, research institutions, and the government will be subsidized by a percentage set-aside from the total allowable landings (TAL) of selected species, including summer flounder, scup, and black sea bass, under management by the Mid-Atlantic Council.

On February 14, 2002 [FR Vol. 67 No. 31 pp. 6877-6882] NMFS implemented new quota counting procedures for summer flounder, scup, and black sea bass. During November of a given year, all available landings data for January 1 - October 31 (September 30 for black sea bass) of that year will be compiled and compared to that year's quota. Any overages will be determined and deducted appropriately from the upcoming fishing year's quota, e.g., by state for summer flounder, period for scup, or quarter for black sea bass. If any overage deductions are necessary as a result of landings made during November - December, or as a result of late data submitted for January 1 - October 31, those overages will be applied to the quota allocations for the next fishing year. Any landings will be compiled for November and December for scup and

October - December for black sea bass will be compiled by June 30 of that year and compared to the Winter II quota for scup or Quarter 4 quota for black sea bass. Any overages will be determined and the required deductions will be made to the respective periods of the current fishing year.

1.2 Purpose and Need

The purpose of this document is to examine the impacts to the environment that would result from the implementation of the 2003 management measures recommended for the summer flounder, scup, and black sea bass fisheries. These measures include harvest limits (commercial and recreational) and other measures to ensure that the annual fishing targets specified in the Fishery Management Plan for the Summer Flounder, Scup, and Black Sea Bass fisheries (FMP) are attained.

1.3 Management Objectives of the FMP

The management objectives of the FMP are as follows:

- 1) reduce fishing mortality in the summer flounder, scup and black sea bass fisheries to ensure that overfishing does not occur;
- 2) reduce fishing mortality on immature summer flounder, scup, and black sea bass to increase spawning stock biomass;
- 3) improve the yield from the fishery;
- 4) promote compatible management regulations between state and federal jurisdictions;
- 5) promote uniform and effective enforcement of regulations;
- 6) minimize regulations to achieve the management objectives stated above.

To attain these management objectives the FMP specifies the following measures may be specified annually:

- * commercial quotas;
- * minimum sizes;
- * gear regulations;
- * recreational harvest limit;
- * recreational possession limit, season, and no-sale provision.

2.0 Methods of Analysis

The basic approach adopted in this analysis is an assessment of the impact of the various management measures on the environment. In order to conduct a more complete analysis, a preliminary adjusted quota was calculated by deducting the research set-aside from the TAL. Preliminary commercial quota overages for the 2002 fishing year will also be deducted from the initial quota alternatives (Table 1). The current quota overages were calculated according to the quota counting procedures outlined in section 1.1, using the best available data. The preliminary adjusted commercial quota impacts were examined for three alternatives (Table 2). The preferred alternative examines the measures adopted by the Council and the Board for 2003. The second alternative examines the impacts of the lowest quotas (most restrictive alternative). The third alternative examines the highest quotas (least restrictive alternative) considered by the Council and Board. A full description of these alternatives, including a discussion of a no action alternative, is given in section 3.0.

Table 1. Comparison (in million lb) of the alternatives of quota combinations reviewed. "FLK" is summer flounder.

	2003 Initial TAL	2003 Research Set-Aside	2003 Commercial Quota Overage	2003 Preliminary Adjusted Commercial Quota*	2003 Preliminary Recreational Harvest Limit
Quota Alternative 1 (Preferred)					
FLK Preferred Alternative	23.30	0.09	0.06	13.87	9.28
Scup Preferred Alternative	16.50	0.07	0.00	12.42	4.01
Black Sea Bass Preferred Alternative (Status quo)	6.80	0.07	0.17	3.13	3.43
Quota Alternative 2 (Most Restrictive)					
FLK Non-Selected Alternative 2	21.50	0.09	0.06	12.79	8.56
Scup Non-Selected Alternative 2 (Status Quo)	10.77	0.07	0.00	7.95	2.75
Black Sea Bass Non-Selected Alternative 2	4.60	0.07	0.17	2.05	2.31
Quota Alternative 3 (Least Restrictive)					
FLK Non-Selected Alternative 3 (Status Quo)	24.30	0.09	0.06	14.47	9.68
Scup Non-Selected Alternative 3	22.00	0.07	0.00	16.71	5.22
Black Sea Bass Non-Selected Alternative 3	7.20	0.07	0.17	3.32	3.64

* Note that preliminary quotas are provisional and may change to account for overages according to the quota counting procedures outlined in Section 1.1.

Table 2. Comparison (in lb) of the alternatives of quota combinations reviewed. "FLK" is summer flounder.

	2003 Preliminary Adjusted Commercial Quota*	Percent of 2001 Landings	Percent Change
Quota Alternative 1 (Preferred)			
FLK Preferred Alternative	13.87	119.16	19.16
Scup Preferred Alternative	12.42	314.43	214.43
Black Sea Bass Preferred Alternative (Status quo)	3.13	113.00	13.00
Quota Alternative 2 (Most Restrictive)			

FLK Non-Selected Alternative 2	12.79	109.88	9.88
Scup Non-Selected Alternative 2 (Status Quo)	7.95	201.27	101.27
Black Sea Bass Non- Selected Alternative 2	2.05	74.01	-25.99
Quota Alternative 3 (Least Restrictive)			
FLK Non-Selected Alternative 3 (Status Quo)	14.47	124.31	24.31
Scup Non-Selected Alternative 3	16.71	423.04	323.04
Black Sea Bass Non- Selected Alternative 3	3.32	120.22	20.22

* Note that preliminary quotas are provisional and will be adjusted in November 2002 to account for overages according to the quota counting procedures outlined in Section 1.1.

3.0 Alternatives Being Considered

3.1 Alternative 1 (Preferred)

3.1.1 Summer Flounder

Alternative 1 analyzes the impacts of the harvest limits recommended by the Council and Board (adjusted according to section 2.0) on vessels that are permitted to catch any of the three species. The Council and Board recommended a TAL of 23.3 million lb (10.57 million kg) for 2003 for summer flounder. The recommended coastwide TAL for 2003 for summer flounder of 23.3 million lb (10.57 million kg) has a 50 percent probability of achieving the target F of 0.26 in 2003, given the latest stock assessment. The Council approved a research set-aside for summer flounder of 91,163 pounds (41,350 kg), which would be deducted from the TAL. After the research set-aside is deducted from the TAL, the TAL is divided between the commercial and recreational components of the fishery in the same proportion as it was each year from 1993 to 2002, 60 percent to the commercial fishery and 40 percent to the recreational fishery. In 2003, the commercial fishery would receive 13.93 million lb (6.32 million kg) as a quota, and the recreational fishery would receive 9.28 million lb (4.21 million kg) as a harvest limit.

The summer flounder commercial quota is allocated to each state based on 1980-1989 adjusted landings as detailed in Amendment 4 of the FMP. State shares would range from negative quotas to 3.82 million lb (Table 3). The quotas presented in Table 3 account for preliminary overages (as of September 5, 2002) of 0.05 million lb in Delaware and 0.01 million lb in Maine, and result in a preliminary adjusted coastwide quota of 13.87 million lb (6.29 million kg). The commercial quota and state shares are provisional and would be adjusted in early 2003 to reflect noncompliance by the states, i.e., additional 2002 quota excesses would be deducted from the 2003 quota allocation.

Table 3. The amount of summer flounder allocated to commercial fisheries in each state based on coastwide quota alternatives and a research set-aside of 0.09 million lb in 2003. Allocations account for overages as of September 5, 2002.

State	Percent	Quota Allocation (lb)		
		Alt. 1	Alt. 2	Alt. 3
ME	0.0476	(6,342)	(6,852)	(6,057)
NH	0.0005	70	64	73
MA	6.8205	950,096	877,116	991,019
RI	15.683	2,184,642	2,016,834	2,278,740
CT	2.2571	314,414	290,263	327,957
NY	7.647	1,065,227	983,404	1,111,109
NJ	16.725	2,329,793	2,150,835	2,430,143
DE	0.0178	(46,433)	(46,624)	(46,327)
MD	2.0391	284,047	262,228	296,281
VA	21.3168	2,969,430	2,741,340	3,097,331
NC	27.4458	3,823,200	3,529,530	3,987,875
Total	100.0000	13,868,142	12,798,140	14,468,143

In 1998 the Council and Board established a system whereby 15 percent of each state's quota for summer flounder would be set-aside to reduce discards after the closure of the directed commercial fishery and allow for summer flounder landings to continue throughout the fishing season. This program would continue in 2003. In order for fishermen to land the incidental catch allowance in a state, the Commission recommended that a state implement possession limits such that summer flounder on board cannot exceed 10 percent of other species on board for any trip set under the incidental catch allocation. Possession limits must be sufficiently restrictive to allow the incidental catch fishery to remain open for the entire year without exceeding the state's overall quota. In addition, the Commission recommended that states implement programs to collect additional data on discards in the commercial fishery.

3.1.2 Scup

The preferred alternative for scup would set the scup TAL at 16.5 million lb (7.48 million kg) for 2003. This TAL recommendation is based on the condition of the stock relative to the biological reference point. Specifically, given that the stock is no longer overfished (i.e., the biomass is in excess of the biomass threshold) indicates that the biomass may be at or larger than $\frac{1}{2} B_{MSY}$. Although MSY has not been calculated for scup, the average long-term landings can be used as a surrogate. Based on landings data, the NEFSC derived a long term potential catch (LTPC) for scup that ranged from 22-33 million lb (9.97 to 14.97 million kg). These estimates would represent the landings that could be taken from the stock once it was rebuilt to B_{MSY} levels. As such, yields at $\frac{1}{2} B_{MSY}$ could range from 11 to 16.5 million lb (4.99 to 7.48 million kg).

Estimated discards were added to the TAL to derive a TAC of 18.65 million lbs. The TAC is allocated to the commercial and recreational fisheries based on the proportions of commercial and recreational catch (landings plus discards) for the years 1988-1992. Based on this data, 78 percent of the TAC is allocated to the commercial fishery and 22 percent to the recreational fishery. The commercial TAC for 2003 is 14.55 million lb (6.60 million kg) and the recreational TAC is 4.10 million lb (1.86 million kg). Discard estimates are deducted from these TACs to set a TAL for the commercial and recreational sectors. The commercial TAL is a quota; and the recreational TAL is a harvest limit. Both are shown below.

	Commercial (million lb)	Recreational (million lb)
TAC:	14.55 (6.60 million kg)	4.10 (1.86 million kg)

Less Discard Estimate:	2.08	(0.94 million kg)	0.07	(0.03 million kg)
Initial TAL:	12.47	(5.66 million kg)	4.03	(1.83 million kg)

As such, the initial commercial TAL would be 12.47 million lb (5.66 million kg) and initial the recreational harvest limit would be 4.03 million lb (1.83 million kg) for 2003. Additionally, the Council approved a research set-aside for scup of 66,650 pounds (30,232 kg), which would be deducted from the TAL. This would result in a preliminary adjusted commercial quota of 12.42 million lb (5.63 million kg) and an adjusted recreational harvest limit of 4.01 million lb (1.82 million kg). The commercial quota would also be adjusted for overages by period, according to the quota counting procedures outlined in section 1.1. However, as of September 5, 2002 there were no overages by the 2002 commercial scup fishery. The allocation of the commercial quota for each period is presented in Table 4.

Table 4. Scup TAC, discard and quota distribution by period proposed for 2003.

Period	Percent Allocation	Adjusted Quota (million lb)		
		Alt. 1	Alt. 2	Alt. 3
Annual	100.00	12.42	7.95	16.71
Winter I Jan-April	45.11	5.60	3.59	7.54
Summer May-Oct	38.95	4.84	3.10	6.51
Winter II Nov-Dec	15.94	1.98	1.27	2.66

The Council and Board recommended more restrictive possession limits for scup in 2003 as follows: Winter I - 15,000 pounds per week (Sunday through Saturday); and, Winter II - 1,500 pounds per trip. The Council and Board also recommended that the threshold remain at 500 pounds for the winter periods and 100 pounds for the summer period for 2003.

Finally, the Council and Commission also adopted a measure that allows vessels fishing with small mesh and having an escapement extension of 45 meshes of 5.5" square mesh behind the body of the net and ahead of the codend, to fish in the GRAs, while carrying observers onboard consistent with ACCSP standards. The cost of the at-sea observers will be paid by the fishermen wishing to fish in the GRAs with the experimental net.

The ACCSP standards are published in the document titled "Atlantic Coastal Cooperative Statistics Program (ACCSP) Program Design" (ACCSP 2002) in section 8 - "ACCSP Bycatch, Release, and Protected Species Interaction Monitoring." The ACCSP standards relating to the "Quantitative At-Sea Observer Program" (section 8.e) indicate that "all ACCSP at-sea observer programs should be conducted under the overall program goals with regards to protected species interactions, release, and discards of other marine organisms..." Specific goals related to discards include, quantifying discards and obtaining accurate and representative release/discard data that may be used for state and federal programs that:

- * support the goals and objectives of MSFCMA, ACFCMA, and other laws, to minimize release and discard mortality;
- * identify and evaluate fishing gear and practices that minimize or eliminate releases and discards;

- * provide fishermen with fishing opportunities without impacting the objectives of fishery management plans;
- * improve contributions to Councils and ASMFC through a better understanding of releases and discards;
- * and monitor the effectiveness of regulations, gear modifications, fishing practices, and FMPs in achieving conservation objectives.

The standards indicate that "Pilot surveys will be conducted on a fishery by fishery basis to determine the appropriate level of observer coverage required to meet the management objectives." However, the standards refer to the sampling protocol for "Commercial Target Sampling Levels" (section 8.g and Tables 8.g-8.s for a complete list of data requirements) which indicate:

- * A target of 5 percent of total trips, or achieving a 20-30 percent standard error (PSE -a measure of variability) for high priority fisheries, e.g., the squid and butterfish trawl fishery and the scup and black sea bass trawl fishery are high priority fisheries. The target sampling levels must be evaluated annually on a fishery by fishery basis to determine where the variance stabilizes and to meet desired goals.
- * Pilot surveys should be conducted to determine the appropriate level of observer coverage to meet relevant management objectives based upon days at sea or fishing days, until such time as data are available for estimation of PSE.
- * Use of proportional sampling across all gear types and fisheries, recognizing some prioritization as need (statutory requirements) and data (high release/discard areas) dictate.
- * Data should be submitted on the trip level, but collected at the haul level, and include latitude and longitude for each haul. As such, the primary area fished is determined by the observer after the completion of the trip. Area fished is defined as the statistical area and distance from shore where most fishing occurs.
- * Effort data required for trawls include number of trawls used, total tow time, and number of tows.
- * Specific data on gear configuration is required when major changes in are made during a trip.

Since the appropriate level of observer coverage required to meet the 20-30 PSE criteria is unknown, two options will be analyzed under this measure. Because the *Loligo* squid fishery is the predominant small-mesh fishery impacted by the GRAs in the Mid-Atlantic region, two levels of observer coverage will be examined: 1) 5% observer coverage of the small-mesh *Loligo* trips fishing in the GRAs, and 2) 100% observer coverage of the small-mesh *Loligo* trips fishing in the GRAs.

3.1.3 Black Sea Bass

The Council and Board recommended a coastwide TAL of 6.80 million lb (3.084 million kg) for 2003 for black sea bass (status quo). Based on landings data from 1983 to 1992, 49 percent of the TAL is allocated to the commercial fishery as quota and 51 percent is allocated to the recreational fishery as a harvest limit. The Council approved a research set-aside for black sea bass of 67,676 pounds (30,697 kg), which would be deducted from the TAL. As such, the preliminary adjusted commercial quota alternative would be 3.30 million lb (1.50 million kg) and the preliminary recreational harvest would be 3.43 million lb (1.56 million kg). If Amendment 13 is not approved for the 2003 fishing year, the commercial quota will be allocated into four periods based on landings data from 1988-1992. The commercial quota would also be adjusted for overages by quarter, according to the quota counting procedures outlined in section 1.1. The

quarterly allocations would range from 0.38 million lb in Quarter 3 to 1.27 million lb in Quarter 1 (Table 5).

Table 5. The black sea bass possession limits and allocation by quarter for each quota alternative, as proposed for 2003.

Quarter	Percent Allocation	Overage	Adjusted Quota (lb)			Possession Limit (lb)
			Alt. 1	Alt. 2	Alt. 3	
Quarter 1, Jan-Mar	38.64	3,076	1,272,044	854,732	1,349,324	7,000/trip
Quarter 2, Apr-June	29.26	144,263	821,317	505,309	879,837	5,000/trip
Quarter 3, July-Sept	12.33	22,044	384,846	251,682	409,506	5,000/trip
Quarter 4, Oct-Dec	19.77	n/a	652,410	438,894	691,950	5,000/trip
Annual	100.00	169,383	3,130,617	2,050,617	3,330,617	

The Commission has adopted state-specific allocations for 2003. If Amendment 13 is approved by January 1, 2003, a federal coastwide quota will go into effect to facilitate the state-by-state quotas. Until Amendment 13 is implemented, a quarterly system will remain in effect for the federal permit holders. Because state-by-state measures were approved by the Board, and there is the possibility that federal implementation will not occur by January 1, 2003, the Council adopted liberal possession limits so as not to constrain federal permit holders from landing in states with different landings limits. The Council approved possession limits as follows: First Quarter - 7,000 pounds; and Second, Third, and Fourth Quarters - 5,000 pounds per trip. Lacking Amendment 13 implementation by the federal government, the black sea bass fishery will be closed in state and federal waters to federal permit holders, once the quarterly quota is reached.

The current minimum fish size, minimum mesh regulations, minimum mesh threshold, and minimum vent size regulations will remain unchanged in 2003. The minimum fish size is 11 inches; the mesh size is a minimum of 75 meshes of 4.5" diamond mesh in the codend in large nets or at least 4.5" diamond mesh throughout in a small net; the threshold to trigger the minimum mesh size is 500 pounds of black sea bass from January through March and 100 pounds of black sea bass from April through December; the minimum vent sizes are 1 3/8" x 5 3/4" for the rectangular vents, 2 3/8" in diameter for the circular vents, and 2" for square vents.

3.2 Alternative 2 (Most Restrictive)

The most restrictive alternative in 2003 for summer flounder is a TAL of 21.50 million lb (9.75 million kg). This TAL has a 75 percent probability of achieving the target F for summer flounder in 2003. The initial commercial quota would be 12.90 million lb (5.85 million kg) and the initial recreational harvest limit would be 8.60 million lb (3.90 million kg) for summer flounder in 2003. After deducting the research set-aside for summer flounder of 91,163 pounds, the commercial quota would be 12.86 million lb (5.83 million kg) and the recreational harvest limit would be 8.56 million lb (3.88 million kg). State shares would range from negative quotas to 3.53 million lb (Table 3). The quotas presented in Table 3 account for a preliminary overage (as of September 5, 2002) of 0.05 million lb in Delaware and

0.01 million lb in Maine, and result in a preliminary adjusted coastwide quota of 12.80 million lb (5.81 million kg).

The most restrictive alternative considered for scup in 2003 is the status quo measures for scup, which is a TAC of 12.92 million lb (5.86 million kg). Based on this TAC, the initial commercial TAL would be 8.01 million lb (3.63 million kg) and the initial recreational harvest limit would be 2.77 million lb (1.26 million kg) for 2003. After deducting the research set-aside for scup of 66,650 pounds, the preliminary adjusted commercial quota would be 7.95 million lb (3.61 million kg) and the preliminary recreational harvest would be 2.75 million lb (1.25 million kg). The commercial quota would also be adjusted for overages by period, according to the quota counting procedures outlined in section 1.1. However, as of September 5, 2002 there were no overages by the 2002 commercial scup fishery. The allocation of the commercial quota for each period is presented in Table 4.

The most restrictive coastwide TAL for black sea bass is 4.60 million lb (2.09 million kg). This TAL would represent an exploitation rate of 25 percent in 2003 assuming the 2001-2003 spring survey average is equal to the 2000-2002 spring survey estimate. However, this is a conservative estimate considering the magnitude of the 2002 spring survey value (the log-transformed value is the highest in the time series from 1968-2002). After the research set-aside for black sea bass of 67,676 pounds, the preliminary commercial quota would be 2.22 million lb (1.01 million kg) and the preliminary recreational harvest would be 2.31 million lb (1.05 million kg). The commercial quota would also be adjusted for overages by quarter, according to the quota counting procedures outlined in section 1.1. The quarterly allocations would range from 0.25 million lb in Quarter 3 to 0.85 million lb in Quarter 1 (Table 5).

3.3 Alternative 3 (Least Restrictive)

The least restrictive alternative in 2003 for summer flounder is a TAL of 24.30 million lb (11.02 million kg), the status quo TAL for summer flounder. This TAL has about a 40 percent probability of achieving the target F for summer flounder in 2003. The initial commercial quota would be 14.58 million lb (6.61 million kg) and the initial recreational harvest limit would be 9.72 million lb (4.41 million kg). After deducting the Council approved research set-aside for summer flounder of 91,163 pounds, the commercial quota would be 14.53 million lb (6.59 million kg) and the recreational harvest limit would be 9.68 million lb (4.39 million kg). State shares would range from negative quotas to 3.99 million lb (Table 3). The quotas presented in Table 3 account for preliminary overages (as of September 5, 2002) of 0.05 million lb in Delaware and 0.01 million lb in Maine, and result in a preliminary adjusted coastwide quota of 14.47 million lb (6.56 million kg).

The least restrictive alternative considered for scup in 2003 includes a TAC of 22.0 million lb (9.98 million kg). Based on this TAC, the initial commercial TAL would be 15.09 million lb (6.84 million kg) and the initial recreational harvest limit would be 4.77 million lb (2.16 million kg) for 2003. After deducting the research set-aside for scup of 66,650 pounds, the commercial scup quota would be 16.71 million lb (7.58 million kg) and the recreational harvest limit would be 5.22 million lb (2.37 million kg). The commercial quota would also be adjusted for overages by period, according to the quota counting procedures outlined in section 1.1. However, as of September 5, 2002 there were no scup overages by 2002 commercial scup fishery. The allocation of the commercial quota for each period is presented in Table 4.

The least restrictive coastwide TAL for black sea bass is 7.20 million lb (3.27 million kg). This TAL represents an exploitation rate of 25 percent in 2003 if the 2001-2003 spring survey average is derived using a regression through the 1999-2001

values. This would be considered a liberal estimate, given the uncertainty in the survey estimates and the potential uncertainty in previous years' exploitation rates. After the research set-aside for black sea bass of 67,676 lb, the preliminary adjusted commercial quota would be 3.50 million lb (1.59 million kg) and the preliminary recreational harvest would be 3.64 million lb (1.65 million kg). The commercial quota would also be adjusted for overages by quarter according to the quota counting procedures outlined in section 1.1. The quarterly allocations would range from 0.41 million lb in Quarter 3 to 1.35 million lb in Quarter 1 (Table 5).

3.4 No Action Alternative

Section 5.03(b) of NOAA Administrative Order (AO) 216-6, "Environmental review procedures for implementing the National Environmental Policy Act," states that "an EA must consider all reasonable alternatives, including the preferred action and the no action alternative." Consideration of the "no action" alternative is important because it shows what would happen if the proposed action is not taken. Defining exactly what is meant by the "no action" alternative is often difficult. The President's Council on Environment Quality (CEQ) has explained that there are two distinct interpretations of the "no action": One interpretation is essentially the status quo, i.e., no change from the current management, and the other interpretation is when a proposed project, such as building a railroad facility, would not take place. In this case of the proposed 2003 specifications for summer flounder, scup, and black sea bass, determining the no action alternative is slightly more complicated than either of these interpretations suggest.

The status quo management for these fisheries involves a set of indefinite (i.e., in force until otherwise changed) management measures such as minimum allowable sizes, bag limits, and reporting requirements. These measures would continue as is even if the proposed specifications are not implemented. However, the current management program includes specifications of TACs and TALs that are specific to the 2002 fishing year. There are no "roll-over" provisions currently provided for in the FMP. Thus, if the proposed 2003 specifications are not implemented by January 1, 2003, the fisheries would be operated without an identified cap on allowable landings. Because of this subtlety in the management program for summer flounder, scup, and black sea bass, the no action alternative is not simply the status quo (which would include the current TALs). If the action that would result in the setting of the 2003 specifications for these fisheries is not taken, some current measures would remain in place, but the overall management program would not be identical to that of 2002.

For the purposes of this EA, the no action alternative is defined as follows: (1) no proposed specifications for the 2003 summer flounder, scup, and black sea bass fisheries would be published; (2) the indefinite management measures (minimum sizes, bag limits, possession limits, permit and reporting requirements, etc.) would remain unchanged; (3) there would be no quota set-aside allocated to research in 2003; and (4) there would be no specific cap on the allowable annual landings in these fisheries (i.e., there would be no quota). Under the no action alternative, the only regulatory controls on fishing effort and harvests would be the indefinite measures. Quotas, which determine the maximum amount of landings of summer flounder, scup, and black sea bass allowable before the fisheries are shut down, would not be implemented for 2003.

The implications of the no action alternative are substantial. The no action alternative would not allow NMFS to specify and implement TACs and TALs for these fisheries, as required in the regulations at 50 CFR part 648, for the upcoming fishing year. Monitoring the landings, and taking action as necessary to prevent state and federal TACs or TALs from being exceeded, as applicable, is essential for management of these fisheries and forms the backbone of the current management

system under the FMP. Implementation of the no action alternative would be inconsistent with the goals and objectives of the FMP and its implementing regulations. The no action alternative, because it would very likely result in overfishing of summer flounder, scup, and black sea bass (due to NMFS' inability to monitor and enforce the quotas), is also inconsistent with National Standard 1 of the Magnuson-Stevens Act. Because it would be inconsistent with the goals and objectives of the FMP, its implementing regulations, and the Magnuson-Stevens Act, would substantially complicate the approved management program for these fisheries, and would very likely result in overfishing of the resources, the no action alternative is not considered to be a reasonable alternative to the preferred action and is not analyzed further in the EA.

3.5 Research Set-aside Program

As part of the research set-aside program, a number of research projects were submitted to NMFS that would require an exemption from some of the current or proposed regulations for summer flounder, scup, and black sea bass. Under the research set-aside program, the Council, in consultation with the National Marine Fisheries Service Northeast Regional Administrator, and the Commission have recommended five of these research projects (August 5, 2002 letter from Mears to Furlong). In order to expedite the approval and implementation of these research projects, Council staff agreed to analyze the impacts of these exemptions on the environment for inclusion in the specification package for these species.

In the annual specification process for 2003, the Council approved research set-asides equal to the amounts requested in the five projects that were conditionally accepted by NMFS (August 5, 2002 letter from Mears to Furlong). These set-aside amounts would be 91,163 pounds, 66,650 pounds, and 67,676 pounds, for summer flounder, scup, and black sea bass, respectively. These research set-aside amounts will be deducted from the TALs for each species. The commercial quotas will also be adjusted according to the quota counting procedures outlined in section 1.1 (Table 1).

4.0 Affected Environment

4.1 Description of the Physical Environment

A complete description of essential fish habitat (EFH, i.e., the physical environment) for summer flounder, scup, and black sea bass; the impact of fishing on summer flounder, scup, and black sea bass EFH; and the impact of the summer flounder, scup, and black sea bass fisheries on other species' EFH can be found in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP (section 3.2).

4.2 Human Environment

4.2.1 Port and Community Description

The ports and communities that are dependent on summer flounder, scup, and black sea bass are fully described in Amendment 13 (section 3.4).

To examine recent landings patterns among ports, 2001 NMFS weighout data (monthly reports submitted by dealers) are used. The top commercial landings ports for summer flounder, scup, and black sea bass by pounds landed are shown in Table 6. A "top port" is defined as any port that landed at least 100,000 pounds of summer flounder, scup, or black sea bass. Related data for the recreational fisheries are shown in Table 7. However, due to the nature of the recreational database (MRFSS) it is inappropriate to desegregate to less than state levels. Thus port-level recreational data are not shown.

Table 6. Top ports of landing (in pounds) for summer Flounder (FLK), scup (SCP), and black sea bass (BSB), based on NMFS 2001 weighout data. Since this table includes only the "top ports," it may not include all of the landings for the year.

Port	Landings of FLK (lb)	# FLK Vessels	Landings of SCP (lb)	# SCP Vessels	Landings of BSB (lb)	# BSB Vessels
POINT JUDITH, RI	1,279,829	130	752,860	111	262,501	163
WANCHESE, NC	1,056,252	67	0	0	104,121	39
HAMPTON, VA	991,386	43	2,786	9	81,420	32
NEWPORT NEWS, VA	926,622	47	1,114	5	105,138	31
PT. PLEASANT, NJ	628,873	33	197,864	16	70,735	34
CAPE MAY, NJ	625,956	86	799,969	30	439,905	58
BEAUFORT, NC	566,030	25	0	0	50,748	10
CHINCOTEAGUE, VA	541,080	45	49,307	10	115,478	24
BELFORD, NJ	383,227	16	49,895	13	10,223	21
ENGELHARD, NC	338,969	17	0	0	30,978	15
HAMPTON BAY, NY	309,469	74	108,269	59	126,946	64
ORIENTAL, NC	305,292	15	0	0	215	6
MONTAUK, NY	273,191	77	167,437	82	70,182	87
NEW BEDFORD, MA	268,599	129	210,574	29	75,627	30
NEWPORT, RI	209,983	46	264,156	32	56,335	43
EAST HAVEN, CT	175,075	17	93,173	11	14,633	12
OCEAN CITY, MD	166,202	19	C	C	134,388	17
ATLANTIC, NC	138,119	10	C	C	1,775	7
BARNSTABLE, MA	125,032	30	9,057	20	39,003	19
NANTUCKET, MA	105,421	15	0	0	C	C
TIVERTON, RI	105,037	33	40,905	19	9,892	20
LOWLAND, NC	102,018	4	C	C	1,841	4
OTHER DUKES, MA	97,928	21	12,409	18	145,715	22
LITTLE COMPTON, RI	71,556	13	458,752	12	24,771	17
GREENPORT, NY	42,553	16	113,379	11	14,964	10
FREEPORT, NY	26,432	19	141,327	13	20,855	13
VIRGINIA BEACH, VA	7,450	6	206	1	286,439	26

OTHER MASS	2,994	5	137,455	4	114,674	5
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C = Confidential

Table 7. MRFSS preliminary estimates of 2001 recreational harvest (numbers of fish kept) and total catch (numbers of fish) for summer flounder (FLK), scup (SCP) and black sea bass (BSB).

State	FLK Harvest (# of fish kept)	FLK Catch (# of fish caught)	SCP Harvest (# of fish kept)	SCP Catch (# of fish caught)	BSB Harvest (# of fish kept)	BSB Catch (# of fish caught)
NJ	2,070,234	12,413,559	322,088	629,890	1,918,507	6,289,262
VA	1,338,134	5,352,554	470	507	231,368	2,411,569
NY	699,625	5,927,300	1,734,346	3,400,399	164,354	805,530
NC	327,249	331,754	10,024	16,381	175,482	965,663
RI	268,244	660,015	1,134,435	2,208,375	123,128	273,836
CT	152,813	558,404	1,015,860	1,946,977	9,044	25,703
MA	152,132	362,434	880,542	1,712,115	59,472	202,235
DE	145,786	1,196,394	1,055	3,017	202,608	1,205,807
MD	139,392	1,384,551	0	7,624	118,882	2,442,880

4.2.2 Analysis of Permit Data/Human Environment

Federally Permitted Vessels

This analysis estimates that as of July 15, 2002, there were 1,830 vessels with one or more of the following three commercial or recreational Federal Northeast permits: summer flounder (FLK), black sea bass (BSB), and scup (SCP; Table 8). A total of 930, 804, and 745 federal commercial permits for FLK, SCP, and BSB, respectively, had been issued to Northeast region fishing vessels (Table 8). For party/charter operators a total of 644, 552, and 593 Federal permits were issued for FLK, SCP, and BSB, respectively (Table 8).

These three fisheries (FLK, SCP, and BSB) have vessels permitted as commercial, recreational, or both. Of the 1,830 vessels with at least one Federal permit there were 1,130 that held only commercial permits for FLK, SCP, or BSB while there were 586 vessels that held only a recreational permit. The remaining vessels (106) held some combination of recreational and commercial permits (Table 8). Whether engaged in a commercial or recreational fishing activity vessels may hold any one of seven combinations of FLK, SCP, and BSB permits. The total number of vessels holding any one of these possible combinations of permits by species and commercial or recreational status are reported in Table 8.

Table 8. Summary of number of vessels holding federal commercial and/or recreational permit combinations for summer flounder (FLK), scup (SCP) and black sea bass (BSB).

Comm. Permit Combinations	Recreational Permit Combinations								Row Total
	No Rec. Permit	FLK Only	SCP Only	FLK/Scup	BSB Only	FLK/BSB	SCP/BSB	FLK/SCP/BSB	
No Comm. Permit	0	45	12	26	10	62	25	406	586
FLK Only	304	3	3	1	1	1	0	11	324
SCP Only	60	1	0	2	0	2	0	7	72
BSB	44	1	0	3	3	7	0	11	69
FLK/SCP	100	1	0	0	0	0	0	2	103
FLK/BSB	44	0	0	0	0	2	0	1	47
SCP/BSB	140	6	0	0	0	1	2	24	173
FLK/SCP/BSB	438	2	0	1	0	0	0	15	456
Column Total	1130	59	15	33	14	75	27	477	1830

Row sums in Table 8 indicate the total number of vessels that have been issued some unique combination of commercial permits. For example, there were 324 vessels whose only commercial permit was for FLK. By contrast, there were 456 that held all three commercial permits. Column totals in Table 8 indicate the total number of vessels that have been issued some unique combination of Federal recreational permits. For example, there were 15 vessels whose only recreational permit was for scup while 477 vessels held all three recreational permits. Each cell in Table 8 reports the total number of vessels that have the unique combination recreational and commercial permits by species. For example, the cell entry of 3 in row 2 column 2 indicates that there were 3 vessels that held the unique combination of only a FLK commercial permit and only a FLK recreational permit. Note that each cell entry in row one corresponds to vessels that held no commercial permit for FLK, SCP or BSB, while each cell entry in column 1 corresponds to vessels that held no such recreational permit.

In addition to FLK, SCP, and BSB there are a number of alternative commercial or recreational fisheries for which any given vessel might possess a Federal permit. The total number of vessels holding any one or more of these other permits is reported in Table 9.

Table 9. Federal northeast region permits held by FLK, SCP, and BSB commercial and recreational vessels, 2001.

Northeast Permits	Commercial Only (n= 1,242)		Party/Charter Only (n= 586)		Commercial and Party/Charter (n= 106)	
	Vessels (No.)	Percent of Total	Vessels (No.)	Percent of Total	Vessels (No.)	Percent of Total
Surfclam	654	52.66	100	17.06	21	19.81
Ocean Quahog	610	49.1	99	16.9	20	18.9
Scallop	268	21.6	0	0	2	1.9
Non-trap Lobster	627	50.48	13	2.22	11	10.38
Lobster Trap	404	32.53	47	8.02	22	20.75
Party/ Charter Lobster	2	0.16	13	2.22	4	3.77
Party/ Charter Multi- Species	420	33.82	485	82.76	55	51.89
Comm. Multi- species	656	52.82	54	9.22	36	33.96
Party/ Charter Squid/ Mackerel/ Butterfish	3	0.24	454	77.47	73	68.87
Comm. Squid/ Mackerel/ Butterfish	1061	85.43	258	44.03	78	73.58
Comm. Bluefish	1117	89.94	285	48.63	94	88.68
Party/ Charter Bluefish	16	1.29	52	88.91	91	85.85
Tier 1 Tilefish	2	0.16	0	0	0	0
Tier 2 Tilefish	2	0.16	0	0	0	0

Part-time Tilefish	11	.89	0	0	1	.94
Incidental Tilefish	694	55.88	206	35.15	50	47.17
Herring VMS	72	5.80	2	0.34	0	0
Herring Non-VMS	687	55.31	244	41.64	63	59.43

Of the vessels that hold at least one Federal permit for FLK, SCP, or BSB the largest number of commercial permit holders (Table 10) are held by Massachusetts vessels, followed New Jersey, New York, then Rhode Island, North Carolina and Virginia. The fewest permits are held by Pennsylvania vessels, followed by Florida, then Delaware. In terms of average tonnage, the largest commercial vessels are found in Florida, followed by Virginia, and Pennsylvania. These rankings by state are similar for average length as well. The smallest vessels are found in Delaware, followed by New York.

Table 10. Descriptive data from northeast region permit files for commercial vessels, 2001.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	SC	VA	Other
No. of Permits by Mailing Address State	28	12	3	382	19	38	127	18	180	163	2	148	0	116	5
No. of Permits by Home Port State	22	12	5	422	17	28	120	13	162	185	10	123	0	119	3
No. of Permits by Principal Port State	29	9	2	390	18	33	122	17	177	166	1	151	0	123	3
Average Length by Principal Port	61.9	39.3	82.0	60.3	51.8	55.1	62.7	50.5	56.6	44.0	64.0	57.6	0	63.7	NA
Average Tonnage by Principal Port	91.0	15.3	127.0	85.7	37.8	69.0	83.9	45.2	68.6	39.3	109.0	72.4	0	93.9	NA
Percent Home Port Equal Principal Port	100.0	75.0	20.0	90.5	88.2	89.3	89.2	92.3	92.6	87.6	0	97.6	0	84.0	0

For party/charter vessels (Table 11), the largest number of permit holders are found in Massachusetts, followed by New Jersey, and New York. The fewest permits are in Delaware, followed by Florida and Pennsylvania. As might be expected, recreational vessels are smaller on average than commercial vessels. In terms of overall length, the largest party/charter vessels operate out of principal ports in the states of Florida, followed by Maryland and Connecticut; while the smallest are in Delaware.

Table 11. Descriptive data from northeast region permit files for party/charter vessels, 2001.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	Other
No. of Permits by Mailing Address State	30	3	4	163	10	30	10	21	154	84	4	38	35	0
No. of Permits by Home Port State	21	5	5	169	9	27	13	22	129	92	16	39	38	1
No. of Permits by Principal Port State	30	4	2	162	9	31	12	20	152	78	1	44	41	0
Average Length by Principal Port	42.4	32.0	60.5	35.2	44.1	36.0	40.6	33.1	45.4	45.0	38.0	35.9	38.3	NA
Average Tonnage by Principal Port	23.8	9.8	68.5	17.0	27.9	18.7	20.7	13.0	29.8	31.1	8.07	17.7	21.6	NA
Percent Home Port Equals Principal Port	100.0	60.0	40.0	94.7	77.8	96.3	92.3	86.4	98.5	78.3	0	97.4	97.4	0

For vessels that hold a combination of commercial and party/charter permits most vessels operate out of ports in the states of New York followed by New Jersey and Massachusetts (Table 12). Like the vessels that hold only party/charter FLK, SCP, or BSB, permits, these vessels are generally smaller than commercial (only) vessels. Lengths, on average, of vessels relative to party/charter vessels vary by state.

Table 12. Descriptive data from northeast region permit files for combination commercial/recreational vessels, 2001.

	CT	DE	FL	MA	ME	NC	NH	NJ	NY	PA	RI	VA	Other
No. of Permits by Mailing Address State	5	0	0	14	0	6	0	18	37	0	9	11	6
No. of Permits by Home Port State	3	0	0	18	0	7	0	14	40	0	6	10	8
No. of Permits by Principal Port State	4	2	1	13	1	7	1	16	39	1	11	0	6
Average Length by Principal Port	36.8	59.0	34.0	37.2	46.0	41.0	42.0	50.6	36.9	69.0	42.7	46.3	0
Average Tonnage by Principal Port	11.0	55.0	7.0	18.9	48.0	19.9	5.0	38.2	21.7	94.0	60.6	36.4	0

Percent Home Port Equal Principal Port	100.0	100.0	50.0	72.2	100.0	100.0	100.0	92.9	95.0	0	100.0	100.0	0
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Summer flounder landings are allocated by state, though vessels are not constrained to land in their home state. It can be useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. Except in the states of Florida, South Carolina, and Delaware, a high percentage of commercial vessel owners list the same state, as both the vessel owner's declared principal port of landing and their identified home port (Table 10). Except in the states Florida and Pennsylvania, a high percentage of recreational vessel owners list the same state, as both the vessel owner's declared principal port of landing and their identified home port (Table 11). Except in the states of Florida and Pennsylvania, a high percentage of recreational/commercial vessel owners list the same state, as both the vessel owner's declared principal port of landing and their identified home port (Table 12). Those vessels which have generally made it a practice to land in their home state may have less inherent flexibility in altering their landing state to adjust to smaller quotas in their home state.

Dealers

There were 211 dealers who bought summer flounder, scup and/or black sea bass in 2001. They were distributed by state as indicated in Table 13. Employment data for these specific firms are not available. In 2001 these dealers bought \$17.7 million worth of summer flounder; \$3.3 million worth of scup; and \$4.3 million worth of black sea bass.

Table 13. Dealers reporting buying summer flounder, scup, and/or black sea bass, by state (from NMFS commercial landings database).

Number of Dealers	DE, MD, ME, NH, CT	MA	NJ	NY	NC	RI	VA
	8	47	27	42	29	38	20

5.0 Description of Fisheries

5.1 Summer Flounder

The commercial and recreational fisheries for summer flounder are fully described in section 3.3.1 of Amendment 13. In recent years, the commercial fishery has been managed under a quota system. In 1993, the first year that a coastwide summer flounder quota was implemented, commercial landings were 12.59 million lb (5.71 million kg), slightly in excess of the quota of 12.35 million lb (5.60 million kg). Commercial landings in 1994 and 1995, were 14.56 and 15.42 million lb (6.58 and 6.97 million kg), respectively. In 1996, landings declined to 12.95 million lb (5.85 million kg) which were about 16 percent in excess of the initial quota of 11.11 million lb (5.04 million kg) for that year. In 1997, landings were approximately 8.81 million lb (4.08 million kg) which were about 5 percent in excess of the initial quota of 8.38 million lb (3.8 million kg) for that year. Commercial landings were 10.72 million lb (4.86 million kg) in 1999 and increased to 11.22 million lb (5.09 million kg) in 2000. In 2001, commercial landings of summer flounder were 10.89 million lb (4.93 million kg), 22 percent below the commercial quota.

Annual commercial landings from 1993 to 2001 have been less than the 16.59 million lb (7.52 million kg) landed in 1992, the year before quota implementation. With the exception of 1997, landings were substantially larger than the 9.25 million lb (4.19 million kg) landed in 1990.

Recreational landings have fluctuated since Amendment 2 regulations were implemented in 1993. Landings increased to 8.83 million lb (4.0 million kg) in 1993 from the 1992 level of 7.15 million lb (3.24 million kg). In 1994, recreational landings increased again to 9.33 million lb (4.23 million kg) and then declined to 5.42 million lb (2.46 million kg) in 1995. In 1996 and 1997, landings were 9.82 million lb (4.45 million kg) and 11.87 million lb (5.38 million kg), respectively. In 1998, recreational landings increased to 12.48 million lb (5.66 million kg) and then dropped to 9.10 million lb (4.13 million kg) in 1999. Recreational landings of summer flounder dropped from the highest level in 10 years, of 15.82 million lb (7.18 kg) in 2000 to 11.64 million lb (5.28 million kg) in 2001.

5.1.1 Status of the Stock

The status of the summer flounder stock is evaluated annually. The summer flounder stock assessment was completed by the NEFSC Southern Demersal Working Group in May 2002 and reviewed by the 35th Stock Assessment Review Committee (SARC 35) in June 2002. The latest assessment indicates that the stock is overfished and overfishing is still occurring relative to the Amendment 12 overfishing definitions.

However, the fishing mortality rate estimated for 2001 is 0.27, a significant decline from the 1.32 estimated for 1994 and close to the threshold F of 0.26. In addition, total stock biomass has increased substantially since 1991 to 95 million lb in 2001. Spawning stock biomass has increased each year since 1993 to 84.2 million lb in 2001, the highest value in the time series. Projections indicate that if the TAL in 2002 is not exceeded, total stock biomass will exceed the biomass threshold (117 million lb) in 2002. At this level, the stock will no longer be overfished.

Year-class estimates indicate that the 1995 to 1999 year classes ranged from 31 to 40 million fish; the average for 1982 to 2001 is about 40 million. The 2000 year class was estimated to be about average and the 2001 year class below average at 27 million fish. However, like last year, "the current assessment method tends to underestimate the abundance of age 0 fish (e.g., by about 20 percent over the last three years)" in the most recent year.

5.1.2 Stock Characteristics and Ecological Relationships

A full description of stock characteristics and ecological relationships of summer flounder is presented in section 3.1.1 of Amendment 13. Additional information can be found in the 35th Stock Assessment Workshop (SAW 35) documents. The following is taken from the "SAW Southern Demersal Working Group 2002 Advisory Report: Summer Flounder (Draft)."

"An analytical assessment (VPA) of commercial and recreational total catch at age (landings plus discards) was conducted. The natural mortality rate (M) was assumed to be 0.2. Indices of recruitment and stock abundance from NEFSC winter, spring, and autumn, Massachusetts spring and autumn, Rhode Island, Connecticut spring and autumn trawl, Delaware, and New Jersey trawl surveys were used in VPA tuning in an ADAPT framework. Recruitment indices from surveys conducted by the states of North Carolina, Virginia, and Maryland were also used in the VPA tuning. The current VPA tuning configuration is very

similar to those used in the 2000 SARC 31 VPA (NEFSC 200) and in the 2001 SAW Southern Demersal Working Group VPA (MAFMC 2001a). The uncertainty associated with the estimates of fishing mortality and stock biomass in 2001 was evaluated with respect to research survey variability."

"Fishing mortality calculated from the average of the currently fully recruited (ages 3-5) summer flounder has been high, varying between 0.9 and 2.2 during 1982-1997 (55 - 83 percent exploitation), far in excess of the revised FMP Amendment 12 overfishing definition, $F_{\text{threshold}} = F_{\text{target}} = F_{\text{max}} = 0.26$ (21 percent exploitation). The fishing mortality rate has declined substantially since 1997 and was estimated to be 0.27 (22 percent exploitation) in 2001, the lowest observed in the 20 year time series. There is an 80 percent probability that the fishing mortality rate in 2001 was between 0.24 and 0.32. The annual partial recruitment of age-1 fish decreased from near 0.50 during the first half of the VPA series to 0.20 since 1994; the partial recruitment of age-2 fish has decreased from 1.00 in 1993 to 0.78 in 1998-2001. These decreases in partial recruitment at age are in line with expectations given recent changes in commercial and recreational fishery regulations. The estimate of F for 2001 may understate actual fishing mortality as retrospective analysis shows that the current assessment method tends to underestimate recent fishing mortality rates (e.g., by about 1/3 over the last three years)."

"Total stock biomass index has increased substantially since 1989, and in 2001 total stock biomass was estimated to be 42,900 mt (94.58 million lb), near the level of the 1980's, although still 19 percent below the current biomass threshold. There is an 80 percent chance that total stock biomass in 2001 was between 39,300 and 46,900 mt (86.61 to 103.40 million lb). The current biomass target (B_{MSY}) required to produce maximum sustainable yield ($\text{MSY}=20,900$ mt; 46.08 million lb) is estimated to be $B_{\text{MSY}} = 106,400$ mt (234.57 million lb), and the current biomass threshold of one-half $B_{\text{MSY}} = 53,200$ mt (117.28 million lb)."

"The arithmetic average recruitment from 1982 to 2001 is 40 million fish at age 0, with a median of 36 million fish. The 1982 and 1983 year classes are the largest in the VPA time series, at 74 and 80 million fish. Recruitment declined from 1983 to 1988, with the 1988 year class the weakest at only 13 million fish. Recruitment since 1988 has generally improved. The 2000 year class is estimated at 39 million fish, above the 1982-2001 median. The 2001 year class is currently estimated to be below average, at 27 million fish. It should be noted that retrospective analysis shows that the current VPA tends to underestimate the abundance of age 0 fish for recent year classes. Recent recruitment per unit of SSB has been lower than that observed during the early 1980s."

"Spawning stock biomass (SSB; Age 0+) declined 72 percent from 1983 to 1989 (18,800 mt to 5,200 mt; 41.45 to 11.46 million lb), but has increased seven-fold, with improved recruitment and decreased fishing mortality, to 38,200 mt (84.22 million lb) in 2001. Comparison with previous assessments shows a tendency to slightly overestimate the SSB in recent years. The age structure of the spawning stock has expanded, with 72 percent at ages 2 and older, and 14 percent at ages 5 and older. Under equilibrium conditions at F_{max} , about 85 percent of the spawning stock biomass would be expected to be ages 2 and older, with 50 percent at ages 5 and older."

5.1.3 Economic and Social Environment

The principal ports of commercial and recreational importance to summer flounder, scup, and black sea bass are described in detail in Amendment 13 (section 3.4.2). A detailed description of the economic aspects of the commercial and recreational fisheries for scup was presented in sections 3.3.1 of Amendment 13.

Since 1993 the commercial fishery has been managed under a quota system. The value of commercial landings of summer flounder from 1993 to 2001 have averaged \$20.2 million, ranging from \$15.5 million in 1997 to \$28.3 million in 1995. The ex-vessel value of summer flounder landings in 2001 was \$17.7 million with an average ex-vessel price estimated at \$1.62 per pound. The overall degree of port reliance on summer flounder is described in Table 6, additional information of ports and communities of importance to summer flounder are described in detail in section 3.4 in Amendment 13. In general, summer flounder landings for smaller tonnage vessels were higher in the summer months, while landings for larger tonnage vessels were higher in the winter months. Monthly price fluctuations were evident. On average, higher prices tended to occur during the summer months. This price fluctuation is likely associated with supply responses.

Summer flounder continues to be an important component of the recreational fishery. Estimation of primary species sought as reported by anglers in recent intercept surveys indicates that summer flounder has increased in importance in the U.S. North Atlantic and Mid-Atlantic subregions, while decreasing in the South Atlantic subregion. The number of trips for which recreational anglers sought summer flounder in the North Atlantic and Mid-Atlantic subregions in 2001 was 583 thousand and 5.6 million, respectively. This represents a 10.7 percent increase relative to 2000 for both regions combined.

Japan continues to be the most important export market for summer flounder. Exports of summer flounder are difficult to determine as summer flounder gets lumped under a variety of export codes and it is impossible to identify in the U.S. export data (B. Ross pers. comm. 1997). However, export of U.S. summer flounder to Japan has been reported to vary from approximately 800 to 1,800 mt (1.76 to 3.97 million lb) in 1993-1997 (Asakawa pers. comm.). Fresh whole U.S. fluke or summer flounder (*Paralichthys dentatus*) is generally exported to Japan for raw (sashimi) consumption. Fresh U.S. summer flounder is used as a substitute for Japanese "hirame" (bastard halibut -- *Paralichthys olivaceus*), and normally imported whole fresh and sold through seafood auction markets to restaurants. They are usually consumed raw for sashimi or sushi toppings in Japan. While U.S. summer flounder is well established in some major auction markets, daily prices may fluctuate depending on the total quantity of domestic and imported hiramé (including U.S. summer flounder) delivered to auction on a given day. Depending on quality, auction prices for fresh U.S. summer flounder may vary from around 1,000 to 3,000 yen/kilo (\$3.13 to 9.40/lb at 145 yen/\$ 1.00) depending on size, quality and market conditions (Asakawa pers. Comm.). Frozen summer flounder may not be considered to be of the same quality, and is unlikely to become substitute for unfrozen summer flounder. Nevertheless, properly handled frozen summer flounder may receive wholesale prices of 400-900 yen/kilo (\$1.73-3.90/lb) or higher (Asakawa pers. comm.). The recent economic crisis in Japan could potentially hamper exports of seafood commodities to that country. Furthermore, future devaluation of the yen would result in reduced revenues for exporters of summer flounder to Japan.

Imports of flounders (all species combined) were 5.92 million lb (\$4.54 million) in 1996, 5.39 million lb (\$4.44 million) in 1997, 7.23 million lb

(\$4.67 million) in 1998, and 7.87 million lb (\$5.28 million) in 1999. In 2000, 6.75 million lb of flounders valued at \$5.81 million entered the country for consumption (NMFS 2001). Importers generally tend to import flounders when domestic ex-vessel prices reach \$2 per pound. South Atlantic flatfish (e.g., Argentina) are imported to the U.S. when domestic prices are high. However, frozen imports may not make the grade for some restaurants and retail buyers that demand fresh flounder (National Fishermen, 1998).

5.1.4 Description of the areas fished

The baseline impact of the summer flounder, scup, and black sea bass commercial fisheries on the environment is fully described in section 3.2.8 of Amendment 13.

NMFS 2001 VTR data indicated that 19,425 trips, by five major gear types, caught a total of 9.7 million lb of summer flounder, landing 9.4 million lb and discarding 0.3 million lb. The majority of the trips and catch were made by bottom otter and beam trawls (86 percent of trips, 98 percent of catch), followed by gillnets (6 percent of trips, 0.7 percent of catch), "other" gear (6 percent of trips, 0.7 percent of catch), dredges (1 percent of trips, 0.5 percent of catch), pots and traps (1 percent of trips, 0.3 percent of catch), and mid-water trawls (0.1 percent of trips, 0.2 percent of catch). There were ten statistical areas which, individually, accounted for greater than 5 percent of the summer flounder catch in 2001 (Table 14). Collectively, these ten areas accounted for 80 percent of the summer flounder catch. There were six statistical areas which, individually, accounted for greater than 5 percent of the trips which caught summer flounder in 2001 (Table 15). Collectively, these six areas accounted for 88 percent of the trips that caught summer flounder and 33 percent of the 2001 summer flounder catch.

Table 14. Statistical areas that accounted for at least 5 percent of the summer flounder, scup, or black sea bass catch in 2001, NMFS VTR data.

Statistical Area	Summer Flounder (percent)	Scup (percent)	Black Sea Bass (percent)
635	15.61	0.01	8.50
626	11.44	0.34	6.64
537	7.97	4.58	2.67
631	7.83	0.02	8.83
612	7.42	3.45	1.41
622	6.69	11.58	12.72
621	6.19	3.26	6.65
539	6.17	21.13	2.52
613	5.73	7.76	5.92
616	5.24	32.72	11.64
538	3.06	2.43	12.84
611	2.53	6.50	0.57

632	1.68	0.10	7.44
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Table 15. Statistical areas that accounted for at least 5 percent of the summer flounder, scup, or black sea bass trips in 2001, NMFS VTR data.

Statistical Area	Summer Flounder	Scup	Black Sea Bass
539	18.32	24.81	16.07
613	17.37	15.84	14.65
611	15.85	27.90	8.03
612	11.83	5.15	10.02
537	7.74	6.55	7.93
538	6.41	7.59	8.49
616	2.96	5.40	5.77

5.2 Scup

The commercial and recreational fisheries for scup are fully described in section 3.3.2, of Amendment 13, and are outlined by principal port in section 3.4.2 of Amendment 13. In the last 20 years (1981 to 2000) there has been a downward trend in scup commercial landings. Commercial scup landings, which had declined 60 percent from 21.73 million lb (9.85 million kg) in 1981 to 8.77 million lb (3.71 million kg) in 1989, increased to 15.61 million lb (6.86 million kg) in 1991 and dropped to the lowest value in the time series, 2.66 million lb (1.21 million kg), in 2000. In 2001, commercial landings increased to 3.95 million lb (1.79 million kg).

The recreational landings declined steadily from a 1986 value of 11.61 million lb (5.26 million kg) to 1.34 million lb (0.61 million kg) in 1995, and then increased to 2.16 million lb (0.98 million kg) in 1996. In 1997, recreational landings were 1.2 million lb (0.54 million kg) and then dropped to 0.88 million lb (0.40 million kg) in 1998, the lowest value in the time series. However, recreational landings increased to 1.89 million lb (0.86 million kg) in 1999 and continued to increase in 2000 to 5.44 million lb (2.47 million kg). In 2001, recreational landings declined 22 percent to 4.26 million lb (1.93 million kg).

5.2.1 Status of the stock

The most recent assessment on scup was completed in June, 2002 (35th SARC). That assessment indicated that scup are no longer overfished "but stock status with respect to overfishing cannot currently be evaluated." The SARC also concluded that although "the relative exploitation rates have declined in recent years the absolute value of F cannot be determined." However, they did indicate that "survey data indicate strong recruitment and some rebuilding of age structure" in recent years. The 35th SARC commented that "the stock can likely sustain modest increases in catches, but managers should do so with consideration of high uncertainty in stock status determination."

State and federal survey indices for scup indicate an increase in stock abundance in recent years. The NEFSC spring survey results indicate that spawning stock biomass has increased each year since 1998; the estimate for

2001 (3 yr average) is 3.2 kg/tow, or about 15 percent above the biomass threshold of 2.77 kg/tow that defines an overfished stock. Given that the index is above the biomass threshold, the stock is no longer considered overfished. Although the stock is above the biomass threshold that defines an overfished stock, additional rebuilding is required to achieve maximum sustainable yield as specified in the Magnuson-Stevens Act.

Similarly, the 2002 winter survey was at an all time high; the estimate for 2002 is a 374 percent increase relative to the 2001 value. In addition, the NEFSC autumn trawl survey indicates that strong year classes were produced from 1999-2001. The predominance of the 2000 year class also is evident in several of the state surveys.

Estimates of fishing mortality rates for scup are uncertain. The 31st SARC conducted several analyses that indicated that F was at least 1.0 for ages 0-3 scup for the 1984 to 2000 time series. SARC 31 could not estimate F's on older fish because they are not well represented in the surveys. Although the magnitude of the current mortality rates is unknown, relative exploitation rates have changed over the period. Relative exploitation rates based on total landings and the spring survey suggest a general increase in exploitation from 1981 to 1995. Since then, relative exploitation rates have declined; the 2001 value is about 5 percent of the 1997 value.

5.2.2 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships of scup are fully described in section 3.1.2 of Amendment 13. Scup was last fully assessed at SAW-35 in 2002. As in previous assessment reviews, the Stock Assessment Review Committee (SARC) concluded that estimates of commercial fishery discards are not reliable due to limited sample size and uncertainty as to their representative nature of the sea sampling data for scup. The uncertainties associated with the catch data led the SARC to conclude that an analytical assessment would be inappropriate as the basis for management decisions for scup at this time. An analytical formulation for scup will not be feasible until the quality and quantity of the input data (biological sampling and estimates of all components of catches) are significantly improved and an adequate time series developed.

Although the 31st SARC concluded that the F on age 0-3 scup was at least 1.0, the 35th SARC determined that "absolute estimates of fishing mortality for scup could not be calculated." However, the relative exploitation index may offer some clue as to current levels of mortality for older fish. Because the index is based on mostly landings of scup larger than 9" TL (the commercial minimum fish size) and SSB, the index may indicate fishing mortality rates on the larger fish has declined in recent years.

The SARC-35 draft Advisory Report stated that, "Indices of recruitment from the NEFSC fall survey suggest improved recruitment in 1999-2001, with estimated age-0 abundance exceeding the 1984-2001 average of 69.03 fish/tow. NEFSC spring and winter indices of stock biomass and abundance for 2002 were the highest within each respective time series. Other survey indices have increased since the mid-1990s."

The spring survey estimate for 2002 is highly uncertain. The 35th SARC noted the "high degree of inter-annual variation in individual survey indices." They noted that the "abundance of all age groups in the survey increased substantially as compared with the 2001 results" suggesting that increased availability of scup to the survey gear was an important determinant in the

2002 survey results. Additional, detailed information is available in the SAW-35 documents.

5.2.3 Economic and Social Environment

A detailed description of the economic aspects of the commercial and recreational fisheries for scup was presented in sections 3.3.2 of Amendment 13.

Commercial scup landings were about 3.95 million lb (from ME to Cape Hatteras, NC) and valued at \$3.32 million in 2001. The average price per pound was \$0.84 in 2001 a 33 percent drop in price per pound from the 2000 value of \$1.25 per pound. The overall degree of port reliance on scup is described in Table 6, additional information of ports and communities of importance to scup are described in detail in section 3.4 in Amendment 13. Scup ex-vessel values and landings were higher for ports located in the northern part of the coast.

5.2.4 Description of the areas fished

The baseline impact of the summer flounder, scup, and black sea bass commercial fisheries on the environment is fully described in section 3.2.8 of Amendment 13.

NMFS 2001 VTR data indicated that 3,555 trips, by five major gear types, caught a total of 2.7 million lb of scup. Of these, 2.5 million lb of scup were landed and 0.2 million lb were discarded. The majority of the trips and catch were made by bottom otter and beam trawls (81 percent of trips, 89 percent of catch), followed "other" gear (8.8 percent of trips, 0.8 percent of catch), pots and traps (8.2 percent of trips, 6.6 percent of catch), gillnets (1.6 percent of trips, 0.1 percent of catch), dredges (0.8 percent of trips, 2.7 percent of catch), and mid-water trawl (0.03 percent of trips, 0.4 percent of catch). There were five statistical areas which, individually, accounted for greater than 5 percent of the scup catch in 2001 (Table 14). Collectively, these nine areas accounted for 80 percent of the scup catch. There were seven statistical areas which, individually, accounted for greater than 5 percent of the trips which caught scup in 2001 (Table 15). Collectively, these seven areas accounted for 93 percent of the trips that caught scup and 79 percent of the 2001 scup catch.

5.3 Black Sea Bass

The commercial and recreational fisheries for black sea bass are fully described in section 3.3.1 of Amendment 13, and are outlined by principal port in section 3.4 of Amendment 13.

Commercial black sea bass landings have varied without trend since 1981, ranging from a low of 2.04 million lb (0.93 million kg) in 1994 to a high of 4.33 million lb (1.96 million kg) in 1984. The 2001 landings of 2.77 million lb (1.26 million kg) represented a 4 percent increase from the 2.66 million lb (1.21 million kg) in 2000, but were below the average for 1981-2000 of 3.11 million lb (1.41 million kg). Currently, landings are substantially below the peak landings of 21.80 million lb (9.89 million kg) estimated for 1952.

Recreational landings ranged from a low of 1.15 million lb (0.52 million kg) in 1998 to a high of 12.39 million lb (5.62 million kg) in 1986. Recreational landings in 2001 were about 3.42 million lb (1.55 million kg), a 14 percent decrease from the 4.01 million lb (1.82 million kg) in 2000, and slightly less than the average for 1981-2001 of 3.90 million lb (1.77 million kg).

5.3.1 Status of the Stock

The most recent assessment on black sea bass, completed in June 1998, indicates that black sea bass are over-exploited and at a low biomass level (SAW 27). Fishing mortality for 1997, based on length based methods, was 0.73. The complete assessment is detailed in the "Report of the 27th Northeast Regional Stock Assessment Workshop."

The NEFSC has provided spring survey results for 2002. Amendment 12 to the Summer Flounder, Scup and Black Sea Bass FMP, which was partially approved by NMFS in 1999, established a biomass threshold based on this survey. Specifically, the biomass threshold is defined as the maximum value of a three-year moving average of the NEFSC spring survey catch-per-tow (1977-1979 average of 0.9 kg/tow). The 2001 biomass index is 0.594 kg/tow (the three-year average for 2000-2002) or about 2/3 of the threshold.

Because of the potential influence of extremely small or large number for a single tow, Gary Shepherd, NEFSC (pers. comm.) has suggested that the survey indices be log transformed to give a better indication of stock status. The transformed series indicates a general increase in the exploitable biomass since 1993. The preliminary index for 2002 of 0.626 kg/tow is the highest value in the time series (1968-2002) substantiating fishermen's observations that black sea bass have become more abundant in recent years.

The spring survey can also be used as an index of recruitment. The survey indicates good year classes were produced in 1988, and 1990 through 1992, with a moderate year class in 1995, and poor year classes in 1993, 1994, and 1996 through 1998. The 1999 index was about three times the average for the period and the fourth largest value since 1968. Results for 2000 indicate a strong year class; the index is 2.782 no./tow, the highest in the time series. Preliminary results indicate another good year class (above average) was produced in 2002.

Fishery dependent data can also be used as an indicator of stock status. For example, increased abundance is evident in the recreational data; landing-per-hour fished increased 48 percent from 1999 to 2001.

Relative exploitation based on the total commercial and recreational landings and the moving average of the transformed spring survey index indicates a significant reduction in mortality from 1998 to 2001 relative to 1996 and 1997 levels. Based on length frequencies from the spring survey, and assuming length of full recruitment at 25 cm, the average F based on two length based methods was 0.75 (48 percent exploitation rate) in 1998 (G. Shepherd pers. comm.). Length-based estimates are very sensitive to changes in the length used for full recruitment; average F's were 0.51 (37 percent exploitation) or 1.25 (66 percent exploitation) if a length of 23 or 27 cm was used in the calculations. Based on the relative index, exploitation rates in 2001 decreased relative to the 1998 values; assuming a 48 percent rate for 1998, the exploitation rate in 2001 was 33 percent. The target exploitation rate in 2001 was 37 percent.

A benchmark stock assessment will be conducted for black sea bass next fall (2003) after the results of a tagging study become available and are analyzed. This coordinated tagging study conducted by NMFS and the states could provide information on black sea bass mortality and migration which will be used in the assessment (G. Shepherd pers. comm.).

5.3.2 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships are fully described in section 3.1.3 of Amendment 13. In addition, the advisory report on black sea bass from SAW-27 states that "recent catches are well below the historical average, age and size structure is truncated, and survey biomass indices since the late 1980s have been one-tenth of those observed in the late 1970s. Average annual fishing mortality, estimated from length-based analyses, ranged from 0.56 to 0.79 during 1984-1997 and was 0.73 (48 percent exploitation) in 1997. Recruitment in 1997, as indicated by survey indices, was well below the 1972-1996 average." Additional, detailed information is available in the SAW-27 documents.

5.3.3 Economic and Social Environment

A detailed description of the economic aspects of the commercial and recreational fisheries for black sea bass is presented in sections 3.3.3 of Amendment 13.

In 2001, black sea bass landings (from ME to Cape Hatteras, NC) were valued at \$4.28 million and average ex-vessel price for black sea bass was estimated at \$1.55 per pound, a 13 percent decrease from the 2000 price per pound (\$1.79). The overall degree of port reliance on black sea bass is described in Table 6, additional information of ports and communities of importance to black sea bass are described in detail in section 3.4 in Amendment 13. Black sea bass values and landings were higher for ports located along the southern part of the coast.

5.3.4 Description of the areas fished

The baseline impact of the summer flounder, scup, and black sea bass commercial fisheries on the environment is fully described in section 3.2.8 of Amendment 13.

NMFS 2001 VTR data indicated that 6,205 trips, by five major gear types, caught a total of 2.5 million lb of black sea bass. Of these, 2.2 million lb of black sea bass were landed and 0.3 million lb were discarded. The majority of the trips and catch were made by bottom otter and beam trawls (52 percent of trips, 48 percent of catch), followed pots and traps (29 percent of trips, 40 percent of catch), "other" gear (16 percent of trips, 11 percent of catch), gillnets (1.9 percent of trips, 0.2 percent of catch), dredges (0.7 percent of trips, 0.3 percent of catch), and mid-water trawls (0.06 percent of trips, 0.4 percent of catch). There were nine statistical areas which, individually, accounted for greater than 5 percent of the black sea bass catch in 2001 (Table 14). Collectively, these five areas accounted for 68 percent of the black sea bass catch. There were seven statistical areas which, individually, accounted for greater than 5 percent of the trips which caught scup in 2001 (Table 15). Collectively, these seven areas accounted for 71 percent of the trips that caught black sea bass and 38 percent of the 2001 black sea bass catch.

6.0 Environmental Consequences and Preliminary Regulatory Economic Evaluation (PREE) of Alternatives

This EA analyzes the impacts of the alternatives considered for the year 2003 specifications for summer flounder, scup, and black sea bass, relative to the status quo measures for each species. These alternatives include the TALs (commercial quotas and recreational harvest limits), which are necessary to achieve the annual target exploitation rates established under the individual species' rebuilding schedules and other commercial management measures. These

management measures are only analyzed under the preferred alternative (Alternative 1) and would have similar impacts under each alternative. The Council and Board will meet in December 2002 to adopt specific recreational management measures (i.e., bag limits, size limits, seasonal closures) for 2003, when 2002 recreational landings are more complete. These recreational measures will be analyzed in the 2003 recreational specification package, when the Council and Board submit recommendations for 2003 recreational measures.

The nature of the management programs for the summer flounder, scup, and black sea bass fisheries were examined in detail in the Environmental Impact Statements (EISs) prepared for each of the fisheries in Amendment 2 for summer flounder (1992), Amendment 8 for scup (1996), and Amendment 9 for black sea bass (1996). Those analyses considered the impacts of the overall management measures including rebuilding schedules and annual exploitation rates on stock health and abundance, spawning stock biomass, EFH, and protected species, as well as on the economy and affected fishermen. Those EISs were updated in Amendment 13 (submitted for Secretarial approval on August 20, 2002).

The description of the environment (biological, human - socioeconomic, EFH, and protected resources) in which these fisheries are prosecuted was also updated and described in detail in the EIS for Amendment 13. The FMP regulates the black sea bass and scup fisheries from Maine to Cape Hatteras, North Carolina, while the summer flounder fishery is regulated from Maine to the southern border of North Carolina. The fisheries are prosecuted by vessels throughout the range, though the geographic focus of the fishery varies somewhat from year to year.

6.1 Alternative 1 (Preferred)

Alternative 1 is the preferred alternative, the impacts that would result from a total allowable landing limit (TAL) of 23.30 million lb for summer flounder (a 13.87 million lb adjusted commercial quota; a 9.28 million lb adjusted recreational harvest limit); a TAL of 16.50 million lb for scup (which results in a 12.42 million lb adjusted commercial quota; a 4.01 million lb recreational), and a TAL of 6.80 million lb for black sea bass (adjusted TAL - 3.13 million lb commercial; 3.43 million lb recreational). The other preferred commercial management measures recommended by the Council and the Board to achieve the commercial quotas are described in detail in section 3.1 and will be analyzed relative to the status quo under Alternative 1 (preferred).

6.1.1 Biological Impacts

6.1.1.1 Summer flounder

The preferred alternative would set a TAL of 23.30 million lb for summer flounder, 4 percent lower than the 2002 TAL. Based on the current status of the stock, a TAL of 23.30 million lb has a 50 percent probability of achieving the target F of 0.26 in 2003, assuming the TAL and discard level in 2002 are not exceeded.

The preferred summer flounder TAL includes a preliminary adjusted commercial quota of 13.87 million lb, a preliminary adjusted recreational harvest limit of 9.28 million lb, and a research set-aside of 91,163 pounds for 2003. These landings levels represent a 4 percent reduction in landings relative to the status quo for summer flounder. However, these measures are necessary to end overfishing in the summer flounder fishery. If status quo measures were to continue in 2003, overfishing would possibly occur. As such, these measures

should result in positive biological impacts to the stock, relative to status quo measures for summer flounder (Alternative 3).

Additionally, the 2003 preferred summer flounder measures could result in positive impacts on other fisheries, relative to the status quo measures for summer flounder (Alternative 3). The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests other species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. A smaller quota could result in decreased effort and smaller catches of other species.

The purpose of the discard set-aside measures established by the Commission is to decrease discards of sub-legal summer flounder, as well as reduce regulatory discards that could occur as a result of possession limits set by the states. A decrease in the amount of discards would increase the likelihood that the target exploitation rate would be achieved in 2003, because true incidental catch would now be landed and applied to the quota. The positive biological impacts of these measures would be identical to the status quo, because these measures were in effect in 2002.

The proposed summer flounder TAL includes a research set-aside of 91,163 pounds. The results of the research conducted through the research set-aside program would benefit both the summer flounder stock and the summer flounder fishery. The exemptions required under the proposed research projects are analyzed in section 6.4. The positive biological impacts of the research set-aside would be identical to the status quo, because the program was in effect in 2002.

The preferred alternative would implement an adjusted recreational harvest limit of 9.28 million lb, approximately 5 percent lower than the recreational harvest limit in 2002 (Alternative 3 - status quo). If recreational landings are the same in 2002 as in 2001 (11.64 million lb), the adjusted recreational harvest limit would decrease recreational landings by about 20 percent. The reduction in 2003 relative to 2001 landings would be necessary to achieve the target exploitation rate. As such, this recreational harvest limit should have positive biological impacts on the stock, relative to status quo (Alternative 3).

Overall, the summer flounder measures under the preferred alternative should have result in positive biological impacts on the summer flounder stock and stocks of other fish, relative to the status quo measures for summer flounder (Alternative 3).

6.1.1.2 Scup

The preferred alternative would set the scup TAL at 16.5 million lb for 2003, a 53 percent increase relative to the TAL implemented in 2002 (Alternative 2 - status quo). Estimated discards were added to the TAL to derive a TAC of 18.65 million lbs. Based on current information, scup abundance is likely to increase in 2003. The SARC-35 concluded that although "the relative exploitation rates have declined in recent years the absolute value of F cannot be determined." However, they did indicate that "survey data indicate strong recruitment and some rebuilding of age structure" in recent years. The 35th SARC commented that "the stock can likely sustain modest increases in catches, but managers should do so with consideration of high uncertainty in stock status determination."

The TAL recommendation is based on the condition of the stock relative to the biological reference point. Specifically, given that the stock is no longer overfished (i.e., the biomass is in excess of the biomass threshold) indicates that the biomass may be at or larger than $\frac{1}{2} B_{MSY}$. Although MSY has not been calculated for scup, the average long-term landings can be used as a surrogate. Based on landings data, the NEFSC derived a long term potential catch (LTPC) for scup that ranged from 22-33 million lb (9.97 to 14.97 million kg). These estimates would represent the landings that could be taken from the stock once it was rebuilt to B_{MSY} levels. As such, yields at $\frac{1}{2} B_{MSY}$ could range from 11 to 16.5 million lb (4.99 to 7.48 million kg).

The Council chose the upper end of the landing range based on survey results that indicated current biomass was about 15 % above the threshold. They also noted that survey results indicated strong year classes had been produced from 1999 to 2001 and, as such, management measures in place to protect these year classes would allow for significant stock increases in 2003. In fact, stock biomass would be large enough in 2003 to support the increase in landings and still allow for the target mortality of 21 percent to be met.

The preferred 2003 scup TAL of 16.5 million lb includes a preliminary adjusted commercial quota of 12.42 million lb, a preliminary adjusted recreational harvest limit of 4.01 million lb, and a research set-aside of 66,650 pounds. Limited information on scup fishing mortality, past performance of the scup stock and scup fishery, and the advice given by the 35th SARC, indicate that if the scup stock can be fished at this level, then fishing will not exceed the target exploitation rate of 21 percent for 2003. As such, the preferred scup TAL and the associated allocations are not expected to result in biological impacts (positive or negative) to the scup stock in 2003, relative to the status quo (Alternative 2).

The preferred alternative adopted by the Council and Board, includes more restrictive commercial possession limits in 2003. With an increase in stock size, reduced possession limits are expected to constrain commercial landings to the commercial TAL for 2003. As such, the possession limits are not expected to result in biological impacts (positive or negative) to the stock, relative to the status quo (Alternative 2).

The scup preliminary adjusted quota for 2003 increases scup landings relative to the quotas specified for 2002. The scup measures could result in negative impacts on other fisheries. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. In addition to the higher quota, the Council and Board are recommending more restrictive possession limits for Winter I and Winter II. A higher quota and lower possession limits could mean an increase in fishing effort (number of fishing trips). However, the Council and Board are recommending weekly possession limits in Winter I, which may reduce the number of trips in Winter I. Additionally, catch-per-unit-effort could correspondingly increase with increased stock abundance, resulting in the same number of tows landing a larger volume of fish. If these measures do not result in an increase of effort in the scup fishery, the incidental catch rates of other species should not increase, relative to the status quo (Alternative 2).

Measures are also being recommended to reduce scup discards in small mesh fisheries. Specifically, the Council and the Board are recommending to continue GRAs in 2003, with an added experimental net exemption program that

requires at-sea observer coverage. The Council and Board recommended that the level of observer coverage be consistent with ACCSP standards. In order to provide a range of alternatives, two options are analyzed: 1) 5 percent observer coverage of the small-mesh *Loligo* trips fishing in the GRAs (minimum coverage according to ACCSP standards), and 2) 100 percent observer coverage of the small-mesh *Loligo* trips fishing in the GRAs.

The GRA measures are expected to reduce discards of scup in non-directed, small-mesh fisheries. Council staff analyzed 2001 and early 2002 sea sample data to determine impact of GRAs on scup discards and landings of scup, black sea bass, *Loligo*, and whiting. It was determined that sea sample data were insufficient to evaluate the effectiveness of the GRAs.

The Council funded research conducted by the Manomet Center for Conservation Sciences to test the effectiveness of the 5.5" square mesh escapement extension in nets fished by large boats in deep water, and if appropriate determine the optimum placement of the extension in a large net to reduce levels of bycatch and discard of undersized scup while retaining squid. This research was to supplement earlier research conducted by Manomet and funded by the Council, that indicated that the extension was a simple and inexpensive way to reduce the bycatch and discard of scup in smaller vessels that fished for squid with small mesh nets in shallow water. In the most recent research, a total of 24 commercial fishing hauls were conducted on the F/V Maria Elena, which is a 78 ft and 140 GRT vessel. The trips were conducted along the 50 fathom depth contour, in the southwest corner of statistical area 537 and northwest corner of statistical area 616. Results indicate that the experimental net was effective at retaining squid, and reducing scup catch. In fact, results indicate that the experimental net reduced the bycatch of undersized scup (i.e., sub-legal) by nearly 60%. Specific conclusions of the draft final report (Manomet 2002; attached) are as follows:

"Video observations indicate that the escape window does indeed have an effect on the behavior of scup and other fish. Analysis of these and other data is continuing in order to identify the true nature of the behavioral responses and how they may be used to improve the effectiveness of this bycatch reduction device. However, the results provide clear evidence that simple, cost effective bycatch reduction devices can be made effective in Mid-Atlantic small mesh fisheries. Our results demonstrate that squid catch is unaffected by introduction of the escape window, while catch of actively swimming fish (e.g., Atlantic mackerel, herring) is significantly reduced. It is also clear from the video analyses that scup (butterfish and many other species) appear to be reacting to the open meshes and making escape attempts and overall results suggest a 60% reduction in capture of undersized scup with no corresponding loss of marketable fish or loss of squid of any size. The fact that these results are in such strong concordance with previous studies on inshore squid populations adds emphasis to the thesis that escape windows can be effective in reducing bycatch in small mesh fisheries.

"However, despite the very obvious success of the escape window, both here and in previously reported studies of inshore squid populations, it is clear that the experimental net still retains a significant quantity of undersized scup albeit a very small proportion of the overall catch. However, the author and a number of commercial fishermen from the Mid-Atlantic Region (pers. comm.) are of the opinion that changes in fishing practices (for example, change in towing speed during haul-back) could substantially reduce retention of even the smallest scup and these

strategies in conjunction with escape windows could provide options for substantial reduction in bycatch of small scup in Mid-Atlantic squid fisheries.

The experimental net exemption program proposed by the Council and Board will allow boats with small mesh nets to fish in GRAs with the experimental net if they are participating in an at-sea observer program, either at a 5 percent at-sea observer coverage rate (Option 1) or at a 100 percent at-sea observer coverage rate (Option 2). The program is to be consistent with ACCSP standards. The use of these nets should reduce the bycatch of scup and supplement results from the Manomet research. Additional information on the experimental net will result in the use of these nets throughout the range of scup, resulting in an overall reduction of scup discards and increase in *Loligo* landings. Since scup distribution is associated with environmental variability and the GRAs may not be located in the areas of highest *Loligo*/scup interaction from year to year, these results are expected to be beneficial. As such, an experimental net exemption program associated with the GRAs is expected to have positive biological impacts on the scup stock, relative to the status quo (Alternative 2).

The proposed scup TAL includes a research set-aside of 66,650 pounds. The results of the research conducted through the research set-aside program would benefit both the scup stock and the scup fishery. The exemptions required by the proposed research projects are analyzed under section 6.4. Since this program was in effect in 2002 the positive biological impacts of the research set-aside would be identical to the status quo.

The preferred alternative would implement an adjusted recreational harvest limit of 4.01 million lb, approximately 46 percent higher than the recreational harvest limit in 2002 (Alternative 2 - status quo). If recreational landings are the same in 2002 as in 2001 (4.26 million lb), the adjusted recreational harvest limit could increase recreational landings by about 6 percent. As such, this recreational harvest limit should not result in a recreational overage in 2003 and have positive biological impacts on the stock, relative to status quo (Alternative 2).

Overall, the scup measures under the preferred alternative should have a positive impact on the scup stock, relative to the status quo measures for scup (Alternative 2).

6.1.1.3 Black sea bass

The proposed black sea bass TAL of 6.8 million lb under Alternative 1 is based on the Monitoring Committee recommendation to keep the status quo TAL for 2003. This recommendation was based on data that indicate that recruitment has been high and stock size has increased in recent years. In fact, NEFSC survey data indicate that the 3-year average (2000-2002) exploitable biomass index is 65 percent higher than the value for 1999-2001. NEFSC survey data also indicate that the recruitment index for 2000 is the highest in the time series, 1968-2002 and the 2002 index is also above average.

In addition, the Council and Commission adopted restrictive measures for minimum fish size (an increase to 11 inches) and gear (increase in minimum mesh size and vent sizes), which allowed for additional protection of the 2000 and later year classes. These measures will allow for an increase in exploitable biomass in 2003 and beyond.

The target exploitation rate for 2003 is 25 percent, the exploitation rate associated with F_{max} (0.32). This is a drop from the 2002 target of 37 percent. Although the exploitation rate for 2002 is uncertain, relative exploitation rates have generally declined in recent years. Relative exploitation based on the total commercial and recreational landings and the moving average of the transformed spring survey index and indicates a significant reduction in mortality of black sea bass from 1998 to 2001, relative to 1996 and 1997 levels. Increases in exploitable biomass will offset the drop in target exploitation rate, allowing for the target exploitation rate of 25 percent to be achieved with a TAL of 6.8 million lb.

It is difficult to predict the 2003 exploitable biomass estimate. This estimate is based on a three-year average and the actual estimate for 2003 will not be derived until the spring 2004 survey results are available. As such, if the spring survey estimate in 2003 was 0.337 kg/tow, the same value for 2001, the TAL associated with a rate of 25 percent would be 4.6 million lb. If the spring survey for 2003 is equal to 0.436 kg/tow (the average for 2001 and 2002) and assuming an exploitation rate of 48 percent in 1998, the TAL associated with an exploitation rate of 25 percent is about 6 million lb. Conversely, if the results are more optimistic and stock abundance is higher, than the TAL could be higher than 6 million lb. For example, if the rate of stock increase continues as it has in recent years and the biomass estimate is 0.522 kg/tow in 2003 (the estimate that you would get if you derived a regression through the 1999-2001 points and used the derived equation to estimate the 2003 survey result), than the TAL associated with an exploitation rate of 25 percent is 7.2 million lb. Based on all information, recent recruitment, increase in stock abundance, and declines in relative exploitation, a TAL for black sea bass of 6.8 million lb is likely to achieve the target exploitation rate of 25 percent for 2003.

Based on the recommended TAL, the commercial quota would be 3.13 million lb (49 percent) and the recreational harvest limit would be 3.43 million lb (51 percent). There would also be a research set-aside of 67,676 pounds for 2003. Even though these are status quo measures, the adjusted commercial quota and adjusted recreational harvest limit will be slightly lower than the 2002 levels because of the research set-aside and overages that occurred in the commercial fishery in 2002. Limited information on black sea bass fishing mortality, recent high recruitment of black sea bass, and recent performance of the black sea bass fishery indicates that if the black sea bass stock is fished at this level, fishing will not exceed the target exploitation rate of 25 percent. As such, the preferred black sea bass TAL and the associated allocations are expected to result in positive biological impacts to the black sea bass stock, as the stock.

The possession limit adopted by the Council for Quarter 1 in 2003 is the same as 2002 (7,000 pounds per trip); the possession limits for Quarters 2-4 are more liberal in 2003 (2,000 pounds per trip in 2002 increasing to 5,000 pounds per trip in 2003). The Commission also adopted state-specific allocations for 2003 when they approve Amendment 13. If Amendment 13 is approved by January 1, 2003 by the federal government, a federal coastwide quota will go into effect to facilitate the state quotas. As such, there would be no federal possession limits. Until Amendment 13 is implemented, a quarterly system will remain in effect for federal permit holders. Because state-by-state measures were approved by the Board, and there is the possibility that federal implementation will not occur by January 1, 2003, the Council adopted liberal possession limits for Quarters 2-4, so as not to constrain federal permit holders from landing in states with different landings limits. The impact of state-specific allocations is fully analyzed in Amendment 13 (section

4.1.5.1). The liberal possession limits in Quarters 2-4 for 2003 are not expected to result in an overharvest of the black sea bass commercial quota, since state management measures will control landings. Because of the states' ability to tailor management measures to the needs of their fishery, the states' management measures are expected to constrain landings to the commercial quota, thereby increasing the likelihood that the target exploitation rate is met in 2003. Achieving the target exploitation rates would allow for stock rebuilding to continue, as per the recovery schedule implemented in Amendment 9.

Given that the preferred commercial quota alternative is the status quo, the commercial management measures would result in no additional impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. It is unlikely that this quota would result in increased effort and greater catches of other species. Additionally, liberal trip limits in Quarters 2-4 in 2003 could result in a fewer number of trips relative to the status quo. Also, as the black sea bass stock increases catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. These measures should not result in an increase of effort in the black sea bass fishery. As such, the incidental catch rates of other species should not increase.

The proposed black sea bass TAL includes a research set-aside of 67,676 pounds. The results of the research conducted through the research set-aside program would benefit both the black sea bass stock and the black sea bass fishery. The exemptions that are required under the proposed research projects are analyzed in section 6.4. Relative to the status quo, the positive impacts of the research set-aside would be identical to the status quo because the program was in effect in 2003.

The preferred alternative would implement an adjusted recreational harvest limit of 3.43 million lb, identical to the recreational harvest limit in 2002. In 2001, black sea bass recreational landings were estimated at 3.42 million lb. If recreational landings do not exceed the 2003 recreational harvest limit in 2003, the status quo measure would result in positive biological impacts on the stock in 2003.

Overall, the black sea bass measures (status quo) under the preferred alternative should have a positive impact on black sea bass stock in 2003.

6.1.2 Socioeconomic Impacts

6.1.2.1 Summer flounder

The proposed TAL of 23.30 million lb for summer flounder, is approximately 4 percent lower than the TAL implemented in 2002. The preferred summer flounder TAL includes a preliminary adjusted commercial quota of 13.87 million lb, a preliminary adjusted recreational harvest limit of 9.28 million lb, and a research set-aside of 91,163 pounds for 2003. These landings levels represent a 4 percent reduction in landings relative to the status quo. However, these measures are necessary to end overfishing in the summer flounder fishery.

An adjusted commercial quota of 13.87 million lb is approximately 4 percent lower than the TAL in 2002 (Alternative 3-status quo). Thus, this alternative may result in some minimal negative economic impacts to the summer flounder

fishery, relative to the status quo. Each state's allocation would also be reduced under this adjusted commercial quota (Table 3). Overall, landings would be lower in 2003, resulting in an decrease in revenue, relative to the status quo. However, these measures are necessary in order to achieve the target exploitation rate for 2003.

A recreational harvest limit of 9.28 million lb in 2003 is about 4 percent less than the harvest limit for 2002. If recreational landings are the same in 2002 as in 2001 (11.64 million lb), the adjusted recreational harvest limit would decrease recreational landings by about 20 percent. As such, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2003. Such measures may result in a decrease in recreational satisfaction for the summer flounder recreational fishery, relative to the status quo (Alternative 3).

Overall, some minimal negative social and economic impacts may occur because of a 4 percent reduction in total landings, relative to the status quo measures for summer flounder (Alternative 3). However, these measures are necessary to achieve the target exploitation rate for 2003. As such, positive social and economic impacts will be realized in the long-term, once the stock is rebuilt to sustainable levels.

6.1.2.2 Scup

The proposed TAL of 16.5 million lb for scup, is approximately 70 percent higher than the scup TAL implemented in 2002. Best available information indicates that the scup stock can be fished at this level without exceeding the target exploitation rate of 21 percent for 2003.

As a result of a higher adjusted commercial quota for scup, positive economic impacts on the scup fishery are likely to occur, relative to the status quo (Alternative 2). This quota landings would allow higher landings, resulting in an increase in revenue, relative to the status quo. Additionally, overall positive economic and social impacts will occur in the long-term, once the stock is rebuilt to sustainable levels.

The preferred alternative adopted by the Council and Board includes more restrictive possession limits for Winters I and II in 2003. With an increase in stock size, reduced possession limits are expected to constrain commercial landings to the commercial TAL, distribute landings equitably throughout the periods to avoid derby-style fishing effort and associated market gluts. According to anecdotal information, potential price fluctuations occur as result of irregular supply. Additionally, the Council and Board are recommending weekly possession limits for Winter I, which would allow fishermen determine when the best time for them to fish and further help to avoid market gluts and unsafe fishing practices. The possession limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period. As such, the possession limits are expected to result in positive social and economic impacts, relative to the status quo possession limits.

The 2003 recommendation will also allow small mesh experimental nets to fish in the GRAs, while carrying at-sea observers. The cost of the at-sea observers will be paid by fishermen wishing to fish in the GRAs with the experimental net. This may result in an increase in *Loligo* landings relative to 2002, and thus positive economic impacts on the *Loligo* fishery, relative to

the status quo. It is not possible to assess the exact monetary value associated with the additional harvest as a result of the proposed experimental net exemption because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor. For vessels operating in the inshore fishery, compliance costs are estimated to be approximately \$775 per vessel, and for vessels operating in the offshore fishery costs are estimated at approximately \$1,354 per vessel. Cost of one at-sea observer day is approximately \$1,150 (Potter pers. com.).

The average ex-vessel value (1996-1999) of *Loligo* in directed trips in the GRAs ranges from \$4,456 to \$24,013 per trip (Table 16). These values are based on the average landings of *Loligo* from 1996-1999 in the GRAs, and the average ex-vessel value (1996-1999) of *Loligo*, adjusted to 2001 dollars. A survey of small Northeast fishing vessels (<65 feet in length) whose primary gear was otter trawl and reported landings in New England indicated that average total operating cost per trip for small trawlers in 1996 was \$267 (Lamelland *et al.* 1998). A survey of large Northeast fishing vessels (>65 feet in length) whose primary gear was otter trawl and reported landings in New England in 1997 indicated that the average total operating cost per trip for large trawlers in 1997 was \$2,608 (Lamelland *et al.* 1999). For both surveys, trip expenses were divided into eight categories (fuel, oil, ice, food and water, lumpers fees, supplies, consignment fees, and other expenses). More detail on the surveys is presented in Amendment 13.

An analysis of VTR data (1996-1999) indicates that on average 72 vessels had directed *Loligo* trips (>50 percent of the total landings were *Loligo*) in the GRAs. Based on the average number of directed *Loligo* trips (>50 percent of the total landings were *Loligo*) in the GRAs, and 5 to 100 percent observer coverage, approximately 11 to 209 directed *Loligo* trips, respectively, would be required to carry observers in the GRAs. This level of coverage would result in an approximate per trip cost of \$4,600 and \$3,450 for *Loligo* trips in the southern and northern GRAs, respectively (Table 16). It is expected that large vessels would most likely participate in the at-sea observer program due to the large distance of the GRAs from shore. While the cost of at-sea observers will increase operating costs of large vessels, it is not anticipated that it will substantially reduce profits for most large vessels fishing in the southern area. However, it may substantially affect profits for vessels fishing in the northern area (Table 16). Nevertheless, participation in this program is not mandatory and it is expected that individual vessels will assess changes in costs and revenues to their operations before they participate in this program.

Table 16. Cost of observer coverage for *Loligo* trips in the GRAs, based on the average number of trips in the GRAs (1996-1999) and the cost of \$1,150 for an observer at-sea day. The average ex-vessel value (1996-1999) of directed species, *Loligo*, in a GRA trip is based on the average landings of *Loligo* (1996-1999) in the GRA blocks, and the average ex-vessel value (1996-1999) of *Loligo*, adjusted to 2001 dollars.

GRA	Level of Observer Coverage	Average Number of Trips (1996-1999)	Cost of an At-Sea Observer Day ^a	Per Trip Cost of Observer Coverage	Average Ex-vessel Value/Trip ^b (1996-1999)
		<i>Loligo</i>		<i>Loligo</i>	<i>Loligo</i>
Southern	5 %	4	\$1,150	\$4,600 ^c	\$24,013
	100 %	73		\$4,600 ^c	

Northern	5%	7	\$1,150	\$3,450 ^d	\$4,456
	100%	136		\$3,450 ^d	

^aBased on NMFS general budget figure for a contractual at-sea observer day (Potter pers. com.). Estimate includes observer contract (\$605), quality bonus (\$100), travel (\$70), meal reimbursement (\$25), data editing (\$40), supplies (\$10), and equipment (\$10). Estimate does not include NEFSC administration and overhead costs (25 percent or \$228).

^bValues were adjusted to the 2001 equivalent using the Producer Price Index.

^cAssumes a four day trip on average.

^dAssumes a three day trip on average.

In order to participate in the at-sea observer program fishermen would have to request a letter of authorization in order to fish in the GRAs with an observer and a modified net. The overall cost to participate in the 5 percent coverage observer program would be lower than under the 100 percent coverage program, because not every trip would require an observer. However, the program with only 5 percent coverage may be more complex to design and manage. With 5 percent coverage, there is the added complexity of determining which trips would require observers. This may require more information on individual applicants because the expected level of fishing in the GRAs for the year would have to be determined in the beginning to determine the number of trips that need observers. Administrators would have monitor fishing activities in the GRAs and determine which trips are required to have observers aboard. Enforceability would also be easier under the 100 percent option, i.e., anyone fishing in the GRA with a small mesh net would be required to have an observer. Finally, a program that only requires 5 percent observer coverage may only provide limited data. It is unknown if these data would be comprehensive enough meet the 20-30 PSE criteria required under ACCSP standards.

An adjusted scup recreational harvest limit of 4.01 million lb in 2003 is about 50 percent more than the scup recreational harvest limit for 2002. However, it is about 6 percent higher than recreational landings in 2001. If 2002 landings, are the same as 2001 landings, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the recreational harvest limit in 2003. Such measures may result in a decrease in recreational satisfaction for the scup recreational fishery, relative to the status quo (Alternative 2).

Overall, positive social and economic impacts are expected to occur as a result of the preferred scup measures for 2003, relative to the status quo measures for scup (Alternative 2). Additionally, these measures are expected to achieve the target exploitation rate. As such, positive social and economic impacts will be realized in the long-term, once the stock is rebuilt.

6.1.2.3 Black sea bass

The proposed TAL of 6.8 million lb for black sea bass is the same as the TAL implemented in 2002. Best available information indicates that the black sea bass stock can be fished at this level and fishing will not exceed the target exploitation rate of 25 percent for 2003. At this rate, overfishing will not occur, which will allow the stock to rebuild. The status quo TAL is not expected to result in negative economic impacts in 2003. Additionally overall positive economic and social impacts will occur in the long-term once the stock is rebuilt to sustainable levels.

The possession limit adopted by the Council for Quarter 1 in 2003 is the same as 2002 (7,000 pounds per trip); the possession limits for Quarters 2-4 are more liberal in 2003 (2,000 pounds per trip in 2002 increasing to 5,000 pounds per trip in 2003). The Commission adopted state-specific allocations for 2003. If Amendment 13 is approved by January 1, 2003, a federal coastwide quota will go into effect to facilitate the state quotas and there would be no federal possession limits. Until Amendment 13 is implemented, a quarterly system will remain in effect for federal permit holders. Because state-by-state measures were approved by the Board, and there is the possibility that federal implementation will not occur by January 1, 2003, the Council adopted liberal possession limits for Quarters 2-4, so as not to constrain federal permit holders from landing in states with different landings limits. The impact of state-specific allocations is fully analyzed in Amendment 13 (section 4.1.5.1). The liberal possession limits in Quarters 2-4 are not expected to result in an overharvest of the black sea bass commercial quota, since states' managements measures will control landings. Because of the states' ability to tailor management measures to the needs of their fishery the more liberal possession limits in Quarters 2-4 are expected to result in positive social and economic impacts relative to the status quo.

A recreational harvest limit of 3.43 million lb is the same as the recreational harvest limit for 2002. It is also identical to the 2001 recreational landings. If 2002 landings are the same as the 2001 landings, it is unlikely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding the preferred recreational harvest limit in 2003. As such, it is not expected that the recreational harvest limit (status quo) will result in social or economic impacts in 2003.

6.1.2.4 Combined socioeconomic impacts of Alternative 1 (preferred)

New quotas alone have relatively limited social impacts. The changes in social structure and cultural fabric that may have occurred under implementation of limited access are already largely in place. The major impact of quota reductions is on profitability. Only where there is a significant reduction in net revenues or in the ability to meet costs are substantial social impacts likely.

A detailed study and characterization of the black sea bass and scup fisheries was conducted by Finlayson and McCay (1994). That study was conducted in order to assess the economic impacts of the draft management FMP for the scup and black sea bass fisheries. This report indicates that black sea bass pot specialization is found from Cape May, NJ through Virginia. The Montauk and Hampton Roads black sea bass pot fishery really only developed beginning in 1992 and 1993. Nonetheless, already in 1994 Hampton Roads, Cape May, and Ocean City pot fishers and Ocean City handline fishermen were heavily dependent on black sea bass. Given the variety of other fishing activities, and in some cases other industries, while individuals may be heavily affected, fishing communities in the region will be minimally impacted. A distinction needs to be made, however, between impacts to individuals and impacts to communities. Where the number of affected individuals in a community is large, the types and degree of impacts are likely to be the same at each level. Where the numbers of individuals are small, however, they may not be.

Further north, Rhode Island pot fishermen and fish trap/pound net fishers are heavily dependent on scup. These fishermen are scattered through communities the length of the Rhode Island coast, however. So the impacts to individuals are unlikely to translate into large community effects.

More recently, McCay and Cieri (2000) reported a small pot fishery in Wildwood, NJ, that mainly targets black sea bass. In Sea Isle City, NJ, there is an offshore pot fishery for lobster, conch, and fish (mostly black sea bass). The value of fish trapped within the pot fishery accounted for 12 percent of the total value landed by the pot fishery in Sea Isle City in 1998. In Delaware, fishermen (predominantly "bayman" or "watermen") use a wide array of gear types when working the estuary, bay, and tributaries of the Delaware Bay and River, bordering New Jersey. Pots and traps are an important type of gear for these fishermen. For fish traps, the most important species is black sea bass. A description of ports and communities that are dependent on summer flounder, scup, and black sea bass is found in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP.

It is important to mention that when the preferred quotas for summer flounder, scup, and black sea bass for year 2003 (adjusted for overages and RSA) are compared to the quotas specified (adjusted quotas) for those species in 2002, the 2003 quotas are 4 percent lower, 71 percent higher, and less than 1 percent lower, respectively. Even though the overall adjusted quotas for 2003 for black sea bass is almost identical to the quota specified for 2002 for that species, Quarters 2 and 3 are projected to be lower (i.e., about 4 percent each) and Quarter 1 is projected to be higher (i.e., about 4 percent; section 2.6 of the RIR/IRFA). As such, not all vessels that participated in this fisheries may be equally affected. For example, if a vessel only targets and lands black sea bass in Quarter 1 then this vessel would not be affected by the projected overage/RSA reductions in Quarters 2 and 3. While the overall summer flounder adjusted quota for 2003 is only 4 percent lower than the quota specified for 2002 for that species, the states of Maine and Delaware are expected to have negative quotas allocated to them due to overages in previous years. However, only a few thousand pounds of summer flounder are typically allocated to these states (i.e., 0.04756 percent and 0.01779 percent of the coastwide quota is allocated to Maine and Delaware, respectively). While some individual fishermen and their families may find the final adjusted 2003 quotas to have significant impacts, the larger communities and towns in which they live will not.

Commercial Impacts

Vessel affected under the 2003 recommended quota harvest levels (Alternative 1)

In order to conduct a more complete analysis, overall impacts were examined in three ways to represent three potential quota "alternatives." Furthermore, the analyses conducted for all three alternatives examined the measures recommended by the Council for each of the three species combined. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in one or even all three of these fisheries (section 4.2 of the EA and 3.1 of the RIR/IRFA).

Under Alternative 1, there are no vessels impacted with significant revenue reductions (see Table 5 in section 5.1 of the RIR/IRFA). The economic impacts for the 1,073 vessels participating in these fisheries ranged from expected small revenue losses for a total of 752 vessels to increase in revenue for 321 vessels. A further breakdown of the 752 vessels showing small revenue reductions, indicates that 539 vessels are expected to have revenue reductions of <1 percent; 81 vessels are expected to have revenue reductions between 1 and <2 percent; 47 vessels are expected to have revenue reductions between 2 and <3 percent; 43 vessels are expected to have revenue reductions between 3

and <4 percent; and 42 vessels are expected to have revenue reductions between 4 and <5 percent. A large proportion of the 752 vessels projected to incur revenue losses (140 vessels or 19 percent) generated revenues of less than \$10,000/year in 2001. This indicates that some of these business units may part-time vessels or not highly dependent (i.e., economic) on commercial fishing (section 5.1 of the RIR/IRFA).

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass \$1.55/lb), the 2003 quotas associated with the preferred alternative would decrease total summer flounder revenues by approximately \$1.0 million, increase total scup revenue by \$4.3 million, and decrease total black sea bass revenue by less than 5 thousand dollars compared to 2002. While the proposed black sea bass TAL for 2003 is the same as the TAL implemented in 2002, adjustments due to overages and research set-asides make the 2003 black sea bass TAL slightly lower than the adjusted 2002 TAL and thus a small decrease in black sea bass revenues is expected compared to 2002.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with the Preferred Alternative is distributed equally between the 795 vessels that landed summer flounder in 2001, the average decrease in revenue associated with the decrease in summer flounder quota is \$1,324/vessel. Assuming the increase in scup total gross revenues associated with this alternative is distributed equally between the 483 vessels that landed scup in 2001, the average increase in revenue associated with the increase in the scup quota is \$8,984/vessel. Finally, if the decrease in black sea bass total gross revenues associated with this alternative is distributed equally between the 740 vessels that landed black sea bass in 2001, the average decrease in revenue associated with the decrease in black sea bass quota is \$7/vessel.

The overall increase in total gross revenue associated with the three species combined in 2003 compared to 2002 is approximately \$3.3 million (assuming 2001 ex-vessel prices) under the Preferred Alternative. If this is distributed among the 1,073 vessels that landed summer flounder, scup, and black sea bass in 2001, the average increase in revenue would be \$3,058/vessel. The changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

It is important to stress that these changes as well as those described under the other alternatives represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2003 for quota overages in 2002 that were not accounted for here.

Recreational Impacts

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer flounder, scup, and black sea bass fisheries,

there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2003, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely measures will result in any substantive decreases in the demand for party/charter boat trips. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder, scup, or black sea bass that they are allowed to catch (section 5.1 of the RIR/IRFA).

Other Impacts

Effects of Commercial Trip Limits, Minimum Mesh, and Minimum Fish Size

Complete descriptions of the impacts of these measures are described in sections 6.1.2.1, 6.1.2.2, and 6.1.2.3.

Effects of the exemption for an experimental small mesh net in GRAs

A complete description of the impacts of this measure is described in section 6.1.2.2. Administrative costs associated with this measure are described in section 3.1 of the RIR/IRFA.

Effects of the research set-aside

The economic analysis regarding changes in the commercial TALs for the summer flounder, scup, and black sea bass fisheries conducted under this alternative as well as the other alternatives analyzed incorporated adjustments for the proposed quota specifications for 2003 relative to the adjusted 2002 quotas (section 3.1 of the RIR/IRFA). That is, overages and RSAs for each species were deducted from the initial overall TALs proposed for 2003 to derive adjusted 2003 quotas. Therefore, the threshold analyses conducted under each alternative has accounted for overall reductions in fishing opportunities in 2003 versus 2002 available to all vessels typically participating in these fisheries due to RSAs. This methodology would overestimate potential revenue losses for vessels participating in these fisheries as the overall TAL for each fishery was adjusted downward due to RSAs that will be available only to vessels participating in RSA projects. Since the summer flounder, scup, and black sea bass RSAs are made available to vessels participating in the RSAs projects only, and these vessels have the opportunity to harvest summer flounder, scup, and black sea bass under the RSA projects as well as under the normal TALs for these species as well, it is possible that the projected revenue losses under the alternatives evaluated could potentially be smaller for some vessels participating in the 2003 RSA projects.

If the amounts of summer flounder, scup, and black sea bass allocated to RSA are not used and are put back into the overall TAL for each fishery in 2003, then the amount of summer flounder, scup, and black sea bass available to all vessels in 2003 could increase by 91,163 lb, 66,650 lb, and 67,676 lb, respectively. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass - \$1.55/lb), the 2003 research set-aside could be worth as much as \$147,684 for summer flounder, \$55,986 for scup, and \$104,898 for black sea bass. As such, assuming an equal increase among all active vessels (i.e., 795, 483, and 740 vessels that landed summer flounder, scup, and black sea bass in 2001, respectively), this could mean a potential

increase in revenue of about \$186, \$116, and \$142 per individual vessel in the summer flounder, scup, and black sea bass fisheries, respectively. If research set-asides are not used and are put back into the overall TAL for each fishery, then the estimated economic impacts for commercial vessels would be smaller than those estimated under the combined socioeconomic impacts of each alternative.

The specifications are not expected to affect in a negative way the overall demand for recreational fishing trips in the North and Mid-Atlantic regions (section 5.1 of the RIR/IRFA).

6.1.3 EFH Impacts

6.1.3.1 Summer flounder

The principal commercial gear used to harvest summer flounder, scup and black sea bass is the bottom otter trawl with other major gears including scallop dredge (for summer flounder) and fish pots and traps (for scup and black sea bass). The nature of impacts by these gear on the ocean bottom habitat is described in Amendment 13. Data on the extent of impacts by specific gear on various bottom types are not available. Although the specific consequences for habitat are unknown, it can be assumed that the extent of trawling and dredging impacts are related to fishing effort.

The 2003 preferred alternative includes a decrease in the summer flounder commercial quota by 4 percent (23.3 million lb), an increase in the scup commercial quota by 70 percent (16.5 million lb), and the retention of the status quo black sea bass commercial quota (6.8 million lb). It is difficult to predict precisely whether these quota increases will result in increased fishing effort on EFH. Several possibilities exist that would influence fishing effort. Potentially, the larger quota could result in a larger number of fishing trips, or longer fishing trips, with a corresponding potential for greater habitat impacts. Conversely, a larger quota could mean that states establish higher trip limits, which would result in an equal number of fishing trips landing a larger volume of fish. Similarly, with increased species abundance, catch-per-unit-effort could increase which would result in the same number of tows landing a larger volume of fish. In these latter instances, the proposed quotas would result in either the same or reduced gear impacts to bottom habitats. Table 17 represents the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species.

Table 17. Comparison of habitat impacts and considerations for selecting alternatives.

Alternative	Quota in mil lb.	Potential Change in CPUE and Habitat Impacts	Considerations for selecting alternative
Summer Flounder			

Preferred Alternative 1	23.30	Based upon species abundance, impacts may remain the same as existing, or decrease. If abundance increases, increased CPUE will tend to lead toward stable or decreased impacts to habitat. The potential for impacts to habitat impacts is more than Alternative 2 but less than Alternative 3.	Maximizes landings while achieving the target exploitation rate, minimal to no increased habitat impacts, long-term financial benefits to industry.
Alternative 2	21.50	Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative	Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry.
Alternative 3 (Status Quo)	24.30	Based upon species abundance, impacts may remain the same as existing, or decrease. If abundance increases, increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, potential for highest habitat impacts, potential for highest short-term financial benefits to industry, however no increased financial benefit, decreased long-term financial benefit.
Scup			
Preferred Alternative 1	16.5	Based upon species abundance, impacts may remain the same as existing, or may increase. An increase in abundance with weekly possession limits and increased CPUE will tend to lead toward stable or decreased impacts to habitat. This is a potential increase in habitat impacts is more than Alternative 2 but less than Alternative 3.	Maximizes landings while achieving the target exploitation rate, minimal to no increased habitat impacts, potential for highest short-term financial benefits to industry and long-term financial benefits to industry.
Alternative 2 (Status quo)	10.77	Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative	Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, no increase or decrease in financial benefit to industry.
Alternative 3	22.00	Based upon species abundance, impacts may remain the same as existing, or may increase or decrease. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts.	Maximizes landings, but risk-prone approach, may not achieve the target exploitation rate, minimal to no increased habitat impacts, increased short-term financial benefits to industry.
BSB			

Preferred Alternative 1 (Status quo)	6.80	Based upon species abundance, impacts may remain the same as existing, or may decrease. Increased abundance, higher possession limits, and increased CPUE will tend to lead toward stable or decreased impacts to habitat. The potential impact to habitat is more than Alternative 2 but less than Alternative 3.	Maximizes landings while achieving the target exploitation rate, minimal to no increased habitat impacts, no short-term increased financial benefits, increased long-term financial benefit to industry
Alternative 2	4.60	Impacts may range from maintaining existing level of to decreases. The potential for maintaining or decreasing habitat impacts is greatest with this alternative	Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, decrease in financial benefit to industry
Alternative 3	7.20	Based upon species abundance, impacts may remain the same as existing, or may increase. Increased CPUE will tend to lead toward stable or decreased impacts to habitat. However, this alternative has the potential for the greatest increase in habitat impacts.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, potential for highest habitat impacts, potential for highest short-term financial benefits to industry, may result in decreased long-term financial benefits to industry.

Given the range of habitat impacts that could occur, depending upon whether fishing effort increases or remains constant (due to a higher catch-per-unit-effort because of increased species abundance), the preferred alternative may have adverse effects to EFH that range from increased adverse impacts to impacts that are less than existing impacts. The possession limits for scup and black sea bass associated with this action are expected to result in decreased adverse impacts on EFH.

Since the increase in the quota for each species meets the FMP objective of increasing yields while ensuring that overfishing does not occur, and due to the lack of evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, this action minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to Section 305 (a) (7) of the MSFCMA.

6.1.3.2 Scup

The habitat impacts associated with the preferred alternative are addressed under section 6.1.3.1.

6.1.3.3 Black sea bass

The habitat impacts associated with the preferred alternative are addressed under section 6.1.3.1.

6.1.4 Protected Resources Impacts

6.1.4.1 Summer flounder

Numerous species of marine mammals and sea turtles occur in the Northwest Atlantic Ocean. A comprehensive study of this areas was completed from 1979-1982 by the Cetacean and Turtle Assessment Program (CETAP), at the University

of Rhode Island, covering the area of Cape Sable, Nova Scotia, to Cape Hatteras, North Carolina, from the coastline to 5 nautical miles seaward of the 1,000 fathom isobath.

Four hundred and seventy one large whale sightings, 1,547 small whale sightings and 1,172 sea turtles were encountered in this survey. CETAP concluded that both large and small cetaceans were widely distributed throughout the study areas in all four seasons, and grouped the 13 most commonly seen species into three categories, based on geographical distribution. The first group contained only the harbor porpoise, which is distributed only over the shelf and throughout the Gulf of Maine, Cape Cod, and Georges Bank, but probably not southwest of Nantucket. The second group contained the most frequently encountered baleen whales (fin, humpback, minke and right whales) and the white-sided dolphin. These were found in the same areas as the harbor porpoise, and also occasionally over the shelf at least to Cape Hatteras or out to the shelf edge. The third group indicated a "strong tendency for association with the shelf edge" and included the grampus, striped, spotted, saddleback and bottlenose dolphins, and the sperm and pilot whales.

Loggerhead turtles were found throughout the study area, but appeared to migrate north to about Massachusetts in summer and south in winter. Leatherbacks appeared to have had a more northerly distribution. CETAP hypothesized a northward migration of both species in the Gulf Stream with a southward return in continental shelf waters nearer to shore. Both species usually were found over the shoreward half of the slope and in depths less than 200 feet. The northwest Atlantic may be important for sea turtles feeding or migrations, but the nesting areas for these species generally are in the South Atlantic and Gulf of Mexico.

This problem may become acute when climatic conditions result in concentrations of turtles and fish in the same area at the same time. These conditions apparently are met when temperatures are cool in October, but then remain moderate into mid-December and result in a concentration of turtles between Oregon Inlet and Cape Hatteras, North Carolina. In most years, sea turtles leave Chesapeake Bay and filter through the areas a few weeks before the fall fisheries become concentrated. Efforts are currently under way (by VIMS and U.S. Fish and Wildlife Service refuges and Back Bay, Virginia and Pea Island, North Carolina) to more closely monitor these mortalities due to trawls. Fishermen are encouraged to carefully release turtles captured incidentally and to attempt resuscitation of unconscious turtles, as recommended in the 1981 Federal Register (pages 43976 and 43977).

The only other endangered species occurring in the northwest Atlantic is the shortnose sturgeon (*Acipenser brevirostrum*). The Councils and NMFS urge fishers to report any incidental catches of this species to the Regional Administrator, NMFS, One Blackburn Drive, Gloucester, Massachusetts 01930, who will forward the information to persons responsible for the active sturgeon database.

As for protected marine mammals, species that may be potentially impacted by these fisheries included bottlenose dolphin, pilot whale, fin whale, humpback whale, right whale, harbor porpoise, harbor seal and four species of beaked whales. Detailed discussions of the impact of these fisheries on these species can be found in Amendment 13 to the Summer Flounder, Scup and Black Sea Bass FMP.

Section 114 of the MMPA establishes an interim exemption for the taking of marine mammals incidental to commercial fishing operations and requires that NMFS publish an annual update to the List of Fisheries, along with the marine mammals and the number of vessels or persons involved in each fishery, arranging them according to the following categories: 1) The fishery has a frequent incidental taking of marine mammals; 2) the fishery has an occasional incidental taking of marine mammals; or 3) the fishery has a remote likelihood, or no known taking, of marine mammals. The gears managed under this FMP are all in the second or third category or not listed at all for the final List of Fisheries for 2002 for the taking of marine mammals by commercial fishing operations under section 114 of the Marine Mammal Protection Act (MMPA) of 1972.

The range of the species discussed above and the species managed under this FMP overlap, and there always exists a potential for an incidental kill. Except in unique situations, such incidental catches should have a negligible impact on marine mammal or abundances of endangered species, and NMFS has concluded in the previous consultations that implementation of this FMP will not have any adverse impact upon these populations.

The measures in the preferred alternatives do not contain major changes to existing management measures. Changes in overall fishing effort as a result of the higher commercial quotas are unknown. Fishing effort could increase as vessels take more, or longer, trips (Table 17). Conversely, fishing effort could remain constant because vessels may achieve a higher catch-per-unit-effort due to increased species abundance. Weekly possession limits in Winter 1 of the scup fishery and higher possession limits in Quarters 2-4 in the black sea bass fishery will make it so that vessels would need to take fewer trips to land the larger volume of fish. Because the proposed changes are not expected to cause large increases in fishing effort, it is concluded that the preferred alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals.

6.1.4.2 Scup

The impacts on protected resources associated with the preferred alternative are addressed under section 6.1.4.1.

6.1.4.3 Black sea bass

The impacts on protected resources associated with the preferred alternative are addressed under section 6.1.4.1.

6.2 Alternative 2 (Most Restrictive)

Alternative 2 analyzes the impacts of the most restrictive harvest limits for 2003. More specifically, a summer flounder TAL of 21.50 million lb, a scup TAL of 10.77 million lb, and a black sea bass TAL of 4.60 million lb. The TALs will be allocated to the commercial and recreational sectors as described in section 2.0 and the commercial quota and the recreational harvest limit would be adjusted as described in section 2.0. The preliminary adjusted commercial quotas and recreational harvest limits are presented in Table 1.

6.2.1 Biological Impacts

6.2.1.1 Summer flounder

The management measures for summer flounder under Alternative 2 (most restrictive), are based on an initial summer flounder TAL of 21.50 million lb. Based on the current status of the stock, a TAL of 21.50 million lb has a 75 percent probability of achieving the target F of 0.26 in 2003, assuming the TAL and discard level in 2002 are not exceeded. As such, this alternative has greatest probability of achieving the rebuilding schedule.

A summer flounder TAL of 21.50 million lb could result in a 12 percent decrease in landings relative to existing measures. This TAL includes a preliminary adjusted commercial quota of 12.79 million lb, a preliminary adjusted recreational harvest limit of 8.56 million lb, and a research set-aside of 91,163 pounds. These measures have the greatest probability of achieving the fishing mortality targets in 2003 but result in reduced yields from the fishery. These measures are likely to result in positive biological impacts to the stock, relative to the status quo (Alternative 3).

The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests other species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. However, a lower quota should result in lower fishing effort in order to constrain landings to the quota. As such, the most restrictive summer flounder measures would not result in an increase in impacts on other fisheries, relative to the status quo.

The discard set-aside measures established by the Commission decrease discards of sublegal summer flounder as well as reduce regulatory discards that occur as a result of possession limits set by the states. A decrease in the amount of discards would increase the likelihood that the target biomass and target exploitation rate would be achieved in 2003, because true incidental catch would now be landed and applied to the quota.

The most restrictive measures for summer flounder would implement an adjusted recreational harvest limit of 8.56 million lb, approximately 12 percent lower than the recreational harvest limit in 2002 (Alternative 3). If recreational landings are the same in 2002 as in 2001 (11.64 million lb), this recreational harvest limit would decrease recreational landings by about 26 percent. This reduction, relative to 2001 landings, may be greater than is necessary to achieve the target exploitation rate for 2003. However, this recreational harvest limit should have positive biological impacts on the stock, relative to status quo (Alternative 3).

Overall, the summer flounder measures under the most restrictive alternative would likely result in positive impacts on the summer flounder stock and stocks of other fishes relative to the status quo measures for summer flounder (Alternative 3).

6.2.1.2 Scup

The most restrictive measures for scup are the status quo measures. As such, the scup TAL under this alternative would be 10.77 million lb for 2003. However, current information indicates that scup abundance is likely to increase in 2003. Additionally, the SARC-35 commented that "the stock can likely sustain modest increases in catches, but managers should do so with consideration of high uncertainty in stock status determination."

The most restrictive (status quo) TAL of 10.77 million lb for scup, includes a preliminary adjusted commercial quota of 7.95 million lb, a preliminary

adjusted recreational harvest limit of 1.48 million lb, and a research set-aside of 66,650 pounds. Limited information on scup fishing mortality, past performance of the scup stock and scup fishery, and the advice given by the 35th SARC, indicates that the scup stock can be fished at a higher level than 10.77 million lb and the fishery will not exceed the target exploitation rate of 21 percent for 2003. As such, while being overly conservative, this alternative and the associated allocations are expected to result in positive biological impacts on the scup stock in 2003.

The preliminary adjusted commercial quota for scup under the Alternative 2 (most restrictive) is 9 percent higher than the preliminary adjusted quota for 2002. The difference is a result of the lower research set-aside in 2003, i.e., total landings are the same. Given that this alternative does not increase or decrease total scup landings relative to the quota specified for 2002, impacts on other fisheries would be similar to past years. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, black sea bass, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. It is unlikely that this quota would result in an increase in fishing effort (number of fishing trips) and greater catches of other species.

This TAL would include an adjusted recreational harvest limit for scup 2.75 million lb, slightly higher than the adjusted recreational harvest limit in 2002. Again, the difference is a result of a lower research set-aside in 2003, the initial recreational harvest limit under this alternative is identical to 2002. If recreational landings are the same in 2002 as in 2001 (4.26 million lb), the recreational management measures would have to be more restrictive in 2003 under this alternative. However, the recreational landings under this alternative are more conservative than necessary to achieve the target exploitation rate for 2003. If recreational landings were constrained to a recreational harvest limit of 2.75 million lb, positive biological impacts would likely result from this alternative.

Overall, the status quo scup measures under this alternative (most restrictive) would like have a positive impact on the scup stock, but are more conservative than needed to achieve the target exploitation rate for 2003.

6.2.1.3 Black sea bass

The most restrictive TAL for black sea under this alternative is 6.0 million lb. Based on a TAL of 4.6 million lb, the preliminary adjusted commercial quota would be 2.05 million lb, the preliminary adjusted recreational harvest limit would be 2.31 million lb, and the research set-aside would 67,676 pounds. This TAL would likely achieve the target exploitation rate of 25 percent for 2003, based on a conservative estimate of 0.436 for the 2003 spring survey index (i.e., the spring survey index for 2003 would be equal to the average for 2001 and 2002). However, best available data that indicate that recruitment has been high and stock size has increased in recent years. In fact, NEFSC survey data indicate that the 3-year average (2000-2002) exploitable biomass index is 65 percent higher than the value for 1999-2001. NEFSC survey data also indicate that the recruitment index for 2000 is the highest in the time series, 1968-2002 and the 2002 index is also above average.

In addition, the Council and Commission adopted restrictive measures for minimum fish size (an increase to 11 inches) and gear (increase in minimum

mesh size and vent sizes), which allowed for additional protection of the 2000 and year classes. These measures will allow for an increase in exploitable biomass in 2003 and beyond.

The target exploitation rate for 2003 is 25 percent, the exploitation rate associated with F_{max} (0.32). This is a drop from the 2002 target of 37 percent. Although the exploitation rate for 2002 is uncertain, relative exploitation rates have generally declined in recent years. Relative exploitation based on the total commercial and recreational landings and the moving average of the transformed spring survey index and indicates a significant reduction in mortality of black sea bass from 1998 to 2001, relative to 1996 and 1997 levels. Increases in exploitable biomass will offset the drop in target exploitation rate, allowing for the target exploitation rate of 25 percent to be achieved with a TAL higher than 4.6 million lb.

It is difficult to predict the 2003 exploitable biomass estimate. This estimate is based on a three-year average and the actual estimate for 2003 will not be derived until the spring 2004 survey results are available. As such, if the spring survey estimate in 2003 was 0.337, the same value for 2001, the TAL associated with a rate of 25 percent would be 4.6 million lb. If the spring survey for 2003 is equal to 0.436 (the average for 2001 and 2002) and assuming an exploitation rate of 48 percent in 1998, the TAL associated with an exploitation rate of 25 percent is about 6 million lb. Conversely, if the results are more optimistic and stock abundance is higher, than the TAL could be higher than 6 million lb. For example, if the rate of stock increase continues as it has in recent years and the biomass estimate is 0.522 in 2003 (the estimate that you would get if you derived a regression through the 1999-2001 points and used the derived equation to estimate the 2003 survey result), than the TAL associated with an exploitation rate of 25 percent is 7.2 million lb. Based on all information, recent recruitment, increase in stock abundance, and declines in relative exploitation, a TAL for black sea bass of 4.6 million lb is likely to be more conservative than needed to achieve the target exploitation rate of 25 percent for 2003.

The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. It is likely that a lower commercial quota with increasing stock abundance would result in a decrease in effort and catches of other species. Additionally, liberal trip limits in Quarters 2-4 in 2003 could result in a fewer number of trips relative to the status quo. Also, as the black sea bass stock increases catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. A commercial TAL of 4.6 million lb should result in an decrease of effort in the black sea bass fishery, as such the incidental catch rates of other species should not increase.

This TAL would implement an adjusted recreational harvest limit of 2.31 million lb, 32 percent lower than the recreational harvest limit in 2002. In 2001, black sea bass recreational landings were estimated at 3.42 million lb, 28 percent higher than the adjusted recreational harvest limit under this alternative. If recreational landings are the same in 2002 as in 2001, then recreational management measures would have to be more restrictive in 2003 to constrain the landings to this harvest limit.

Overall, the black sea bass measures under this alternative should have a positive impact on black sea bass stock and the stocks of other species in 2003, relative to the status quo black sea bass measures. However, these measures are most likely more conservative than needed to achieve the target exploitation rate for black sea bass for 2003.

6.2.2 Socioeconomic Impacts

6.2.2.1 Summer flounder

The most restrictive summer flounder TAL of 21.5 million lb under Alternative 2 is approximately 12 percent lower than the TAL implemented in 2002. This TAL and a reduction in discards has an associated 75 percent probability of achieving the F target of 0.26 in 2003. At this landings level, it is likely overfishing on the summer flounder stock would not occur. However, it is likely that this TAL is more conservative than necessary to achieve the target F for 2003.

This TAL would result in a preliminary adjusted commercial quota of 12.79 million lb, 12 percent less than the existing adjusted commercial quota for summer flounder. Each state's allocation would also be reduced under this adjusted commercial quota (Table 3). As such, negative economic impacts such as a decrease in revenue are likely to result, relative to the 2002 commercial quota (Alternative 3-status quo).

A recreational harvest limit of 8.56 million lb in 2003 is about 12 percent less than the harvest limit for 2002. Additionally, it is approximately 26 percent lower than 2001 recreational landings. If landings in 2002 are the same as 2001, more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding this recreational harvest limit in 2003. Specific recreational management measures will be determined in December when recreational landings for 2002 are more complete. Such measures may result in a decrease in recreational satisfaction relative to the status quo (Alternative 3).

Overall, negative social and economic impacts would likely occur as a result of a 12 percent reduction in the TAL, relative to the existing summer flounder TAL (Alternative 3-status quo). Additionally, these measures are more conservative than needed to achieve the target exploitation rate for summer flounder in 2003.

6.2.2.2 Scup

The most restrictive measures for scup are the status quo measures. The scup TAL under this alternative would be 10.77 million lb for 2003. However, current information indicates that scup abundance is likely to increase in 2003. Additionally, the SARC-35 commented that "the stock can likely sustain modest increases in catches, but managers should do so with consideration of high uncertainty in stock status determination."

Even though this is the status quo alternative, the preliminary adjusted commercial quota for scup under this alternative is 9 percent higher than the adjusted commercial quota for 2002. The difference results from a lower research set-aside in 2003. Although the total landings under this alternative are identical to 2003. Allocations for each period would also be slightly higher under this adjusted commercial quota (Table 4). Therefore,

minimal positive impacts are expected to result from a slightly higher commercial quota under this alternative.

This TAL would include an adjusted recreational harvest limit for scup of 2.75 million lb, slightly higher than the adjusted recreational harvest limit in 2002 of 2.71 million lb. Although the total landings under this alternative are identical to 2002, the difference results from a lower research set-aside in 2003. If recreational landings are the same in 2002 as in 2001 (4.26 million lb), the 2003 recreational management measures would have to be more restrictive (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) to prevent anglers from exceeding this scup recreational harvest limit under this alternative in 2003. These measures may result in a decrease in recreational satisfaction in 2003.

Overall, the status quo scup measures under this alternative (most restrictive) would likely result in no or minimal negative social and economic impacts on the scup fishery. Additionally, these measures are more conservative than needed to achieve the target exploitation rate for scup in 2003.

6.2.2.3 Black sea bass

The most restrictive TAL for black sea under this alternative is 4.6 million lb. Based on a TAL of 4.6 million lb, the preliminary adjusted commercial quota would be 2.05 million lb, the preliminary adjusted recreational harvest limit would be 2.31 million lb, and the research set-aside would be 67,676 pounds.

A preliminary adjusted commercial quota of 2.05 million lb is about 35 percent lower than the existing adjusted commercial quota for black sea bass. A more restrictive TAL would result in a loss of revenue for the commercial fishery. Until Amendment 13 is implemented, a quarterly quota system will remain in effect for federal permit holders. The quarterly quotas under this alternative would also be reduced (Table 5). Once the quarterly quota has been achieved the fishery will close. A more restrictive commercial quota combined with a quarterly quota system would magnify the problem of early closures and associated socioeconomic impacts. Socioeconomic impacts of early closures include derby-style fishing effort that results in unsafe fishing practices, market gluts, decreased annual revenue, and increased unemployment. The Board adopted state allocations for 2003. The Board adopted state allocations for 2003. State allocations would also be reduced under an adjusted commercial quota of 2.05 million lb. As such, a commercial quota of 2.05 is expected to result in negative social and economic impacts, relative to the 2002 commercial quota (Alternative 1-status quo).

An adjusted recreational harvest limit of 2.31 million lb is about 32 percent lower than the recreational harvest limit for 2002. It is also identical to the 2001 recreational landings. If 2002 landings are the same as the 2001 landings more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would not be necessary to prevent anglers from exceeding this recreational harvest limit in 2003. Specific recreational management measures will be determined in December when recreational landings for 2002 are more complete. Such measures may result in a decrease in recreational satisfaction relative to the status quo (Alternative 1).

Overall, negative economic impacts would likely occur as a result of a 32 percent reduction in the TAL, relative to the existing black sea bass measures (Alternative 1-status quo). Additionally, these measure are more conservative

than necessary to achieve the target exploitation rate for black sea bass in 2003.

6.2.2.4 Combined socioeconomic impacts of Alternative 2 (most restrictive)

The same overall discussion regarding the social impacts of quotas and characterization of the summer flounder, scup, and black sea bass fisheries by port and community presented under Alternative 1 also apply here.

Commercial Impacts

Vessels affected under the most restrictive alternative (Alternative 2)

The analysis of the harvest levels under this alternative indicate that the economic impacts ranged from expected revenue losses on the order of 40-49 percent for 5 vessels to no revenue loss (relative to 2002) for vessels that landed scup only. The majority of the revenue losses are attributed to quota reductions and overages associated with the summer flounder and black sea bass fisheries. In addition, 64 of the 1,073 commercial vessels would have had an increase in revenue in 2003 relative to 2002. All vessels with revenue losses of 5 percent or higher had landed black sea bass only or summer flounder only, or a combination of black sea bass or summer flounder with the other two species. Since there is a number of vessel that could experience revenue reductions under this alternative, additional analysis regarding these vessels is presented below (e.g., evaluation of permit status, geographic distribution of permitted vessel). Since Alternative 2 is the most restrictive alternative, impacts of other alternatives will be less than the impacts under this alternative (section 5.2 of the RIR/IRFA).

Of the 298 vessels showing revenue reduction of 5 to 49 percent, 186 are identified as holders of Federal summer flounder, scup, or black sea bass permits. The 186 vessels holding various combinations of summer flounder, scup, and black sea bass permits are described in Table 18. It is most common for vessels to have permits for all 3 species. Other common combinations include black sea bass only and scup/black sea bass permits.

Table 18. Combinations of 2001 summer flounder (FLK), scup (SCP), and black sea bass (BSB) permits held by commercial vessels projected to have revenue reductions in the 5 to 49 percent range under the most restrictive alternative (Alternative 2).

	All 3	FLK only	BSB only	SCP only	SCP/ BSB	SCP/ FLK	BSB/ FLK	None*
Commercial	68	14	43	3	36	11	11	33

* "None" indicates no summer flounder, scup, or black sea bass permit held, and not necessarily no commercial permits held.

Many of the vessel projected to have revenue reductions in the 5 to 49 percent range hold permits in other fisheries (Table 19). In particular, most vessels have tilefish, bluefish, squid-mackerel-butterfish, and herring permits. As a result, they have access to some alternative fisheries, although some like multispecies and scallops, are already under heavy regulation and likely to have increasingly stringent catch limits for the near future.

Table 19. Other 2001 permits held by the 186 vessels holding summer flounder, scup and black sea bass permits projected to have revenue reductions in the 5 to 49 percent range under the most restrictive alternative (Alternative 2).

	Northeast Region Permit Status	Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	77	26
	Surfclam	50	17
	Scallop	8	3
	Lobster, trap gear	61	20
	Lobster, non-trap gear	46	15
	Squid/Mackerel/Butterfish	154	52
	Quahog	43	14
	Bluefish	171	57
	Dogfish	147	49
	Tilefish Tier 1	186	62
	Tilefish Tier 2	186	62
	Tilefish part-time	186	62
	Tilefish Incidental	87	29
	Herring VMS	186	62
	Herring NonVMS	95	32
Recreational	FLK, SCP, and/or BSB	20	7
	Multispecies	64	21
	Lobster	1	0
	Squid/Mackerel/Butterfish	19	6
	Bluefish	24	8

The majority of the 186 vessels with Federal permits for summer flounder, scup and/or black sea bass have home ports in New York, Massachusetts, North Carolina, Virginia, New Jersey, and Virginia. The principal ports of landing for these vessels are mainly located in New York, Virginia, New Jersey, and Massachusetts (Table 20).

Although the summer flounder quota is allocated to the individual states, vessels are not necessarily constrained to land in their home state. It is useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. Thus, of the five states home-porting the highest number of vessels projected to have revenue reductions in the 5 to 49 percent range (New York, Massachusetts, North Carolina, Virginia, and New Jersey), vessels in those states are likely to land in their home port state (76 to 100 percent). This information is important because impacts will occur both in the community of residence and in the community where the vessel's catch is landed and sold.

The largest vessels are found in North Carolina, Maryland, and New Jersey (Table 20). Larger vessels often have more options than smaller vessels, due to increased range and more deck space for alternative gear configurations. This can help them to respond to cuts in quota in particular states. They also, however, need larger volumes to remain profitable.

Table 20. Descriptive information for the commercial vessels showing revenue reductions in the 5 to 49 percent range based on 2002 descriptive data from NMFS permit files. No vessel characteristics data are reported for states with fewer than 3 permits.

	DE	MA	MD	NC	NJ	NY	RI	VA	Other
# Permits by Home Port State	4	33	10	28	25	39	17	25	5
# Permits by Principal Port State	4	27	12	24	30	35	22	29	3
# Permits by Mailing Address state	5	27	11	25	29	35	23	28	3
Avg. Length in Feet by Principal Port	41	38	53	63	52	35	45	41	60
Avg. GRT by Principal Port	16	22	37	84	48	17	29	25	70
% of Vessels where Home Port State = Principal Port State	80	100	91	88	76	97	70	89	100

Most commercial vessels showing revenue reductions in the 5 to 49 percent range vessels are concentrated in New York, Massachusetts, North Carolina, Virginia, and New Jersey (Table 21). Within these states, the most impacted counties are: New York – Suffolk; Massachusetts – Barnstable, Bristol, Dukes, Plymouth, and Suffolk; North Carolina – Carteret, Dare, Hyde, and Pamlico; Virginia – Accomack, Norfolk City, and Virginia Beach City; New Jersey – Cape May, Monmouth, and Ocean.

Within these counties, some individual ports have concentrations of vessels; in other cases only one or two vessels may be found per port but the overall number in the county is large. Some individual ports with large numbers of impacted vessels are: Boston, Massachusetts; Ocean City/West Ocean City, Maryland; Wanchese, North Carolina; Cape May, New Jersey; New York and Montauk, New York; and Virginia Beach, Virginia. If communities having larger numbers of impacted vessels also have a larger total numbers of vessels, the proportion that may be impacted thus may be lower. This effect may mitigate the impacts on the community as a whole.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles were constructed. Each profile are based on impacts under the most restrictive possible alternative. The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Reported statistics including demographic statistics, employment, and wages for these counties is presented in section 6.1 of the RIR/IRFA. In addition, a description of important ports and

communities to the summer flounder, scup, and black sea bass fisheries is presented in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP.

Table 21. Distribution of commercial vessels showing revenue reductions in the 5 to 49 percent range (holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2000 NMFS permit files - home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

State	County	Home port	Number of Vessels
Delaware	Sussex ^a		4
Massachusetts	Barnstable ^a		6
	Bristol	Fairhaven	6
		New Bedford	4
	Dukes ^a		3
	Plymouth ^a		3
	Suffolk	Boston	11
Maryland	Worcester	Ocean City/ West Ocean City	10
North Carolina	Carteret	Beaufort	6
		Other	1
	Dare	Wanchese	8
		Other	1
	Hyde	Englehard	4
		Other	1
Pamlico ^a	Other	4	
New Jersey	Cape May ^a		9
	Monmouth	Belford	4
		Other	2
	Ocean	Point Pleasant	5
		Other	3
New York	Suffolk	New York	11
		Montauk	19
		Other	6
Pennsylvania			3

Rhode Island	Newport	Newport	3
	Washington	Point Judith	7
		Other	7
Virginia	Accomack	Chincoteague	3
	Norfolk City	Norfolk	7
	Virginia Beach City	Rudee Inlet	3
		Virginia Beach	9

^aAll located in different home ports.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bas \$1.55/lb), the 2003 quotas associated with Alternative 2 would approximately decrease summer flounder and black sea bass revenues by \$2.8 and \$1.7 million, respectively, and increase revenues for scup by \$0.6 million compared to 2002.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with Alternative 2 is distributed equally between the 795 vessels that landed summer flounder in 2001, the average decrease in revenue associated with the decrease in summer flounder quota is \$3,525/vessel. Assuming the increase in scup total gross revenues associated with this alternative is distributed equally between the 483 vessels that landed scup in 2001, the average increase in revenue associated with the increase in scup quota is \$1,212/vessel. Finally, if the decrease in black sea bass total gross revenues associated with this alternative is distributed equally between the 740 vessels that landed black sea bass in 2001, the average decrease in revenue associated with the increase in black sea bass quota is \$2,264/vessel.

There is an overall reduction in gross revenue associated with the three species combined, in 2003 compared to 2002, of approximately \$3.9 million (assuming 2001 ex-vessel prices) under Alternative 2. If this is distributed among the 1,073 vessels that landed summer flounder, scup, and black sea bass in 2001, the average decrease in revenue would be \$3,628/vessel. The changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

Recreational Impacts

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder and scup that they are allowed to catch. As such, it is not probable that the decrease in the harvest limits, relative to the 2001 landings will have a substantial impact on the number of party/charter fishing trips (section 5.2 of the RIR/IRFA).

6.2.3 EFH Impacts

6.2.3.1 Summer flounder

The principal commercial gear used to harvest summer flounder, scup and black sea bass is the bottom otter trawl with other major gears including scallop dredge (for summer flounder) and fish pots and traps (for scup and black sea bass). The nature of impacts by these gear on the ocean bottom habitat is described in Amendment 13. However, data on the extent of impacts by specific gear on various bottom types are not available. Although the specific consequences for habitat are unknown, it can be assumed that the extent of trawling and dredging impacts are related to fishing effort.

Alternative 2 (most restrictive) includes a decrease the summer flounder commercial quota by 12 percent (12.79 million lb), an increase the scup commercial quota by 9 percent (12.42 million lb), and a decrease in black sea bass commercial quota of 35 percent (3.13 million lb). It is difficult to predict precisely whether these quota decreases will result in a decrease in fishing effort on EFH. Several possibilities exist that would influence fishing effort. Potentially, a smaller quota could result in a smaller number of fishing trips, or shorter fishing trips, with a corresponding reduction in habitat impacts. Conversely, a smaller quota could mean that states establish smaller trip limits, which would result in an equal number of fishing trips. Similarly, with increased species abundance, catch-per-unit-effort could increase which would result in the same number of tows landing a larger volume of fish. In these latter instances, the proposed quotas would result in either the same or reduced gear impacts to bottom habitats. Table 17 represents the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species.

This alternative would likely minimize the adverse effects of fishing on EFH to the extent practicable, pursuant to Section 305 (a)(7) of the MSFCMA. However, the restrictive commercial quotas under this alternative are more conservative than necessary to achieve the 2003 target exploitation rates for summer flounder, scup, and black sea bass.

6.2.3.2 Scup

The habitat impacts associated with the preferred alternative are addressed under section 6.2.3.1.

6.2.3.3 Black sea bass

The habitat impacts associated with the preferred alternative are addressed under section 6.2.3.1.

6.2.4 Protected Resources Impacts

6.2.4.1 Summer flounder

Protected species are discussed in section 6.1.4.1. The range of these species overlap with the species managed under this FMP. As such, a potential for incidental kill always exists. Except in unique situations, such as incidental catches should have a negligible impact on marine mammal or abundances of endangered species, and NMFS has concluded in the previous consultations that implementation of this FMP will not have any adverse impact upon these populations.

The measures under this alternative do not contain major changes to existing management measures. Overall fishing effort should decrease as a result of

more restrictive quotas, especially with increasing stock abundance for all three species (section 6.1.4.1; Table 17). As such, this alternative is expected to negatively affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals, relative to the status quo.

6.2.4.2 Scup

The impacts on protected resources associated with the preferred alternative are addressed under section 6.2.4.1.

6.2.4.3 Black sea bass

The impacts on protected resources associated with the preferred alternative are addressed under section 6.2.4.1.

6.3 Alternative 3 (Least Restrictive)

Alternative 3 analyzes the impacts of the least restrictive harvest in 2003. This alternative is status quo for summer flounder and includes a TAL of 24.30 million lb (a 14.47 million lb preliminary adjusted commercial quota; a 9.68 million lb adjusted recreational harvest limit; a research set-aside of 91,163 pounds). Under this alternative the scup fishery would receive a 22.00 TAL (a 16.71 million lb preliminary adjusted commercial quota; a 5.22 million lb recreational harvest limit; a research set-aside of 65,600 pounds). The black sea bass fishery would receive a 7.20 million lb TAL (a 3.32 million lb preliminary adjusted commercial quota; and a 3.64 million lb adjusted recreational harvest limit; a 67,676 pounds).

6.3.1 Biological Impacts

6.3.1.1 Summer flounder

The least restrictive alternative for summer flounder, is the status quo measures. Based on the current status of the stock, a TAL of 24.30 million lb, has about a 40 percent probability of achieving the target F of 0.26 in 2003, assuming the TAL and discard level are not exceeded in 2002.

This TAL includes a preliminary adjusted commercial quota of 12.79 million lb, a preliminary adjusted recreational harvest limit of 8.56 million lb, and a research set-aside of 91,163 pounds for 2003. The total landings are the same as in 2002. However, these measures may not be sufficient to achieve the target F, and overfishing would possibly occur. As such, these measures would result in negative biological impacts to the stock.

Given that the summer flounder commercial quota under this alternative is the same as 2002, a change in impacts on other fisheries is not expected. The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests other species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur.

Overall, the summer flounder measures under this alternative could have a negative impacts on the summer flounder stock.

6.3.1.2 Scup

The least restrictive alternative would set the scup TAL at 22.0 million lb for 2003, more than double the TAL implemented in 2002. A TAL of 22.0 million lb has an associated TAC of 24.15 million lb when assuming the same level of discards in 2003 as used in 2001 and 2002 (2.15 million lb). Based on the rebuilding schedule established in Amendment 8, the target exploitation rate for scup in 2003 is the current estimate of F_{max} , which 21 percent. However, the 35th SARC concluded that "absolute estimates of fishing mortality for scup could not be calculated."

Based on current information, scup abundance is likely to increase in 2003. The SARC-35 concluded that although "the relative exploitation rates have declined in recent years the absolute value of F cannot be determined." However, they did indicate that "survey data indicate strong recruitment and some rebuilding of age structure" in recent years. The 35th SARC commented that "the stock can likely sustain modest increases in catches, but managers should do so with consideration of high uncertainty in stock status determination."

The scup TAL under the least restrictive alternative includes a preliminary adjusted commercial quota of 16.71 million lb, a preliminary adjusted recreational harvest limit of 4.01 million lb, and a research set-aside of 66,650 pounds. A TAL of 22.0 million lb would probably exceed the target exploitation rate for 2003. If the target is exceeded, stock rebuilding would be slowed and the long-term benefits to the fishery would be reduced, relative to the status quo (Alternative 2).

The preliminary adjusted commercial quota under this alternative increases scup landings relative to the quota specified for 2002. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. An increase in quota could result in an increase in fishing effort. As such, this scup preliminary adjusted commercial quota could result in negative impacts on other fisheries, relative to the status quo. However, catch-per-unit-effort could correspondingly increase with increased stock abundance, resulting in the same number of tows landing a larger volume of fish. As such, it is unknown if these measures would result in an increase of effort in the scup fishery and thus, the impact on incidental catch rates of other species relative to the status quo (Alternative 2) is unknown.

The least restrictive alternative would implement an adjusted recreational harvest limit of 5.22 million lb, approximately 93 percent higher than the recreational harvest limit in 2002 (Alternative 2 - status quo). If recreational landings are the same in 2002 as in 2001 (4.26 million lb), the adjusted recreational harvest limit could increase recreational landings by about 23 percent.

The scup TAL under this alternative is unrealistic. As such, it would result in an exploitation rate that may exceed the target for 2003. If the target is exceeded, stock rebuilding would be slowed. As such, these measures would have a negative impact on the scup stock relative to the status quo (Alternative 2).

6.3.1.3 Black sea bass

The black sea bass TAL under Alternative 3 (least restrictive) is 7.2 million lb. This TAL is based on a liberal estimate of stock increase in 2003, i.e.,

if stock size increases as it has in past years. Although best available data indicate that recruitment has been high and stock size has increased in recent years, it is unknown if this TAL would achieve the target exploitation rate for 2003.

It is difficult to predict the 2003 exploitable biomass estimate. This estimate is based on a three-year average and the actual estimate for 2003 will not be derived until the spring 2004 survey results are available. Current estimates range from 4.6 million lb to 7.2 million lb. If the spring survey estimate in 2003 was 0.337, the same value for 2001, the TAL associated with a rate of 25 percent would be 4.6 million lb. If the spring survey for 2003 is equal to 0.436 (the average for 2001 and 2002) and assuming an exploitation rate of 48 percent in 1998, the TAL associated with an exploitation rate of 25 percent is about 6 million lb. Conversely, if the results are more optimistic and stock abundance is higher, than the TAL could be higher than 6 million lb. For example, if the rate of stock increase continues as it has in recent years and the biomass estimate is 0.522 in 2003 (the estimate that you would get if you derived a regression through the 1999-2001 points and used the derived equation to estimate the 2003 survey result), than the TAL associated with an exploitation rate of 25 percent is 7.2 million lb.

The preliminary adjusted commercial quota under this alternative increases black sea bass landings relative to the quota specified for 2002. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. This quota could result in increased effort and greater catches of other species in 2003. However, liberal trip limits in Quarters 2-4 in 2003 could result in a fewer number of trips relative to the status quo. Also, as the black sea bass stock increases, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. As such, it is unknown if these measures would result in an increase of effort in the black sea bass fishery and thus, the impact on incidental catch rates of other species relative to the status quo (Alternative 1) is also unknown.

This alternative would implement an adjusted recreational harvest limit of 3.64 million lb, identical to the recreational harvest limit in 2002. In 2001, black sea bass recreational landings were estimated at 3.42 million lb, 6 percent higher than the adjusted recreational harvest limit under this alternative. If recreational landings are the same in 2002 as in 2001, then recreational management measures would have to be more restrictive in 2003 to constrain the landings to this harvest limit.

The higher TAL under this alternative is based on a biomass value that may be unrealistic for 2003. As such, it will result in an exploitation rate that would likely exceed the target for 2003. If the target is exceeded, stock rebuilding would be slowed. Overall, the black sea bass measures under the least restrictive alternative could have a negative impact on the black sea bass stock, relative to the status quo (Alternative 1).

6.3.2 Socioeconomic Impacts

6.3.2.1 Summer flounder

The status quo measures for summer flounder include a TAL of 24.30 million lb (also the least restrictive). This TAL would result in a preliminary adjusted commercial quota of 14.47 million lb, slightly less than the adjusted commercial quota for summer flounder in 2002 (14.51 million lb). The difference is a result of differences in the research set-aside in 2002 and commercial overages from 2001. State shares based on a commercial quota of 14.47 million lb are adjusted for overages (Delaware and Maine; Table 3).

An adjusted recreational harvest limit of 9.68 million lb in 2003 is slightly less than the harvest limit for 2002 (9.72 million lb). However, this recreational harvest limit is approximately 17 percent lower than 2001 recreational landings. If landings in 2002 are the same as 2001, more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) could be required to prevent anglers from exceeding the recreational harvest limit in 2003. However, the 2002 recreational management measures were designed to be restrictive to constrain the recreational landings in 2002. Specific recreational management measures will be determined in December when recreational landings for 2002 are more complete.

The status quo summer flounder TAL in 2003 are not expected to result in short-term economic impacts (positive or negative). However, this TAL may result in an exploitation rate that may exceed the target for 2003. If the target is exceeded, stock rebuilding would be slowed and the long-term social and economic benefits of a rebuilt stock would be reduced.

6.3.2.2 Scup

The scup TAL under Alternative 3 (least restrictive) is 22.00 million lb, 104 percent higher than the TAL in 2002. The preliminary adjusted commercial quota for scup under the Alternative 3 is 16.71 million lb, 128 percent higher than the adjusted quota for 2002. Allocations for each period would also be higher under this adjusted commercial quota (Table 4). Given that this alternative increases total scup landings relative to the quota specified for 2002, short-term, positive, social and economic impacts are expected to result from the higher commercial quota under this alternative.

This scup TAL would include an adjusted recreational harvest limit for scup of 5.22 million lb, 93 percent higher than the adjusted recreational harvest limit in 2002. If recreational landings are the same in 2002 as in 2001 (4.26 million lb), the recreational management measures could be less restrictive. As such, this alternative may result in an increase in recreational satisfaction.

The scup TAL under this alternative (least restrictive) would likely result in short-term, positive social and economic impacts on the scup fishery, relative to the status quo. However, this TAL could exceed the target for 2003. If the target is exceeded, stock rebuilding would be slowed and the long-term social and economic benefits of a rebuilt stock would be reduced, relative to the status quo (Alternative 2).

6.3.2.3 Black sea bass

The least restrictive black sea bass measures includes a TAL of 7.2 million lb. Based on a TAL of 7.2 million lb, the preliminary adjusted commercial quota would be 3.32 million lb, the preliminary adjusted recreational harvest limit would be 3.64 million lb, and the research set-aside would be 67,676 pounds.

A preliminary adjusted commercial quota of 3.32 million lb is about 6 percent higher than the existing adjusted commercial quota for black sea bass. The adjusted quarterly quotas would also be higher under this alternative (Table 5). This TAL could result in an increase in revenue for the commercial fishery, relative to the status quo (Alternative 1).

An adjusted recreational harvest limit of 3.64 million lb is about 6 percent higher than the recreational harvest limit for 2002. It is also slightly higher than the 2001 recreational landings (3.42 million lb). If 2002 landings are the same as the 2001 landings, it is unlikely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) would be required to prevent anglers from exceeding this recreational harvest limit in 2003. As such, this alternative is not expected to decrease recreational satisfaction, relative to the status quo (Alternative 1).

The black sea bass TAL under this alternative (least restrictive) would likely result in short-term, positive social and economic impacts on the black sea bass fishery, relative to the status quo. However, this TAL is based on a biomass value that may be unrealistic for 2003. This would result in an exploitation rate that would likely exceed the target for 2003. If the target is exceeded, stock rebuilding would be slowed and the long-term social and economic benefits of a rebuilt stock would be reduced, relative to the status quo (Alternative 2).

6.3.2.4 Combined socioeconomic impacts of Alternative 3 (least restrictive)

The same overall discussion regarding the social impacts of quotas and characterization of the summer flounder, scup, and black sea bass fisheries by port and community presented under Alternative 1 also apply here.

Commercial Impacts

Vessels affected under the least restrictive alternative (Alternative 3)

The results of the analysis for this alternative indicates that across all vessel classes, a total of 1,073 vessels were projected to be impacted by revenue increase (relative to 2002). There were no vessels projected to incur revenue losses relative to 2002 (section 5.3 of the RIR/IRFA).

Even though, the overall summer flounder quota for 2003 (adjusted) is projected to be slightly lower (i.e., 0.34 percent) relative to the quota specified in 2002, there were no vessels impacted to incur in revenue losses. This is likely due to the fact that while the overall decrease in summer flounder in 2003 compared to 2002 was slightly negative, most states, with the exception of Maine and Delaware are projected to have a 0.02 percent increase in fishing opportunity. The overall negative projected quota for Maine and Delaware is the consequence of overages in previous years previous years for Maine and overages in previous years and projected 2002 overages for Delaware. Summer flounder landings in Maine and Delaware are typically only a few thousand pounds per year and it is possible that vessels landing small quantities of summer flounder in Maine and Delaware also landed larger quantities of summer flounder in other states, thus benefitting from the increase in quota in those other states in 2003 versus 2002. In addition, it is possible that some of these vessels also landed scup and black sea bass along with summer flounder, thus benefitting from the increase in scup and black sea bass quotas in 2003 and therefore not showing a reduction in vessel revenue (section 5.3 of the RIR/IRFA).

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass \$1.55/lb), the 2003 quotas associated with Alternative 3 would decrease summer flounder revenues by approximately 81 thousand dollars, and increase revenues for scup and black sea bass by approximately \$7.9 million and \$0.3 million, respectively, compared to 2002.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with Alternative 3 is distributed equally between the 795 vessels that landed summer flounder in 2001, the average decrease in revenue associated with the decrease in summer flounder quota is \$101/vessel. Assuming the increase in scup total gross revenues associated with this alternative is distributed equally between the 483 vessels that landed scup in 2001, the average increase in revenue associated with the increase in scup quota is \$16,444/vessel. Finally, if the increase in black sea bass total gross revenues associated with this alternative is distributed equally between the 740 vessels that landed black sea bass in 2001, the average increase in revenue associated with the increase in black sea bass quota is \$404/vessel.

The overall change in gross revenue associated with the three species combined in 2003 compared to 2002 is approximately \$8.2 million (assuming 2001 ex-vessel prices) under Alternative 3. If this is distributed among the 1,073 vessels that landed summer flounder, scup, and black sea bass in 2001, the average increase in revenue would be \$7,605/vessel. The changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

Recreational Impacts

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch. It is not probable that the decrease in the summer flounder harvest limits, relative to the 2001 landings, will have a substantial impact on the number of party/charter fishing trips, as the increased scup and black sea bass harvest limits will allow for greater recreational opportunities in those fisheries (section 5.3 of the RIR/IRFA).

6.3.3 EFH Impacts

6.3.3.1 Summer flounder

The principal commercial gear used to harvest summer flounder, scup and black sea bass is the bottom otter trawl with other major gears including scallop dredge (for summer flounder) and fish pots and traps (for scup and black sea bass). The nature of impacts by these gear on the ocean bottom habitat is described in Amendment 13. However, data on the extent of impacts by specific gear on various bottom types are not available. Although the specific consequences for habitat are unknown, it can be assumed that the extent of trawling and dredging impacts are related to fishing effort.

Alternative 3 (least restrictive) includes a summer flounder adjusted commercial quota of 14.7 million lb (status quo), an increase the scup commercial quota by 128 percent (16.71 million lb), and an increase of 6 percent in the black sea bass adjusted commercial quota (3.32 million lb). It is difficult to predict precisely whether these quota increases will result in increased fishing effort on EFH. Several possibilities exist that would influence fishing effort. Potentially, a larger quota could result in a larger number of fishing trips, or longer fishing trips, with a corresponding potential for greater habitat impacts. Conversely, a larger quota could mean that states establish higher trip limits, which would result in an equal number of fishing trips landing a larger volume of fish. Similarly, with increased species abundance, catch-per-unit-effort could increase which would result in the same number of tows landing a larger volume of fish. In these latter instances, the proposed quotas would result in either the same or reduced gear impacts to bottom habitats. Table 17 represents the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species.

Given the range of habitat impacts that could occur, depending upon whether fishing effort increases or remains constant (due to a higher catch-per-unit-effort because of increased species abundance), the preferred alternative may have adverse effects to EFH that range from increased adverse impacts to impacts that are less than existing impacts.

The increase in the quotas under Alternative 3 for each species may not achieve the rebuilding schedules for summer flounder, scup, and black sea bass. Although there is a lack of evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, this action may not comply with Section 305 (a) (7) of MSFCMA, and minimize the adverse effects of fishing on EFH to the extent practicable.

6.3.3.2 Scup

The habitat impacts associated with the scup measures under Alternative 3 are addressed under section 6.3.3.1.

6.3.3.3 Black sea bass

The habitat impacts associated with the black sea bass measures under Alternative 3 are addressed under section 6.3.3.1.

6.3.4 Protected Resources Impacts

6.3.4.1 Summer flounder

Protected species are discussed in section 6.1.4.1. The range of these species overlap with the species managed under this FMP. As such, a potential for incidental kill always exists. Except in unique situations, such incidental catches should have a negligible impact on marine mammal or abundances of endangered species, and NMFS has concluded in previous consultations that the implementation of this FMP will not have any adverse impact upon these populations.

The measures under this alternative do not contain major changes to existing management measures. Overall fishing effort may increase as a result of less restrictive quotas (section 6.1.4.1; Table 17). As such, this alternative may negatively impact endangered and threatened species or critical habitat, in

any manner not considered in prior consultations on these fisheries, and may have an adverse impact on marine mammals, relative to the status quo.

6.3.4.2 Scup

The impacts on protected resources associated with the scup measures under Alternative 3 are addressed under section 6.3.4.1.

6.3.4.3 Black sea bass

The impacts on protected resources associated with the black sea bass measures under Alternative 3 are addressed under section 6.3.4.1.

6.4 Research Set-aside

The Council approved research set-asides equal to the amounts requested in the five projects that were conditionally accepted by NMFS (August 5, 2002 letter from Mears to Furlong). These set-aside amounts would be 91,163 pounds, 66,650 pounds, and 67,676 pounds, for summer flounder, scup, and black sea bass, respectively. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass - \$1.55/lb), the 2003 research set-aside could be worth as much as \$147,684 for summer flounder, \$55,986 for scup, and \$104,898 for black sea bass. As such, the research set-asides could result in a potential decrease in revenue of about \$186, \$116, and \$142 per individual vessel in the summer flounder, scup, and black sea bass fisheries, respectively. These values assume an equal decrease in revenue among all active vessels in 2001, i.e., 795, 483, and 740 vessels that landed summer flounder, scup, and black sea bass, respectively. The adjusted commercial quotas analyzed in section 6.1, 6.2, and 6.3 account for the research set-asides (as described in section 2.0). If research set-asides are not used the landings would be put back into the overall TAL for each fishery. As such, the estimated economic impacts would be smaller than those estimated under each alternative.

6.4.1 Summer Flounder

The Council approved a research set-aside amount of 91,163 for summer flounder. The proposed summer flounder research projects would exempt researchers from summer flounder possession limits and allow for landings of summer flounder during a closure.

Possession Limits

Research has been proposed that would allow for landings of summer flounder in excess of federal or state possession limits. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$147,898 dockside based on a 2001 price of \$1.62 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 795 vessels that caught summer flounder in 2001), this could mean a reduction of about \$186 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.32 to 9.28 million lb (a 0.4 percent decrease) if 0.4 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, there may be some distributive effects and permit holders that would have landed these summer flounder could be disadvantaged.

Landings in excess of state possession limits would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of summer flounder during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$147,898 dockside based on a 2001 price of \$1.62 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 795 vessels that caught summer flounder in 2001), this could mean a reduction of about \$186 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 9.32 to 9.28 million lb (a 0.4 percent decrease) if 0.4 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for summer flounder. As such, there may be some distributive effects and permit holders that would have landed these summer flounder could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.4.2 Scup

Assuming that NMFS approves the preferred TAL alternative for scup and the proposed research, the research set-aside amount would be 66,650 pounds. The proposed scup research projects would exempt researchers from the minimum mesh size, minimum fish size, and commercial possession limits and allow for landings of scup during a closure.

Minimum mesh and/or minimum fish size

The current minimum mesh regulations require a 4.5" minimum mesh in the codend of the net for vessels possessing more than 500 pounds of scup from November through April and 100 pounds from May through October.

The proposed research would use smaller mesh to catch and retain small scup. Based on retention lengths derived from length and body depth measurements, a 4.5" mesh has an associated L50 of 9.1" TL. This means that 50 percent of the 9.1" TL scup that encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have associated L50s of 4.8" TL and 6.5" TL and 8.3" TL, respectively.

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

The smaller mesh would allow for the capture and retention of fish less than the current minimum size of 9" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set-aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$55,986 dockside based on a 2001 price of \$0.84 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 483 vessels that caught scup in 2001), this could mean a reduction of about \$116 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 4.03 to 4.01 million lb (a 0.5 percent decrease) if 1.0 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As such, there may be some distributive effects and permit holders that would have landed these scup could be disadvantaged.

Changes in mesh and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of scup during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$55,986 dockside based on a 2001 price of \$0.84 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 483 vessels that caught scup in 2001), this could mean a reduction of about \$116 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 4.03 to 4.01 million lb (a 0.5 percent decrease) if 0.4 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. As

such, permit holders that would have landed these scup could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 15,000 pounds per week (Sunday through Saturday) and 1,500 pounds per trip for the first and second winter periods, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$55,986 dockside based on a 2001 price of \$0.84 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 483 vessels that caught scup in 2001), this could mean a reduction of about \$116 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 4.03 to 4.01 million lb (a 0.5 percent decrease) if 0.4 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for scup. such, there may be some distributive effects and permit holders that would have landed these summer flounder could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and could have no impact on essential fish habitat.

6.4.3 Black Sea Bass

Assuming that NMFS approves the preferred TAL alternative for black sea bass and the proposed research, the research set-aside amount would be 67,676 pounds. The proposed black sea bass research projects would exempt researchers from the minimum mesh size, escape vent requirements, minimum fish size, and commercial possession limits and allow for landings of black sea bass during a closure.

Minimum mesh and escape vent requirements

The current minimum mesh regulations require a minimum of 75 meshes of 4.5" diamond mesh in the codend or use a net with at least 4.5" diamond mesh throughout for vessels possessing at least 500 pounds of black sea bass in the First Quarter and 100 lb of black sea bass in the Second, Third, and Fourth Quarters.

The proposed research would use smaller mesh to catch and retain small black sea bass. Based on retention lengths derived from length and body depth measurements, the proposed minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that

encountered the net would be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively.

Current regulations require an 11" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn.

Current vent size regulations require 1 3/8" x 5 3/4" rectangular vents, 2 3/8" in diameter circular vents, and 2" square vents. The proposed vent sizes represent significant increases from the current sizes of 1 1/8" x 5 3/4" for rectangular vents, 2" in diameter for circular vents, and 1 1/2" for square vents. Analysis conducted for Amendment 9 indicated that rectangular vent sizes that were 1 3/8" wide had an associated L_{50} of 11.5" TL. As such, these increases in vent sizes should allow for a significant escapement of undersized fish.

Smaller mesh and smaller vent sizes would allow for the capture and retention of fish less than the proposed minimum size of 11" TL. If these fish were exempt from the minimum size requirement for sale, they would be landed and those landings would count against the quota. If they were not landed, the fish would be discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the status quo. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 11" TL) if smaller fish were sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set-aside can not exceed the TAL.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$104,898 dockside based on a 2001 price of \$1.55 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 740 vessels that caught black sea bass in 2001), this could mean a reduction of about \$142 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.47 to 3.43 million lb (a 1.2 percent decrease) if 1 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Changes in mesh, vent sizes and minimum fish size would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Closures

Research has been proposed that would allow for landings of black sea bass during a state or federal closure. Because these landings would count against the overall quota, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$104,898 dockside based on a 2001 price of \$1.55 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 740 vessels that caught black sea bass in 2001), this could mean a reduction of about \$142 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.47 to 3.43 million lb (a 1.2 percent decrease) if 1 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Landings during a closure would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

Possession limits

Research has been proposed that would allow research vessels to land in excess of the possession limits. The proposed regulations would limit fishermen to 7,000 pounds in the First Quarter and 5,000 pounds in the Second, Third, and Fourth Quarters, respectively. Although the possession limits could be exceeded, the landings would count against the quota and, as such, the biological/ecological impacts would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$104,898 dockside based on a 2001 price of \$1.55 per pound. As such, assuming an equal reduction among all active commercial vessels (i.e., 740 vessels that caught black sea bass in 2001), this could mean a reduction of about \$142 per individual vessel. Changes in the recreational harvest limit would be insignificant; the limit changes from 3.47 to 3.43 million lb (a 1.2 percent decrease) if 1 percent of the TAL is used for research. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

It is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for black sea bass. As such, permit holders that would have landed these black sea bass could be disadvantaged.

Landings in excess of the possession limit would have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.4.4 GRAs for Scup, Black Sea Bass, and *Loligo*

NMFS implemented gear restricted areas (GRAs) for 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5 inches in areas and times that were identified as having high scup discards. Specific areas and times include a Northern Gear Restricted Area from November 1 to December 31 and a Southern Gear Restricted Area from January 1 to March 15. The Council proposed to continue the GRAs in 2002. Research has been proposed that would

exempt vessels fishing with small mesh from the GRA regulations, i.e., allow them to catch and retain several species of fish including scup, black sea bass, and *Loligo* squid from these areas during a closure.

Analysis conducted to support these GRAs, indicate that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs thereby increasing the discards of scup relative to the status quo. However, given the level of the research set-aside, the effects on scup discards and mortality should be minimal. In addition, because landings of the regulated species would count against the overall quotas for each species, the overall mortality level would not change relative to the status quo.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as \$55,986 , \$104,898, and \$92,758 dockside for scup, black sea bass and *Loligo* squid based on 2001 prices per pound, respectively. As such, assuming an equal reduction among all active vessels (i.e., 483, 740, and 450 vessels that caught scup, black sea bass, and *Loligo* in 2001, respectively), this could mean a reduction of \$116, \$142, and \$206 per individual vessel, for scup, black sea bass, and *Loligo*, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be higher. In addition, it is possible that the vessels that would be used by researchers to conduct the research would be vessels that have not traditionally fished for these species. As such, some minimal distributive effects may result as permit holders that would have landed these species could be disadvantaged.

Landings in GRAs should have no impact on species covered under the Endangered Species Act and Marine Mammal Protection Act and would have no impact on essential fish habitat.

6.6 Cumulative Impacts of Preferred Alternative

Although the measures proposed in this EA are only for the year 2003 fisheries, these measures have the potential to result in cumulative impacts on the environment. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages.

The management schemes established by the Council for summer flounder, scup, and black sea bass in the FMP, as previously analyzed in each species' respective EIS, recognize that management measures and fishery specifications established in one fishing year have implications for the measures that follow in subsequent years. In order to end overfishing and remedy the overfished status of these stocks, the Council developed rebuilding programs that have stock biomass targets. To achieve rebuilding, the Council recommends annual specifications that are intended to have a reasonable likelihood of not exceeding the specified target F's for the coming fishing year. Because of the nature of the fisheries (e.g., the landing of these species over in a large number of coastal states) and the inherent time lags encountered in collecting landings that are necessary to make final determinations of actual landings, there is always the possibility that some harvest quotas may be unintentionally exceeded before the information necessary to close that portion of the fishery is available. On the other hand, other sectors of the fishery (e.g., certain states, in the case of summer flounder) may under-achieve their allowable harvest levels in a given year.

To compensate for any over-harvests, and to preserve the conservation intent of the management regime, the FMP includes provisions that require that any commercial landings that exceed the specifications in one year or quota period be deducted from the commercial quota that would otherwise have been allowed for that portion of the fishery in the following year. Overages in the recreational fishery are addressed by way of changes in management measures to reduce the harvest in the following year to the specified level. Thus, the FMP and the annual specifications anticipate the possibility that landings may exceed targets in any given year and provide a remedy that at least partially compensates for such occurrences in terms of maintaining the conservation goals of the FMP and the rebuilding programs, thus mitigating the impacts of those overages. The annual nature of the management measures is intended to provide the opportunity for the Council and NMFS to assess regularly the status of the fisheries and to make necessary adjustments to ensure that there is a reasonable expectation of meeting the objectives of the FMP and the targets associated with any rebuilding programs under the FMP.

The rebuilding programs under the FMP began in 1993, 1997, and 1998 for summer flounder, scup, and black sea bass, respectively. Because each year's measures build upon the previous year's measures, the cumulative effects of the management program on the health of the stocks and the fishery are assessed from year to year. As described above, the regulation implementing the FMP require that any commercial fishery overages in a given year be subtracted from the initial quota for a given state (summer flounder) or season (scup and black sea bass) the following year. An exception to this requirement occurred when a court ruling added 3.05 million lb (1.4 million kg) to the commercial fishery for 1995 (February 16, 1995, 60 FR 8958). In the recreational fisheries for these species, projected landings in a given year are used by the Council in recommending recreational management measures for each species in the following year. The Council and NMFS consider angler effort and success, stock availability and the target harvest limits in establishing recreational measures for the upcoming year, including size limits, seasons, and bag limits. The recreational fisheries have target harvest levels, which do not require the fishery to be closed when attained, as compared to the commercial fishing quotas, which do require the fishery to be closed when the quota is attained.

Harvest limits, total landings, and total overages for each of the three fisheries have been as follows (weight in million lb):

Summer Flounder

Commercial Quotas

Year	Quota	Commercial Share	Adjusted Commercial Quota	Commercial Landings	Overage
1993 -	20.73	12.44	-	12.59	-
1994 -	26.68	16.00	-	14.52	-
1995 -	19.40	14.70 (add on)	-	15.38	0.68
1996 -	18.52	11.11	10.43	12.72	2.29
1997 -	18.52	11.11	8.81	8.97	0.16
1998 -	18.52	11.11	10.95	11.21	0.26
1999 -	18.52	11.11	10.73	10.62 ^b	-
2000 -	18.52	11.11	10.88	11.22	0.24
2001 -	17.91	10.75	10.06	11.64 ^b	1.58
2002-	24.30	14.58	14.51 ^a	N/A	N/A

^a Preliminary

^b Although there was not an overall overage, several individual states exceeded their allocation thus requiring an adjustment in the following year.

Recreational Harvest Limits

	Harvest Limit	Landings	Overage
1995 -	7.8	5.50	-
1996 -	7.41	10.37	2.96
1997 -	7.41	11.86	4.45
1998 -	7.41	12.53	5.12
1999 -	7.41	8.37	0.96
2000 -	7.41	15.82	8.41
2001 -	7.16	11.64	4.48
2002 -	9.72 ^a	N/A	N/A

^a Preliminary

	<u>Scup^a</u>			<u>Black Sea Bass^a</u>		
	TAL	Landings	Overages	TAL	Landings	Overages
1997 -	7.947	6.034	-	-	-	-
1998 -	6.125	5.042	-	6.173	3.69	-
1999 -	3.770	5.209	1.439	6.173	4.67	-
2000 -	3.770	8.102	4.332	6.173	6.28	0.107
2001 -	6.210	8.208	1.998	5.790	6.19	0.400
2002 ^b -	10.030	N/A	N/A	6.559	N/A	N/A

^a Includes both commercial and recreational harvest limits.

^b Preliminary.

Note - 2002 landings not yet available.

The summer flounder, scup, and black sea bass commercial fisheries have experienced annual total overages. In 2001, summer flounder, scup, and black sea bass overages (recreational and commercial) totaled approximately 6.06, 2.00, and 0.40 million lb, respectively. Even though the recreational overage cannot be deducted from the TAL, the total overage factors into the cumulative impact on the stocks.

Quota overages in a given year or period have two expected impacts. First, overages result in lower harvest levels in the following year or period for that portion of the fishery, than would otherwise have been allowed. In commercial fisheries, the overages result in a direct reduction in the next year's quota. This impacts fishery participants by decreasing potential revenues for the fishing year or period in which the overages are deducted. However, the fishery participants have already realized revenues from the landings that exceeded the allowable harvest level in the year they occurred. Thus, from an economic perspective, the timing of revenues is altered and there may be impacts on some fishermen caused by unexpected reductions in their opportunities to earn revenues in these fisheries in the year during which the overages are deducted. In the recreational fisheries, overages in one year may result in lower bag limits, larger minimum size limits, and/or shorter seasons than would otherwise have been allowed, had the overages not occurred. Increased harvests in one year are thus "paid back" by decreased harvest opportunities the next year. Recreational fishing opportunities for those fishermen not desiring to keep their catch of these species would be affected little, if any, by such occurrences.

The second possible result of overages is the potential that the annual F targets of the FMP will not be met and/or that the rebuilding schedule will be delayed. The significance of any such delays depends on the magnitude of the

overages and their resultant impact on the stock size and age structure. While it is not possible to quantify those effects precisely, the fact that the FMP's management regime takes into account the overages and the current status of the stocks in setting the specifications for the next year mitigates any such impacts. For summer flounder, the actual F has been higher than the target for several years, thus, the rate of rebuilding may have been slowed compared to the amount of rebuilding that might have occurred had F not exceeded the target. Nevertheless, the spawning stock biomass for summer flounder has increased substantially during the rebuilding period and the age structure of the summer flounder stock has expanded. Thus, the summer flounder stock is healthier and more robust than before rebuilding was initiated. Fishing mortality targets have generally been achieved for scup and black sea bass, so overages in individual periods or quarters are not likely to result in impacts on stock rebuilding for those stocks.

The Council and NMFS recognize that overages in any of the fisheries in 2003 could have additional negative impacts on the rate of rebuilding. Given the history of the summer flounder fishery, the mitigating influence of annual overage adjustments, and the fact that the stock has shown continued improvement during the rebuilding period, despite the overages that have occurred, the cumulative impacts of overages are not considered to be significant. Likewise, the impacts of any overages that might occur in 2002 as a result of these fishery specifications are also not considered to be significant.

7.0 Essential Fish Habitat Assessment

Summer flounder, scup and black sea bass have Essential Fish Habitat (EFH) designated in many of the same bottom habitats that have been designated as EFH for most of the MAFMC managed species of surfclams/ocean quahogs, squid/mackerel/butterfish, bluefish, and dogfish, as well as the NEFMC species of groundfish within the Northeast Multispecies FMP, including: Atlantic cod, haddock, monkfish, ocean pout, American plaice, pollock, redfish, white hake, windowpane flounder, winter flounder, witch flounder, yellowtail flounder, Atlantic halibut and Atlantic sea scallops. Numerous species within the NMFS Highly Migratory Species Division and the SAFMC have EFH identified in areas also identified as EFH for summer flounder, scup and black sea bass. Broadly, EFH is designated as the pelagic and demersal waters along the continental shelf from off southern New England through the south Atlantic to Cape Canaveral, Florida. The specific identification and description of summer flounder, scup, and black sea bass is detailed in section 3.2.4 of Amendment 13.

Summer flounder, scup, and black sea bass are demersal species that have associations with substrates, SAV, and structured habitat (Packer and Griesbach 1999, Steimle *et al.* 1999 a-b). Specific habitats that are designated as EFH and are important to these species are as follows:

Summer Flounder: pelagic waters, demersal waters, saltmarsh creeks, sea grass beds, mudflats, open bay areas

Scup: demersal waters, sands, mud, mussel and eelgrass beds

Black Sea Bass: pelagic waters, structured habitat (e.g., sponge beds), rough bottom shellfish, sand and shell

Under the EFH Final Rule "Councils must act to prevent, mitigate, or minimize any adverse effect from fishing, to the extent practicable, if there is

evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary in nature..." "Adverse effect" means any impact that reduces the quality or quantity of EFH.

Summer flounder, scup, and black sea bass are primarily landed using otter trawls and pots/traps. The baseline, potential impacts of otter trawls and pots/traps are described in detail and evaluated in section 3.2.7.2.2 of Amendment 13. That evaluation, indicates that the baseline impact of otter trawls, and pots/traps, on EFH is "more than minimal and not temporary in nature" (section 3.2.7.2.2 of Amendment 13). As such, in Amendment 13 the Council proposed alternatives to prevent, mitigate or minimize adverse effects from these gear (section 2.2 of Amendment 13), and evaluated those alternatives for practicability (section 4.2 of Amendment 13).

However, the actions proposed in this EA are necessary to achieve target exploitation rates for summer flounder, scup, and black sea bass in 2003, and other commercial management measures. The impact of the actions proposed in this EA, on EFH, are described in detail in section 6.1.3.

In summary, the quotas 2003 scup commercial quota is higher than that specified for 2002, the proposed 2003 summer flounder commercial quota is lower than that specified for 2002, and the proposed black sea bass commercial quota is the same as that specified for 2002. However, a change in quota is not necessarily directly proportional to a change in fishing effort. As discussed in section 6.1.3, with improving stock abundance, fishermen may be able to catch more fish with less or constant effort. Conversely, fishing effort could increase as vessels take more, or longer trips, to land the higher quota. Table 17 represents the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species. Therefore, the measures proposed in this specification package may have adverse effects to EFH that range from increased adverse impacts to impacts that are less than existing impacts. The non-quota setting specifications associated with this action will not have an adverse effect on EFH. Since the change in the quota for each species is a balance of meeting the FMP objectives of improving yield while ensuring that overfishing does not occur, and due to the lack of direct evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, it is expected that this action minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to Section 305(a)(7) of the Magnuson-Stevens Fishery Conservation and Management Act.

8.0 List of agencies and persons consulted in formulating the action

The summer flounder, scup and black sea bass specifications were submitted to the National Marine Fisheries Service (NMFS) by the Mid-Atlantic Fishery Management Council.

9.0 List of preparers of the environmental assessment

This environmental assessment was prepared by the Mid-Atlantic Council and the Northeast Regional Office of NMFS, and is based, in part, on information provided by the Northeast Fisheries Science Center.

10.0 Finding of no significant environmental impact

National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6 (revised May 20, 1999) provides nine criteria for determining the

significance of the impacts of a proposed action. The significance of this action is analyzed through this EA. These criteria are discussed below:

1. Can the proposed action be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action?

The proposed action is not expected to jeopardize the sustainability of any target species that may be affected by the action, as described in section 6.1.1 of the EA. All of the proposed quota specifications under the preferred alternative are consistent with the FMP overfishing definitions. This action will protect the long-term sustainability of the summer flounder, scup, and black sea bass stocks, as well as afford protection for several other stocks of fish.

2. Can the proposed action be reasonably expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Act and identified in FMPs?

The proposed action as described in section 6.1.3 of the EA is not expected to allow damage to the ocean, coastal habitats, and/or EFH as defined under the Magnuson-Stevens Act and identified in the FMP. In general, bottom-tending mobile gear, primarily otter trawls, have the potential to adversely effect EFH for the species detailed in section 4.1 of the EA.

Overall, the measures proposed in this action are expected to result in a reduction in the adverse effects to any EFH associated with the fishing activities managed under the FMP.

3. Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?

This action proposes commercial quotas and other management measures in 2003. None of the measures alters the manner in which the industry conducts fishing activities for the target species. Therefore, there is no change in fishing behavior that would affect safety. The overall effect of the proposed actions on these fisheries, including the communities in which it operates, will not impact adversely public health or safety. NMFS will consider comments received concerning safety and public health issues.

4. Can the proposed action be reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat of these species?

This action proposes commercial quotas and other management measures in 2003. None of the specifications are expected to alter fishing methods or activities. Therefore, this action is not expected to affect endangered or threatened species or critical habitat in any manner not considered in previous consultations on the fisheries. It has been determined that fishing activities conducted under this proposed rule will have no adverse impacts on endangered or threatened species, marine mammals, or their critical habitat.

5. Can the proposed action be reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

The cumulative effects of the proposed actions on target and non-target species are detailed in section 6.6 of the EA. The proposed measures are not

expected to alter fishing methods or activities. As such, the proposed measures are not expected to result in any cumulative effects on target or non-target species.

6. Can the proposed action be reasonably expected to jeopardize the sustainability of any non-target species?

The proposed action is not expected to jeopardize the sustainability of any non-target species, as discussed in section 6.1.1 of the EA. Additionally, NMFS concludes that this action will have no more than minimal adverse impacts to EFH (section 7.0 of the EA) .

7. Can the proposed action be expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. This action merely revises the proposes annual commercial quotas and other management measures for the summer flounder, scup, and black sea bass fisheries for 2003. NMFS concludes that this action will have no more than minimal adverse impacts to EFH (section 7.0 of the EA).

8. Are significant social or economic impacts interrelated with significant natural or physical environmental effects?

As discussed in section 6.1 of the EA, the proposed specifications for 2003 are not expected to result in significant social or economic impacts, or significant natural or physical environmental effects. Therefore, there are no significant social or economic impacts interrelated with significant natural or physical environmental impacts.

9. To what degree are the effects on the quality of human environment expected to be highly controversial?

The impact of the proposed measures on the human environment are described in section 6.1.2 of the EA. The proposed action merely revises the annual commercial quotas and other management measures for the summer flounder, scup, and black sea bass fisheries for 2003. The measures contained in this action are not expected to controversial.

FONSI Statement

Having reviewed the environmental assessment on the specifications for the 2002 summer flounder, scup, and black sea bass fisheries, and the available information relating to the action, I have determined that there will be no significant adverse environmental impact resulting from the action and that preparation of an environmental impact statement on the action is not required by Section 102(2)(c) of the National Environmental Policy Act or its implementing regulations.

Assistant Administrator for
Fisheries, NOAA

Date

REGULATORY IMPACT REVIEW/INITIAL REGULATORY FLEXIBILITY ANALYSIS

1.0 INTRODUCTION

The National Marine Fisheries Service (NMFS) requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new Fishery Management Plan (FMP) or significantly amend an existing plan. This RIR is part of the process of preparing and reviewing FMPs and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. This analysis also 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 problems. The purpose of this analysis is to ensure 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. This RIR addresses many items in the regulatory philosophy and principles of Executive Order (E.O.) 12866.

Also included is an Initial Regulatory Flexibility Act Analysis (IRFA) to evaluate the economic impacts of the alternatives on small business entities. This analysis is undertaken in support of a complete analysis for the 2003 commercial specifications for summer flounder, scup, and black sea bass. The economic analyses presented for the various alternatives are principally for the commercial fishery. While general statements regarding potential changes in the recreational fishery due to changes in recreational harvest limits for summer flounder, scup, and black sea bass are made in this document, the effects of specific recreational management measures (i.e., bag limits, size limits, seasonal closures) will be analyzed when the Council and Board submit recommendations for 2003 recreational measures. The Council and the Board will meet in December 2002 to adopt 2003 recreational management measures, when more complete data regarding 2002 recreational landings are available. A complete document for the recreational specifications for summer flounder, scup, and black sea bass will be prepared after the December Council meeting.

2.0 EVALUATION OF E.O. 12866 SIGNIFICANCE

2.1 Description of the Management Objectives

A complete description of the purpose and need and objectives of this proposed rule is found under section 1 of the EA. This action is taken under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and regulations at 50 CFR part 648.

2.2 Description of the Fishery

A description of the summer flounder, scup, and black sea bass fisheries is presented section 5.0 of the EA. A description of ports and communities is found in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. An analysis of permit data is found in section 4.2 of the EA.

2.3 A Statement of the Problem

A statement of the problem for resolution is presented under section 1 of the EA.

2.4 A Description of Each Alternative

A full description of the three alternatives analyzed in this section and the TAL derivation process is presented in sections 2.0 and 3.0 of the EA. A brief description of each alternative is presented below for reference purposes.

2.5 The Economic Effects of the Summer Flounder, Scup, and Black Sea Bass Effort Reductions

The economic benefits of the summer flounder, scup and black sea bass FMP have been evaluated periodically as amendments to the FMP have been implemented to either change the effort reduction schedule or as new species have been added. These analyses have been conducted at the time a major amendment is developed and interim actions (framework adjustments or quota specifications) may be presumed to leave the conclusions reached in the initial benefit-cost analyses unchanged provided the original conservation and economic objectives of the plan are being met. The latest summer flounder assessment indicates that the stock is overfished and overfishing is still occurring relative to the Amendment 12 overfishing definitions. However, the fishing mortality rate estimated for 2001 is 0.27, a significant decline from the 1.32 estimated for 1994 and close to the threshold F of 0.26. In addition, total stock biomass has increased substantially since 1991 to 95 million lb in 2001. Spawning stock biomass has increased each year since 1993 to 84.2 million lb in 2001, the highest value in the time series. Projections indicate that if the TAL in 2002 is not exceeded, total stock biomass will exceed the biomass threshold (117 million lb) in 2002. At this level, the stock will no longer be overfished (section 5.1.1 of the EA).

The economic effects of the scup effort reductions were evaluated at the time scup was added to the FMP through Amendment 8. The expected economic benefits and costs for the scup effort reduction were also described in qualitative terms. The scup coastwide quota has only been implemented from 1997 to 2002. Preliminary assessment of the 2002 fishing season indicate that overages will not occur this year (assuming that overages do not occur in the summer or Winter II periods; see section 3.1 below). At this time, the plan objectives appear to be met so there is a reasonable expectation that the expected economic benefits of managing scup will not be compromised. The most recent assessment on scup was completed in June 2002 (35th SARC). That assessment indicated that scup are no longer overfished "but stock status with respect to overfishing cannot currently be evaluated." The SARC also concluded that although "the relative exploitation rates have declined in recent years the absolute value of F cannot be determined." However, they did indicate that "survey data indicate strong recruitment and some rebuilding of age structure" in recent years. State and federal survey indices for scup indicate an increase in stock abundance in recent years. The NEFSC spring survey results indicate that spawning stock biomass has increased each year since 1998; the estimate for 2001 (3 yr average) is 3.2 kg/tow or about 15% above the biomass threshold of 2.77 kg/tow. Given that the index is above the threshold, the stock is no longer considered overfished. Similarly, the 2002 winter survey was at an all time high; the estimate for 2002 is a 374% increase relative to the 2001 value. In addition, the NEFSC autumn trawl survey indicates that strong year classes were produced from 1999-2001. The predominance of the 2000 year class also is evident in several of the state surveys (section 5.2.1 of the EA).

The economic effects of the black sea bass effort reductions were evaluated at the time black sea bass was added to the FMP through Amendment 9. The economic analysis presented at that time was largely qualitative in nature. The coastwide black sea bass quota has only been implemented from 1998 to

2002. Assessment of the black sea bass quota indicates that overall landings have been within the quota specifications in 1998 and 1999. For the 2000 and 2001 fishing seasons landings were about 2 and 2.5 percent above the overall quota, respectively. A preliminary assessment of the 2002 fishing season indicate that 2002 landings will be about 5 percent above the overall quota (assuming that additional overages do not occur in the third Quarter and that overages do not occur in the fourth Quarter; see section 3.1 below). This is the third time since the black sea bass quota was implemented that overall landings are projected to be above the established commercial quota. The overall overages have not been substantial and quota adjustments have been made in order to account for these small overages in 2000 and 2001 and quota adjustments will be made to the 2003 quota in order to account for the overages in 2002. At this time, the plan objectives appear to be met so there is a reasonable expectation that the expected economic benefits of managing black sea bass will not be compromised. However, overages must be brought in control in order to meet the benefits of the proposed management objectives. Attainment of the management objectives may require more rigorous actions to reduce effort than what has been adopted to date. The most recent assessment on black sea bass, completed in June 1998, indicates that black sea bass are over-exploited and at a low biomass level (SAW 27). Fishing mortality for 1997, based on length based methods, was 0.73. The complete assessment is detailed in the "Report of the 27th Northeast Regional Stock Assessment Workshop." Based on the relative index, exploitation rates in 2001 decreased relative to the 1998 values; assuming a 48% rate for 1998, the exploitation rate in 2001 was 33%. The target exploitation rate in 2001 was 37% (section 5.3.1 of the EA).

2.6 Analysis of Alternatives

For each alternative potential impacts on several areas of interest are discussed. The objective of this analysis is to describe clearly and concisely the economic effects of the various alternatives. The types of effects that should be considered include the following changes in landings, prices, consumer and producer benefits, harvesting costs, enforcement costs, and distributional effects. Due to the lack of an empirical model for these fisheries and knowledge of elasticities of supply and demand, a qualitative approach to the economic assessment was adopted. Nevertheless, quantitative measures are provided whenever possible.

A more detailed description of the economic concepts involved can be found in "Guidelines for Economic Analysis of Fishery Management Actions" (NMFS 2000), as only a brief summary of key concepts will be presented here.

Benefit-cost analysis is conducted to evaluate the net social benefit arising from changes in consumer and producer surpluses that are expected to occur upon implementation of a regulatory action. Total Consumer Surplus (CS) is the difference between the amounts consumers are willing to pay for products or services and the amounts they actually pay. Thus CS represents net benefits to consumers. When the information necessary to plot the supply and demand curves for a particular commodity is available, consumer surplus is represented by the area that is below the demand curve and above the market clearing price where the two curves intersect. Since an empirical model describing the elasticities of supply and demand for these species is not available, it was assumed that the price for these species was determined by the market clearing price or the intersection of the supply and demand curves. These prices were the base prices used to determine potential changes in prices due to changes in landings.

Net benefit to producers is producer surplus (PS). Total PS is the difference between the amounts producers actually receive for providing goods and services and the economic cost producers bear to do so. Graphically, it is the area above the supply curve and below the market clearing price where supply and demand intersect. Economic costs are measured by the opportunity cost of all resources including the raw materials, physical and human capital used in the process of supplying these goods and services to consumers.

One of the more visible costs to society of fisheries regulation is that of enforcement. From a budgetary perspective, the cost of enforcement is equivalent to the total public expenditure devoted to enforcement. However, the economic cost of enforcement is measured by the opportunity cost of devoting resources to enforcement vis à vis some other public or private use and/or by the opportunity cost of diverting enforcement resources from one fishery to another.

2.6.1 Quota Alternative 1 (Preferred)

For purposes of this analysis, all alternatives will be evaluated under the assumption that the primary measure for achieving the conservation objectives will be through changes in quota levels. All alternatives will be evaluated against a base line. The base line condition provides the standard against which all other alternative actions are compared. In this analysis, the base line condition are the adjusted quotas for 2002. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative versus the fishing opportunities that were in place in 2002. Aggregate changes in fishing opportunities in 2003 (quotas adjusted for overages and research set-asides or RSAs) versus adjusted quotas for 2002 are shown in Table 22. Overages were determined and deducted appropriately from the upcoming fishing year's quota, e.g., by state for summer flounder, period for scup, or quarter for black sea bass. In addition, 2003 quotas were also adjusted to account for RSAs for 2003. A detailed description of this process is presented in sections 1.1, 2.0, and 3.0 of the EA. The information presented in Table 22 was used to determine potential changes in landings (i.e., fishing opportunities) associated with the proposed quota levels associated with each of the alternatives evaluated in this analysis.

Under Alternative 1, the black sea bass commercial limit is the status quo measure. The status quo or "no action" measure for black sea bass refers to what most likely will occur in the absence of implementing the proposed regulation. The implementation of this action means that the current 2002 rules will apply to 2003. That is, the 2003 quota levels for the black sea bass fishery would be identical to the quotas established in 2002. Then projected black sea bass overages and RSA would have to be deducted from the 2003 black sea bass quota to determine the specified black sea bass quota for 2003. The "no action" measure for black sea bass does not necessarily mean a continuation of the present, but instead is the most likely scenario for the future in the absence of other alternatives.

Landings - Under the preferred alternative, aggregate landings for summer flounder, scup, and black sea bass are expected to be 4 percent lower, 71 percent higher, and <1 percent lower in 2003 when compared to 2002 adjusted quota, respectively.

Prices - Given the likelihood that this alternative will result in small changes in summer flounder and black sea bass landings, it is assumed that there will not be a change in the price for these species holding all other factors constant. However, it is possible that given the potential increase

in scup landings, price for this species may decrease holding all other factors constant.

Consumer Surplus - Assuming summer flounder and black sea bass prices will not be affected under the scenario constructed above, there will be no corresponding change in consumer surplus associated with these fisheries. However, assuming the potential decrease in the price for scup, it is expected that consumer surplus associated with this fishery may increase.

Harvest Costs - No changes in harvest costs are identified under this alternative.

Producer Surplus - Assuming summer flounder and black sea bass prices will not be affected under the scenario constructed above, there will be no corresponding change in producer surplus associated with these fisheries. However, assuming the potential decrease in the price for scup, it is expected that producer surplus associated with this fishery may decrease.

Enforcement Costs - Properly defined, enforcement costs are not equivalent to the budgetary expense of dockside or at-sea inspection of vessels. Rather, enforcement costs from an economic perspective, are measured by opportunity cost in terms of foregone enforcement services that must be diverted to enforcing summer flounder, scup, and black sea bass regulations. The proposed measures are not expected to change enforcement costs.

Distributive Effects - There are no changes to the quota allocation process for any of the species. As such, no distributional effects are identified under this alternative.

2.6.2 Quota Alternative 2 (Most Restrictive)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. This alternative evaluates the overall quotas that are most restrictive among all quotas evaluated. Under Alternative 2, the scup commercial limit is the status quo measure. The same assumptions regarding status quo alternative landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply for the scup fishery here.

Landings - Under the preferred alternative, aggregate landings for summer flounder, scup, and black sea bass are expected to be 12 percent lower, 10 percent higher, and 35 percent lower in 2003 when compared to 2002 adjusted quota, respectively.

Prices - It is possible that given the substantial decrease in black sea bass landings, price for this species may increase holding all other factors constant. In addition, it is also possible that given the decrease in summer flounder landings and increase in scup landings price for these species may increase and decrease, respectively, holding all other factors constant.

Consumer Surplus - Assuming that prices behave as stated above, it is expected that the consumer surplus associated with these species may decrease for summer flounder and black sea bass, and increase for scup.

Harvest Costs - No changes in harvest costs are identified under this alternative.

Producer Surplus - Assuming that prices behave as stated above, it is expected that the producer surplus associated with these species may increase for summer flounder and black sea bass, and decrease for scup.

Enforcement Costs - The same definitions and assumptions regarding enforcement costs presented in Alternative 1 also apply here. The proposed measures are not expected to change enforcement costs.

Distributive Effects - There are no changes to the quota allocation process for any of the species. As such, no distributional effects are identified under this alternative.

2.6.3 Quota Alternative 3 (Least Restrictive)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. This alternative evaluates the overall quotas that are least restrictive among all quotas evaluated. Under Alternative 3, the summer flounder commercial limit is the status quo measure. The same assumptions regarding status quo alternative landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply for the summer flounder fishery here.

Under Alternative 3 aggregate landings for summer flounder, scup, and black sea bass are expected to be <1 percent lower, 130 percent higher, and 6 percent higher in 2003 when compared to 2002 adjusted quota, respectively. The directional impacts as well as the magnitude of impacts for the summer flounder are expected to be similar to those described for the summer flounder fishery under Alternative 1.

The directional impacts for the scup fishery are expected to be similar to those described for the scup fishery under Alternative 1. However, the magnitude of impacts are expected to be larger under this alternative.

Given the likelihood that this alternative will result in small changes in black sea bass landings, it is assumed that there will not be a change in the price for this species holding all other factors constant. Therefore, no changes in consumer surplus and producer surplus are expected. Harvest costs, enforcement costs and distributive effects are expected to be similar to those described under Alternatives 1 and 2.

Table 22. Percentage changes associated with allowable commercial landings for various alternatives in 2003 (adjusted for overages and RSA) relative to the adjusted quotas for 2002.

Geographic Area or Time Period	Total Changes Including Overages and RSA		
	Quota Alternative 1 (Preferred)	Quota Alternative 2 (Most Restrictive)	Quota Alternative 3 (Least Restrictive)
Summer Flounder			
States other than ME & DE	-4.11%	-11.55%	+0.02%
Maine	-100.00%	-100.00%	-100.00%

Delaware	-100.00%	-100.00%	-100.00%
Aggregate Change	-4.48%	-11.92%	-0.34%*

Scup

Winter I	+59.28%	+1.97%	+114.29%
Summer	+89.21%	+21.13%	+154.56%
Winter II	+67.83%	+7.44%	+125.80%
Aggregate Change	+71.22%	+9.61%*	+130.36%

Black Sea Bass

Quarter 1	+4.23%	-29.92%	+10.43%
Quarter 2	-4.12%	-40.95%	+2.58%
Quarter 3	-3.85%	-37.07%	+2.19%
Quarter 4	-0.62%	-33.10%	+5.28%
Aggregate Change	-0.10%*	-34.51%	+6.16%

*Denotes status quo management measures. The status quo or "no action" measure for summer flounder, scup, and black sea bass refers to what most likely will occur in the absence of implementing the proposed regulation.

Summary of Impacts of Alternatives

The overall impacts of summer flounder, scup, and black sea bass landings on prices, consumer surplus, and producer surplus are difficult to determine without detailed knowledge of the relationship between supply and demand factors for these fisheries. In the absence of detailed empirical models for these fisheries and knowledge of elasticities of supply and demand, a qualitative approach was employed to assess potential impacts of the proposed management measures.

The impact of each of the regulatory quota alternatives relative to the base year is summarized in Table 23. When potential outcomes from implementing a specific alternative are equal for all three species in direction, the resulting directional effect is presented as one. However, when outcomes from implementing a specific alternative differ across species, the directional effects will be presented separately for each species. A "-1" indicates that the level of the given feature would be reduced given the action as compared to the base year. A "+1" indicates that the level of the given feature would increase relative to the base year and a "0" indicates no change. In this analysis, the base line condition is the adjusted quotas for 2002. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative in 2003 versus the fishing opportunities that were in place in 2002.

The preferred alternative, the most restrictive alternative, and the least restrictive alternative may be expected to have similar overall directional impacts for the scup fishery. These alternatives show a likely decrease in prices associated with higher landings in 2003 compared to the base year. As such, consumer surplus is expected to increase and producer surplus is

expected to decrease. However, the magnitude of the changes will likely vary across alternatives due to the potential changes in landings associated with each alternative. For example, the impact on price reduction for scup associated with the least restrictive alternative (Alternative 3) may be expected to be higher than those associated with Alternative 1 (preferred) or the most restrictive alternative (Alternative 2) and thus the magnitude of impacts associated with consumer surplus and producer surplus.

The preferred alternative and the least restrictive alternative may be expected to have similar overall directional impacts for the summer flounder and black sea bass fisheries. These alternatives show no change in summer flounder or black sea bass price, and thus no changes in consumer surplus, or producer surplus in 2003 compared to the base year.

No changes in the competitive nature of these fisheries is expected to occur if any of these management measures are implemented. All the alternatives would maintain the competitive structure of the fishery, that is, there are no changes in the manner the quotas are allocated by region, period, or state from the base year. However, large reductions in quota levels from year to year may affect vessels differently due to their capability to adjust to quota changes.

No changes in enforcement costs or harvest costs have been identified for any of the evaluated alternatives.

Since empirical models describing the elasticities of supply and demand for these species is not available, we cannot determine with certainty the impact of changes in landings on prices, consumer surplus, or producer surplus. Therefore, in order to assess the potential net benefits of each alternative, changes in ex-vessel gross revenues associated with each alternative were estimated. More specifically, combined changes in landings for summer flounder, scup, and black sea bass in 2003 compared to the 2001 base year were derived to assess the potential changes in fishing opportunities between these two time periods. Potential changes in landings (i.e., fishing opportunities) for summer flounder, scup, and black sea bass were then multiplied by the overall 2001 ex-vessel price for each species to derive changes in net revenues which are used as a proxy for changes in net benefits. NMFS dealer data from Maine to Virginia and NMFS general canvass data North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. The ex-vessel price for summer flounder, scup, and black sea bass in 2001 was estimated at \$1.62/lb, \$0.84/lb, and \$1.55/lb, respectively. The aggregate change in landings in 2003 compared to the base year for each species is presented in Table 22. The overall change in gross revenue in 2003 compared to 2002 is an increase of \$3.3 million, a reduction of \$3.9 million, and an increase of \$8.2 million under Alternatives 1, 2, and 3, respectively. These changes in revenues assume that the overall quota for each species will be taken in 2003 and the constant ex-vessel price for each species presented above. The changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices (i.e., 2001) for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

The changes in gross revenues indicate that Alternative 3 will provide the largest net benefits followed by Alternatives 1 and 2. While Alternative 3 provides the largest net benefits among all the evaluated alternative, it was

not chosen as the preferred alternative by the Council and Board because it does not meet the overall recovery objectives of the FMP. Alternative 1 (preferred) on the other hand provides overall positive net benefits and establishes required commercial landings limits that address the general goals of the FMP. It is important to mention that the estimated benefits derived above are likely to correspond to the upper/lower limits due to the fact that in deriving these values it was assumed that all available commercial TALs would be harvested and constant 2001 ex-vessel prices.

It is important to mention that although the measures that are evaluated in this specification package are for the year 2003 fisheries, the annual specification process for these fisheries could have potential cumulative impacts. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages. Section 6.6 of the EA has a detailed description or historical account or cumulative impacts of the measures established in previous years. This information is important because it allows for the evaluation of projected results from the implementation of specific management measures versus actual results.

Table 23. Qualitative comparative summary of economic effects of 2003 regulatory alternatives relative to the base line "adjusted quotas for 2002".

Feature	Alternative 1 Preferred	Alternative 2 Most Restrictive	Alternative 3 Least Restrictive
Landings	FLK -1	FLK -1	FLK -1
	SCP +1	SCP +1	SCP +1
	BSB -1	BSB -1	BSB +1
Prices	FLK 0	FLK +1	FLK 0
	SCP -1	SCP -1	SCP -1
	BSB 0	BSB +1	BSB 0
Consumer Surplus	FLK 0	FLK -1	FLK 0
	SCP +1	SCP +1	SCP +1
	BSB 0	BSB -1	BSB 0
Harvest Costs	0	0	0
Producer Surplus	FLK 0	FLK +1	FLK 0
	SCP -1	SCP -1	SCP -1
	BSB 0	BSB +1	BSB 0
Enforcement Costs	0	0	0
Distributive Impacts	0	0	0

"-1" denotes a reduction relative to the base line; "0" denotes no change relative to the base line; and "+1" denotes an increase relative to the base line. FLK denotes Summer Flounder; SCP denotes Scup; and BSB denotes Black Sea Bass.

In addition to the suite of preferred commercial quota alternatives, other management measures are also being considered to constrain landings to the commercial quota. The commercial possession limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period.

Changes in possession limits can impact profitability in various ways. These impacts would vary depending on fishing practices. The preferred alternative adopted by the Council and Board includes more restrictive scup possession limits for Winters I (10,000 pounds per day in 2002 decreasing to a total of 15,000 pounds per week in 2003) and II (2,000 pounds per day in 2002 decreasing to 1,500 pounds per day in 2003) in 2003. With an increase in stock size, reduced possession limits are expected to constrain commercial landings to the commercial TAL, distribute landings equitably throughout the periods to avoid derby-style fishing effort and associated market gluts. According to anecdotal information potential price fluctuations occur as result of irregular supply. Additionally, in Winter I the Council and Board are recommending weekly possession limits for Winter I, which would allow fishermen determine when the best time for them to fish and further help to avoid market gluts and unsafe fishing practices. As such, the possession limits are expected to result in some positive social and economic impacts, relative to the status quo possession limits.

The black sea bass possession limit adopted by the Council for Quarter 1 in 2003 is the same as 2002 (7,000 pounds per trip); the possession limits for Quarters 2-4 are more liberal for black sea bass in 2003 (2,000 pounds per trip in 2002 increasing to 5,000 pounds per trip in 2003). The Commission adopted state-specific allocations for 2003. If Amendment 13 is approved by January 1, 2003, a federal coastwide quota will go into effect to facilitate the state quotas and there would be no federal possession limits. Until Amendment 13 is implemented, a quarterly system will remain in effect for federal permit holders (section 1.0 of the EA). Because state-by-state measures were approved by the Board, and there is the possibility that federal implementation will not occur by January 1, 2003, the Council adopted liberal possession limits for Quarters 2-4, so as not to constrain federal permit holders from landing in states with different landings limits. The impact of state-specific allocations is fully analyzed in Amendment 13 (section 4.1.5.1). Each state will implement management measures to achieve their allocation of the commercial quota in 2003. The liberal possession limits in Quarters 2-4 for 2003 are not expected to result in an overharvest of the black sea bass commercial quota, since they will facilitate the states' quotas. Because of the states' ability to tailor management measures to the needs of their fishery the more liberal possession limits in Quarters 2-4 are expected to result in positive social and economic impacts relative to the status quo.

The Council recommended that the GRAs that were implemented in 2001 continue for 2003. Additionally, the Council and Board adopted a measure that allows exemption for an experimental small mesh net in GRAs while carrying observers. The affect of the GRAs on small net fisheries is fully described in the 2001 Specification document. The GRAs are expected to reduce discards of scup in

non-directed fisheries. However, the recommendation to allow a small mesh experimental net in the GRAs may increase landings of other species relative to 2001. It is not possible to assess the monetary value associated with the additional harvest as a result of the proposed experimental net exemption, because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor (section 5.1.3 below). The modifications are based on a project funded by the Mid-Atlantic Council and conducted by the Manomet Center for Conservation Sciences to develop selective trawls for small mesh fisheries. Results of the research indicate that a 5.5" square mesh extension placed in the net 50 meshes ahead of the codend significantly reduced (60 percent reduction) the bycatch and discard of small scup without a reduction in the capture of squid.

The cost of the experimental net observer program in GRAs will likely have minimal effect on ports and communities. Participation in this program is not mandatory and it is expected that individual vessels will assess changes in costs and revenues to their operations before they participate in this program. Additionally, this may result in an increase in *Loligo* landings relative to 2002 with positive economic impacts on the *Loligo* fishery, relative to the status quo (section 6.1.2.2 of the EA).

The proposed action does not constitute a significant regulatory action under E.O. 12866 for the following reasons. First, it will not have an annual effect on the economy of more than \$100 million. The total value of all commercial landings of these species combined is approximately \$25.3 million. Based on preliminary unpublished NMFS dealer data from Maine to Virginia, and South Atlantic unpublished General Canvass for North Carolina, the 2001 total commercial value for summer flounder was estimated at \$17.7 million from Maine to North Carolina, and at \$3.3 million, and \$4.3 million for scup and black sea bass from Maine to Cape Hatteras, NC, respectively. More importantly, as estimated above, assuming 2001 ex-vessel prices and the potential change in landings due to the adjusted 2003 quota compared to the adjusted 2002 quotas, the overall gross revenue (i.e., for all three species combined) under the preferred alternative would increase by \$3.3 million in 2003 compared to 2002. The Preferred Alternative, and other non-quota measures, being considered by this action are necessary to advance the recovery of summer flounder, scup and black sea bass stocks, and to establish the harvest of these species at sustainable levels. The action benefits in a material way the economy, productivity, competition and jobs. The action will not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. Second, the action will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the summer flounder, scup or black sea bass fisheries in the EEZ. Third, the actions will not materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of their participants. And, fourth, the actions do not raise novel, legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

3.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

3.1 Introduction and Methods

The Regulatory Flexibility Act (RFA) requires the Federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. In reviewing the potential impacts of proposed regulations, the agency must either certify that

the rule "will not, if promulgated, have a significant economic impact on a substantial number of small entities." Although overall negative economic impacts are not anticipated as a result of this action due to small quota decreases in the summer flounder (4 percent decrease) and black sea bass (<1 percent decrease) fisheries and quota increase in the scup fishery (71 percent increase) contained in the Preferred Alternative, the IRFA was prepared to further evaluate the economic impacts of the three quota alternatives and other non-quota measures (i.e., gear requirements and trip limits) on small business entities. This analysis is undertaken in support of a complete analysis for the 2003 commercial specifications for fishing for summer flounder, scup, and black sea bass.

A complete description of the purpose and need and objectives of this proposed rule is found under section 1 of the EA. This action is taken under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and regulations at 50 CFR part 648. A description of the summer flounder, scup, and black sea bass fisheries is presented in section 5.0 of the EA and Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. A description of ports and communities is found in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. An analysis of permit data is found in section 4.2 of the EA. A statement of the problem for resolution is presented under section 1 of the EA. A full description of the three alternatives analyzed in this section and the TAL derivation process is presented in sections 2.0 and 3.0 of the EA. A brief description of each alternative is presented below for reference purposes.

This action does not duplicate, overlap, or conflict with other Federal rules. For the most part this action does not contain any new collection of information, reporting, or record-keeping requirements. However, in order to participate in the at-sea observer program fishermen would have to request for a letter of authorization in order to fish in the GRAs with an observer and a modified net. The cost of the at-sea observers is to be paid by the fishermen wishing to fish in the GRAs.

Under the 100% coverage program, it is expected that 72 vessels would apply for an authorization letter to participate under a blanket permit program. The total burden hours associated with submitting the authorization letter to NMFS is expected to have an associated 72 burden hours and a cost of \$1,080 to the industry. The administrative burden hours to the agency is also expected to be 72 hours at a cost of \$1,800 to the government. Additional administrative burden on the agency to monitor the program would be approximately \$1,200 per year (½ day per month).

Under the 5% coverage program, it is expected that 72 vessels would also apply for an authorization letter to participate in the program. The total burden hours associated with submitting the authorization letter to NMFS is expected to have an associated 72 burden hours and a cost of \$1,080 to the industry. The administrative burden hours to the agency is also expected to be 72 hours at a cost of \$1,800 to the government. In addition, fishermen would have to contact NMFS 5 days before the trip is to be taken in order to determine if that trip requires an observer or not. Based on average number of directed *Loligo* trips in the GRAs for the 1996-1999 period (section 6.1.2.2 of the EA), fishermen may have to contact NMFS approximately 595 times to determine which trips require an at-sea observer. This requirement would incur in 99 hour burden (5 minutes per call) to the industry and government, and an associated cost of \$1,485 and \$2,475, respectively. Additional administrative burden on the agency to design and monitor the program would be approximately \$6,200 per year (1 week to design program and ½ day per week to monitor). Costs

calculated above assumed an average cost of \$25 per hour to the government (based on printing, distribution, and handling) and \$15 per hour to the public (based on an applicant wage and overhead value).

Compliance costs associated with the experimental net observer program in GRAs are anticipated (but voluntary) due to requirements for trawl gear conversion in the *Loligo* fishery. Costs of trawl gear conversions are expected to vary for inshore and offshore vessels, and with the degree of modifications required. For vessels operating in the inshore fishery, compliance costs are estimated to be approximately \$775 per vessel, and for vessels operating in the offshore fishery costs are estimated at approximately \$1,354 per vessel.

The Small Business Administration (SBA) defines a small business in the commercial fishing and recreational fishing activity, as a firm with receipts (gross revenues) of up to \$3.0 and \$5.0 million, respectively. The proposed measures regarding the 2003 quotas could affect any vessel holding an active Federal permit for summer flounder, scup, or black sea bass as well as vessels that fish for any one of these species in state waters. Data from the Northeast permit application database shows that as of July 15, 2002 there were 1,830 vessels that were permitted to take part in the summer flounder, scup, and/or black sea bass fisheries (both commercial and charter/party sectors). These permitted vessels may be further categorized depending upon which permits or combinations of permits that were held (section 4.2 of the EA). Table 8 reports the number of vessels for all possible combinations of permits. The proposed possession limits for scup and black sea bass could potentially affect all scup and black sea bass permit holders. However, active participants are more likely to be affected in the near term. All permitted vessels readily fall within the definition of small business.

Since all permit holders may not actually land any of the three species the more immediate impact of the rule may be felt by the 1,073 commercial vessels that are actively participating in these fisheries (Table 24). An active participant was defined as being any vessel that reported having landed one or more pounds of any one of the three species in the Northeast dealer data during calendar year 2001. The dealer data covers activity by unique vessels that hold a Federal permit of any kind and provides summary data for vessels that fish exclusively in state waters. This means that an active vessel may be a vessel that holds a valid Federal summer flounder, scup, or black sea bass permit; a vessel that holds a valid Federal permit but no summer flounder, scup or black bass permit; a vessel that holds a Federal permit other than summer flounder, scup, or black sea bass and fishes for those species exclusively in state waters; or may be vessel that holds no Federal permit of any kind. Of the four possibilities the number of vessels in the latter two categories cannot be estimated because the dealer data provides only summary information for state waters vessels and because the vessels in the last category do not have to report landings. Of the active vessels reported in Table 24, 330 commercial vessels did not hold a valid Federal permit for summer flounder, scup, or black sea bass during calendar year 2002. Note that in a manner similar to that of Table 8 these active vessels are also reported by all possible combinations of reported landings.

In this IRFA, the primary unit of observation for purposes of performing a threshold analysis is vessels that participated in any one or more of the three fisheries (summer flounder, scup, and black sea bass) during calendar year 2001, irrespective of their current permit status. Not all landings and revenues reported through the Federal dealer data can be attributed to a specific vessel. Vessels without Federal permits are not subject to any Federal reporting requirements with which to corroborate the dealer reports.

Similarly, dealers that buy exclusively from state waters only vessels and have no Federal permits, are also not subject to Federal reporting requirements. Thus, it is possible that some vessel activity cannot be tracked with the landings and revenue data that are available. Thus, these vessels cannot be included in the threshold analysis, unless each state were to report individual vessel activity through some additional reporting system - which currently does not exist. This problem has two consequences for performing threshold analyses. First, the stated number of entities subject to the regulation is a lower bound estimate, since vessels that operate strictly within state waters and sell exclusively to non-Federally permitted dealers cannot be counted. Second, the portion of activity by these uncounted vessels may cause the estimated economic impacts to be over- or underestimated.

The effects of actions were analyzed by employing quantitative approaches to the extent possible. Where quantitative data were not available, qualitative analyses were conducted. In the current analysis, effects on profitability associated with the proposed management measures should be evaluated by looking at the impact the proposed measures on individual vessel costs and revenues. However, in the absence of cost data for individual vessels engaged in these fisheries, changes in gross revenues are used a proxy for profitability.

In order to conduct a more complete analysis, overall impacts were examined in three ways to represent three potential quota "alternatives." The first analysis (Preferred Alternative) examined the measures recommended by the Council for each of the three species. The second alternative considered the lowest quotas (most restrictive alternative), for each of the fisheries. The third alternative looked at the highest quotas (least restrictive alternative). Overall impacts were examined because many of the vessels active in these fisheries participate in one or even all three of these fisheries (section 4.2 of the EA). Actions in one fishery, e.g., a decrease in quota, could have an impact on levels of participation in other fisheries.

Procedurally, the economic effects of the quota alternatives were estimated using five steps. First, the Northeast dealer data were queried to identify all vessels that landed at least one or more pounds of summer flounder, scup, or black sea bass in calendar year 2001. The fact that individual owners' business organization may differ from one another is reflected in the different combinations of species landed by these vessels. Thus, for purposes of the threshold analysis, active vessels were grouped into seven classes or tiers (Table 24) based on combinations of summer flounder, scup and black sea bass landings. In this manner, the original universe of vessels is treated as seven distinct "sub-universes" with a separate threshold analysis conducted for each. Note that the States of Connecticut and Delaware report canvas (summary) data to NMFS, so landings and revenues by individual vessels cannot be included. Thus, vessels that land exclusively in those states cannot be analyzed. Vessels that land in these, plus other states, are analyzed - but landings and revenues represent only that portion of business conducted in states other than Connecticut and Delaware. It is presumed that the impacts on vessels that cannot be identified will be similar to the participating vessels that are analyzed herein.

The second step was to estimate total revenues from all species landed by each vessel during calendar year 2001. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since 2001 is the last full year from which data are available (partial year data could miss seasonal fisheries), it was chosen as the base

year for the analysis. That is, partial landings data for 2002 were not used in this analysis because the year is not complete. As such, 2001 data were used as a proxy for 2002.

The third step was to deduct or add, as appropriate, the expected change in vessel revenues depending upon which of the three quota alternatives were evaluated. This was accomplished by estimating proportional reductions or increases in the three quota alternatives versus the base quota year 2001 (2002 proxy). Landings to date, overages, and RSA estimates were employed to adjust the 2003 quotas. For the purpose of estimating the 2003 quotas and revenue changes, the following assumptions were made: a) that the states with overages at the time of the analysis will harvest no additional summer flounder, and that the industry will fully harvest, and not exceed, the remaining 2002 state allocations; b) that the black sea bass overages in Quarters 1, 2, and 3 will remain, and that the industry will fully harvest, and not exceed, the remaining 2002 allocation; and c) that the non-overage states for scup Winter I will remain and that the industry will fully harvest, and not exceed, the remaining 2002 allocation. Detailed description of the 2003 quota derivation (accounting for overages and RSA) is presented in sections 1.1, 2.0, and 3.0 of the EA.

The fourth step was to compare the estimated 2003 revenues from all species to the 2001 base revenues for every vessel in each of the classes to assess potential changes. For each quota alternative a summary table was constructed that report the results of the threshold analysis by class when necessary. These results were further summarized by home state as defined by permit application data when appropriate.

The threshold analysis just described is intended to identify impacted vessels and to characterize the potential economic impact on directly affected entities. In addition to evaluating if the proposed regulations reduce profit for a significant number of small entities, the RFA also requires that disproportionality be evaluated. Disproportionality is judged to occur when a proportionate affect on profits, costs, or net revenue is expected to occur for a substantial number of small entities compared to large entities, that is, if a regulation places a substantial number of small entities at a significant competitive disadvantage. According to the SBA definition of small business presented above, all permitted vessels in these fisheries readily fall within the definition of small business. Therefore, there are no disproportionality issues.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles are typically constructed. Each profile are based on impacts under the most restrictive possible alternative. The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. The following criteria was employed to derive the range of counties profiled: the number of vessels with revenue losses exceeding 5 percent per county was either greater than 4, or all vessels with losses exceeding 5 percent in a given state were from the same home county. It is expected that this system will allow for a county profile that may include a wide range of potentially affected areas.

Based on these criteria, a total of 20 counties were identified: Sussex County, DE; Barnstable, Bristol, Dukes, Plymouth, and Suffolk Counties, MA; Worcester County, MD; Carteret, Dare, Hyde, and Pamlico Counties, NC; Cape May, Monmouth, and Ocean Counties, NJ; Suffolk County, NY; Newport and

Washington Counties, RI; and Accomack, Norfolk City, and Virginia Beach City Counties, VA. Counties not included in this analysis (e.g., in CT) did not have enough impacted vessels to meet the criteria specified, i.e., there were less than 4 impacted vessels per county, or all impacted vessels in a state were not home ported within the same county.

It should be noted that the county profiles are intended to characterize the relative importance of commercial fishing and fishing related industries in the home counties. As such, the county profiles provide a link to the social impacts described in the socioeconomic impacts sections in section 6.0, of the EA, but are not intended to be a substitute for that analysis. The target counties were identified based on the county associated with the vessels homeport as listed in the owner's 2002 permit application.

Counties are typically selected as the unit of observation because a variety of secondary economic and demographic statistical data were available from several different sources. Limited data are available for place names (i.e., by town or city name) but in most instances reporting is too aggregated or is not reported due to confidentiality requirements. Reported statistics include demographic statistics, employment, and wages. In addition, a description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP.

Table 24. Numbers of vessels landing scup, black sea bass and/or summer flounder in 2001.

Landings Class	Landings Combinations	Commercial Vessels (#)
1	Scup Only	24
2	Black Sea Bass Only	177
3	Fluke Only	282
4	Scup/Black Sea Bass	77
5	Scup/Fluke	27
6	Black Sea Bass/Fluke	131
7	Scup/Black Sea Bass/Fluke	355
	Total	1,073
Data from Northeast Region dealer data.		

4.0 DESCRIPTION OF QUOTA ALTERNATIVES

All quota alternatives considered in this IRFA are based on three harvest levels for each of the species (a high, medium, and low level of harvest). These recommendations, and their impacts relative to the 2001 landings, are shown in Table 2. Table 22 shows the proposed quota specifications for 2003 (adjusted for overages and RSA) relative to the adjusted 2002 quotas. A full

description of the three alternatives analyzed in this section and the TAL derivation process is presented in sections 2.0 and 3.0 of the EA.

Alternative 1 analyzes the overall impacts of the harvest levels recommended by the Council and Board for summer flounder, scup, and black sea bass on vessels that are permitted to catch any of these three species. Harvest levels were recommended to achieve the target fishing mortality or exploitation rates specified in the rebuilding schedule for each species. In addition to the proposed TALs for summer flounder, scup, and black sea bass, the Council and Commission have approved changes to the possession limits for scup and black sea bass, and approved an exemption for small a mesh experimental nets in GRAs. A detailed description of these measures was presented in section 3.0 of the EA. A brief discussion and impact of these measures is presented in section 5.1 below.

Alternative 2 analyzes the overall impacts of the most restrictive possible harvest levels, i.e., those that would result in the greatest reductions in landings (relative to 2002) for summer flounder, scup, and black sea bass. Alternative 2 evaluates the most restrictive overall harvest levels. This alternative includes non-selected alternatives for all three species.

Alternative 3 analyzes the overall impacts of the least restrictive possible harvest levels, i.e., those that would result in the least reductions (or greatest increases) in landings (relative to 2002) for all species. These limits resulted in the highest possible landings for 2003, regardless of their probability of achieving the biological targets.

5.0 ANALYSES OF IMPACTS OF ALTERNATIVES

For the purpose of analysis of the following alternatives, several assumptions must be made. First, average revenue changes noted in this analysis are made using 2001 dealer data and participation. In addition to this, 2002 permit files were used to describe permit holders in these fisheries. It is important to mention that revenue changes for 2003 are dependent upon previous landings and overages. Overages were determined and deducted appropriately from the upcoming fishing year's quota, e.g., by state for summer flounder, period for scup, or quarter for black sea bass. In addition, 2003 quotas were also adjusted to account for RSAs for 2003. A detailed description of this process is presented in sections 1.1, 2.0, and 3.0 of the EA.

For the analyses themselves, reductions are estimated by examining the total revenue earned by an individual vessel in 2001, and comparing it to its potential revenue in 2003, given the 2003 harvest levels. Generally, the percent of a vessel's revenue reduction varies considerably based on the permits it holds (i.e., based on the fisheries in which it was able to participate) and species it landed. Diversity in the fleet, helps to balance loss in one fishery with revenue generated from other fisheries. Lastly, it is important to keep in mind that while the analyses are based on landings for Federally permitted vessels only, those vessels may be permitted to, and frequently do, fish in state waters for a species of fish for which it does not hold a Federal permit.

5.1 Quota Alternative 1 (Preferred)

This alternative examines the impacts on industry that would result from total harvest levels for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest levels specified in section 3.0 of the EA were employed.

Under this alternative, the summer flounder specifications would result in an aggregate 4 percent decrease in allowable commercial landings relative to the 2002 quota and a 20 percent reduction in recreational harvest relative to 2001 landings (Tables 22 and 26). The scup specifications would result in an aggregate 71 percent increase in allowable commercial landings relative to the 2002 quota and a 6 percent decrease in recreational harvest relative to 2001 landings (Tables 22 and 27). The black sea bass specifications would result in an aggregate <1 percent decrease in allowable commercial landings relative to the 2002 quota and a <1 percent increase in the recreational harvest relative to 2001 landings (Tables 22 and 28). Under Alternative 1, the black sea bass commercial limit is the status quo measure.

5.1.1 Commercial Impacts

The result of the threshold analysis are presented in Table 25. The economic impacts for the 1,073 vessels participating in these fisheries ranged from expected revenue losses on the order of <5 percent for a total of 752 vessels to increase in revenue for 321 vessels. In addition, no vessels were expected to have revenue losses of >5 percent. It is clear to see the increase in revenues for vessels that fished for scup only or scup combined with another species due to the large overall increase in the scup quota, and relatively small overall decrease in summer flounder and black sea bass quotas in 2003 compared to 2002 (Table 22). On the other hand, while the overall black sea bass fishery is projected to experience a very small decrease in fishing opportunity in 2003 compared to 2002, some vessels that landed black sea bass only are projected to have revenue increases. This is due to the fact that the fishing opportunity associated with Quarter 4 is greater in 2003 compared to 2002 (approximately 4 percent) thus the increase in revenues for some black sea bass vessels that fished within that period (Table 22). The vessel distribution by home port state for these vessels is similar to that presented under the 2nd column from the left in Table 30.

A further breakdown of the 752 vessels showing small revenue reductions, indicates that 539 vessels are expected to have revenue reductions of <1 percent; 81 vessels are expected to have revenue reductions between 1 and <2 percent; 47 vessels are expected to have revenue reductions between 2 and <3 percent; 43 vessels are expected to have revenue reductions between 3 and <4 percent; and 42 vessels are expected to have revenue reductions between 4 and <5 percent. A large proportion of the 752 vessels projected to incur in revenue losses (140 vessels or 19%) generated revenues of less than \$10,000/year in 2001. This indicates that some of the affected business units may part-time vessels or not highly dependent (i.e., economic) on commercial fishing.

Table 25. Threshold analysis of revenue impacts for participating vessels, "FLK" is summer flounder, "BSB" is black sea bass, and "SCP" is scup.

Quota Alternative 1 (Preferred)				Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Class	Landings Combination	Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10- 19	20- 29	30- 39	40- 49	\$50
1	SCP Only	24	0	24	0	0	0	0	0	0	0	0
2	BSB Only	177	0	20	0	157	0	0	0	0	0	0

3	FLK ONLY	282	0	0	0	282	0	0	0	0	0	0
4	SCP/BSB	77	0	55	0	22	0	0	0	0	0	0
5	SCP/FLK	27	0	11	0	16	0	0	0	0	0	0
6	BSB/FLK	355	0	5	0	126	0	0	0	0	0	0
7	SCP/BSB/FLK	131	0	206	0	149	0	0	0	0	0	0
	Totals	1,073	0	321	0	752	0	0	0	0	0	0

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass \$1.55/lb), the 2003 quotas associated with the preferred alternative would decrease summer flounder revenues by approximately \$1.0 million, increase scup revenue by \$4.3 million, and decrease black sea bass landings by less than 5 thousand dollars compared to 2002. While the proposed black sea bass TAL for 2003 is the same as the TAL implemented in 2002, adjustments due to overages and research set-asides make the 2003 black sea bass TAL slightly lower than the adjusted 2002 TAL and thus a small decrease in black sea bass revenues compared to 2002.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with the Preferred Alternative is distributed equally between the 795 vessels that landed summer flounder in 2001, the average decrease in revenue associated with the decrease in summer flounder quota is \$1,324/vessel. Assuming the increase in scup total gross revenues associated with this alternative is distributed equally between the 483 vessels that landed scup in 2001, the average increase in revenue associated with the increase in the scup quota is \$8,984/vessel. Finally, if the decrease in black sea bass total gross revenues associated with this alternative is distributed equally between the 740 vessels that landed black sea bass in 2001, the average decrease in revenue associated with the decrease in black sea bass quota is \$7/vessel.

The overall change in gross revenue associated with the three species combined in 2003 compared to 2002 is approximately \$3.3 million (assuming 2001 ex-vessel prices) under the Preferred Alternative. If this is distributed among the 1,073 vessels that landed summer flounder, scup, and black sea bass in 2001, the average increase in revenue would be \$3,058/vessel. The changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

5.1.2 Recreational Impacts

Landing statistics from the last several years show that recreational summer flounder landings have generally exceeded the recreational harvest limits, ranging from 5 percent in 1993 to 122 percent in 2000. In 1994 and 1995, summer flounder landings were below the recreational harvest limit by about 20 percent for both years combined (Table 26). In 2001, the recreational landings were 11.64 million lb. Under this alternative, the summer flounder 2003 recreational harvest limit (adjusted for RSA) would be 9.28 million lb. Thus, the harvest limit in 2003 would be a decrease of about 20 percent from

2001 recreational landings, and a decrease of 5 percent from the 2002 recreational harvest limit.

Table 26. Number of summer flounder recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2003.

Year	Number of Fishing Trips ^a	Recreational Harvest Limit (million lb)	Recreational Landings of Summer Flounder (million lb) ^b
1991	4,645,993	None	7.96
1992	3,751,815	None	7.15
1993	4,829,252	8.38	8.83
1994	5,761,918	10.67	9.33
1995	4,699,292	7.76	5.42
1996	4,857,952	7.04	9.82
1997	5,620,640	7.41	11.87
1998	5,296,982	7.41	12.48
1999	4,230,627	7.41	8.37
2000	5,554,515	7.41	16.47
2001	6,146,798	7.16	11.64
2002	N/A	9.72	N/A
2003	-	9.28 ^c	-

^a Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species sought was summer flounder, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.

^b From Maine to North Carolina.

^cAdjusted for research set-aside.

N/A = Data not available.

Scup recreational landings have declined over 89 percent for the period 1991 to 1998, then increased by 517 percent from 1998 to 2000 (Table 27). The number of fishing trips has also declined over 86 percent from 1991 to 1998, and then increased by 316 percent from 1998 to 2000. The decrease in the recreational fishery in the 1990s occurred both with and without any recreational harvest limits, and it is perhaps a result of the stock being over-exploited and at a low biomass level. In addition, it is possible that party/charter boats may have targeted other species that were relatively more abundant than scup (e.g., striped bass), thus accounting for the decrease in the number of fishing trips in this fishery in the 1990s. In 2001, recreational landings were 4.26 million lb, this figure represents a decrease in landings of 22 percent from 2000. In addition, recreational fishing trips decreased by 42 percent from 2000 to 2001. Under this alternative, the scup 2003 recreational harvest limit (adjusted for RSA) would be 4.01 million lb. Thus, the harvest limit in 2003 would be a decrease of about 6 percent from

2001 recreational landings, and an increase of 48 percent from the 2002 recreational harvest limit.

Table 27. Number of scup recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2003.

Year	Number of Fishing Trips ^a	Recreational Harvest Limit (million lb)	Recreational Landings of Scup (million lb) ^b
1991	763,284	None	8.09
1992	495,201	None	4.41
1993	252,017	None	3.20
1994	221,074	None	2.63
1995	155,039	None	1.34
1996	147,161	None	2.16
1997	118,286	1.95	1.20
1998	105,283	1.55	0.88
1999	133,703	1.24	1.89
2000	438,040	1.24	5.43
2001	253,698	1.77	4.26
2002	N/A	2.71 ^c	N/A
2003	-	4.01 ^c	-

^a Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species sought was scup, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.

^b From Maine to North Carolina.

^cAdjusted for research set-aside.

N/A = Data not available.

Black sea bass recreational fishing trips have shown a slight upward trend from the early to Mid-1990's (Table 28). Black sea bass recreational landings have also shown a slight upward trend from 1991 to 1997. However, landings decreased considerably from 1995-1996 to 1998-1999, but then substantially increased in 2000 to 4.01 million lb. In 2001, recreational landings were 3.42 million lb. Under this alternative, the black sea bass 2003 recreational harvest limit (adjusted for RSA) would be 3.43 million lb. Thus, the harvest limit in 2003 would be an increase of <1 percent from 2001 recreational landings, and an no change from the 2002 recreational harvest limit.

Table 28. Number of black sea bass recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2003.

Year	Number of Fishing Trips ^a	Recreational Harvest Limit (million lb)	Recreational Landings of BSB (million lb) ^b
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1991	N/A	None	4.19
1992	218,700	None	2.71
1993	296,370	None	4.84
1994	265,402	None	2.95
1995	317,608	None	6.21
1996	207,058	None	4.00
1997	313,095	None	4.27
1998	N/A	3.15	1.15
1999	N/A	3.15	1.70
2000	219,860	3.15	4.01
2001	268,248	3.15	3.42
2002	N/A	3.43 ^c	N/A
2003	-	3.43 ^c	-

^a Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was black sea bass, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.

^b From Maine to Cape Hatteras, North Carolina.

^cAdjusted for research set-aside.

N/A = Data not available.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2003, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely measures will result in any substantive decreases in the demand for party/charter boat trips. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder or scup that they are allowed to catch.

Other Impacts

Effects of Commercial Possession Limits

The effects of the proposed commercial possession limits for scup and black sea bass are described in sections 6.1.2.2 and 6.1.2.3 of the EA, respectively.

Effects of the experimental net observer program in GRAs

The 2003 recommendation will also allow small mesh experimental nets to fish in the GRAs. This may result in an increase in *Loligo* landings relative to 2002, and thus have positive economic impacts on the *Loligo* fishery, relative to the status quo. It is not possible to assess the exact monetary value associated with the additional harvest as a result of the proposed experimental net exemption because quantitative data on these nets are limited. The modifications are inexpensive and can be incorporated into existing nets with minimal labor. For vessels operating in the inshore fishery, compliance costs are estimated to be approximately \$775 per vessel, and for vessels operating in the offshore fishery costs are estimated at approximately \$1,354 per vessel. Cost of one at-sea observer day is approximately \$1,150 (Potter pers. com.). The cost of the at-sea observers is to be paid by the fishermen wishing to fish in the GRAs. Administrative costs associated with this measure are described in section 3.1 of the RIR/IRFA.

The average ex-vessel value (1996-1999) of *Loligo* in directed trips in the GRAs ranges from \$4,456 to \$24,013 per trip (Table 16). These values are based on the average landings of *Loligo* from 1996-1999 in the GRAs, and the average ex-vessel value (1996-1999) of *Loligo*, adjusted to 2001 dollars. A survey of small Northeast fishing vessels (<65 feet in length) whose primary gear was otter trawl and reported landings in New England indicated that average total operating cost per trip for small trawlers in 1996 was \$267 (Lallemand *et al.* 1998). A survey of large Northeast fishing vessels (>65 feet in length) whose primary gear was otter trawl and reported landings in New England in 1997 indicated that the average total operating cost per trip for large trawlers in 1997 was \$2,608 (Lallemand *et al.* 1999). For both surveys, trip expenses were divided into eight categories (fuel, oil, ice, food and water, lumpers fees, supplies, consignment fees, and other expenses). More detail on the surveys is presented in Amendment 13.

An analysis of VTR data (1996-1999) indicates that on average 72 vessels had directed *Loligo* trips (>50% of the total landings were *Loligo*) in the GRAs. Based on the average number of directed *Loligo* trips (>50% of the total landings were *Loligo*) in the GRAs and 5 to 100 percent observer coverage, approximately 11 to 209 directed *Loligo* trips, respectively, would be required to carry observers in the GRAs. This level of coverage would result in an approximate per trip cost of \$4,600 and \$3,450 for *Loligo* trips in the southern and northern GRAs, respectively (Table 16). It is expected that large vessels would most likely participate in the at-sea observer program due to the large distance of the GRAs from shore. While the cost of at-sea observers will increase operating costs of large vessels, it is not anticipated that it will substantially reduce profits for most large vessels fishing in the southern area. However, it may substantially affect profits for vessels fishing in the northern area (Table 16). Nevertheless, participation in this program is not mandatory and it is expected that individual vessels will assess changes in costs and revenues to their operations before they participate in this program.

Effects of the research set-aside

The Council approved a research set-aside amount of 91,163 lb for the summer flounder fishery, 66,650 lb for the scup fishery, and 67,676 lb for the black sea bass fishery for 2003. A number of research projects as part of the research set-aside program were submitted to NMFS that would require an exemption from some of the current or proposed regulations for summer flounder, scup, and black sea bass. The impacts of these exemptions are described in section 6.4 of the EA.

The economic analysis regarding changes in the commercial TALs for the summer flounder, scup, and black sea bass fisheries conducted under this alternative as well as the other alternatives analyzed in this RIR/IRFA incorporated adjustments for the proposed quota specifications for 2003 relative to the adjusted 2002 quotas. That is, overages and RSAs for each species were deducted from the initial overall TALs proposed for 2003 to derive adjusted 2003 quotas. Therefore, the threshold analyses conducted under each alternative has accounted for overall reductions in fishing opportunities in 2003 versus 2002 available to all vessels typically participating in these fisheries due to RSAs. This methodology would overestimate potential revenue losses for vessels participating in these fisheries as the overall TAL for each fishery was adjusted downward due to RSAs that will be available only to vessels participating in RSA projects. Since the summer flounder, scup, and black sea bass RSAs are made available to vessels participating in the RSAs projects only, and these vessels have the opportunity to harvest summer flounder, scup, and black sea bass under the RSA projects as well as under the normal TALs for these species as well, it is possible that the projected revenue losses under the alternatives evaluated could potentially be smaller for some vessels participating in the 2003 RSA projects.

If the amounts of summer flounder, scup, and black sea bass allocated to RSA are not used and are put back into the overall TAL for each fishery in 2003, then the amount of summer flounder, scup, and black sea bass available to all vessels in 2003 could increase by 91,163 lb, 66,650 lb, and 67,676 lb, respectively. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass - \$1.55/lb), the 2003 research set-aside could be worth as much as \$147,684 for summer flounder, \$55,986 for scup, and \$104,898 for black sea bass. As such, assuming an equal increase among all active vessels (i.e., 795, 483, and 740 vessels that landed summer flounder, scup, and black sea bass in 2001, respectively), this could mean a potential increase in revenue of about \$186, \$116, and \$142 per individual vessel in the summer flounder, scup, and black sea bass fishery, respectively. If research set-asides are not used and are put back into the overall TAL for each fishery, then the estimated economic impacts would be smaller than those estimated in threshold analyses presented in the IRFA (sections 5.1.1, 5.2.1, and 5.3.1).

The social and economic impacts of this research should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions.

It is possible that if the vessels used by researchers to conduct the research are vessels that have not traditionally fished for summer flounder, scup, or black sea bass, then permit holders that would have landed these species could be disadvantaged.

Changes in the recreational harvest limit due to the RSAs would be insignificant; the limit changes from 9.32 to 9.28 million lb (a <1 percent decrease) in the summer flounder fishery; from 4.03 to 4.01 million lb (a <1 percent decrease) in the scup fishery; and from 3.47 to 3.43 (a 1 percent decrease) in the black sea bass fishery. As such, it is unlikely that the possession, size or seasonal limits would change as the result of this research set-aside and, as such, there would be no negative impacts.

5.1.3 Summary of Impacts

In sum, the proposed 2003 adjusted commercial quotas in Preferred Alternative 1 for summer flounder, scup, and black sea bass for the year 2003 are 4 percent lower, 71 percent higher, and < 1 percent lower, respectively, compared to the adjusted quotas for year 2002. The recreational harvest limits (adjusted for RSA) in Preferred Alternative 1 for summer flounder, scup, and black sea bass for the year 2003 are 5 percent lower, 48 percent higher, and no change, respectively, compared to the recreational harvest limits for year 2002. The commercial quotas and recreational harvest limits selected as the Preferred Alternative were chosen because they provide for the maximum level of commercial and recreational landings, yet still achieve the fishing mortality and exploitation rates specified in the FMP.

The threshold analysis indicates that 752 commercial vessels are projected to incur in small revenue reductions (less than 5 percent) and 321 commercial vessels are expected to incur in revenue gains under Preferred Alternative 1. A large proportion of the 752 vessels projected to incur in revenue losses (140 vessels or 19%) generated revenues of less than \$10,000/year in 2001. This indicates that some of the affected business units may part-time vessels or not highly dependent (i.e., economic) on commercial fishing. Many of the vessels projected to incur in revenue losses of less than 5 percent could be considered that participate in a limited fashion or part-time basis in commercial fishing.

Assuming 2001 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2003 versus 2002, the 2003 quotas in Alternative 1 (after overages and RSA have been applied) would decrease summer flounder and black sea bass ex-vessel revenues by approximately \$1.0 million and less than 5 thousand dollars, respectively, and increase scup revenues by \$4.3 million, for a total revenue increase of \$3.3 million.

If the decrease in total summer flounder and black ex-vessel gross revenues associated with Alternative 1 is distributed equally between the vessels landed each of those species in 2001, the average decrease in revenue in the summer flounder and black sea bass fisheries would be \$1,324/vessel and \$7/vessel, respectively. If the increase in total scup gross revenues associated with this alternative is also distributed equally between the vessels landed scup in 2001, the average increase in revenue in the scup fishery would be \$8,984/vessel. However, it is important to mention that the changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices (i.e., 2001) for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

It is important to stress that these are potential changes, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2003 for quota overages that were not accounted for here. These commercial quotas were identified as the Preferred Alternative because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize commercial landings to the extent practicable.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given

year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early to late 1990s, however, in 2000 and 2001 recreational trips have significantly increased. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2001 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2001, 1.6 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 2000 to 2001, was 1.5 million. The recreational harvest limits were identified as the Preferred Alternative because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize recreational landings to the extent practicable.

The affect of the GRAs on small-mesh fisheries is fully described in the 2001 Specification document. The GRA measures reduce discards of scup in non-directed fisheries. The 2003 recommendation will also allow small mesh experimental nets to fish in the GRAs. This may result in an increase in *Loligo* landings relative to 2002, and thus positive economic impacts on the *Loligo* fishery, relative to the status quo.

The scup and black sea bass possession limits were chosen as an appropriate balance between the economic concerns of the industry (e.g., landing enough scup or black sea bass to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period. Changes in possession limits can impact profitability in various ways. These impacts would vary depending of fishing practices. The possession limits were selected to provide the market a regular product supply, avoiding market gluts, and according to anecdotal information potential price fluctuations that occur as result of irregular supply.

The social and economic impacts of research set-asides should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions.

Alternative 1 was selected as the preferred alternative by the Council and Board because it provides harvest levels that will attain the rebuilding objectives specified in the FMP. This alternative is projected to minimize the negative economic impacts upon small entities among all alternatives evaluated while meeting the rebuilding objectives of the FMP. With regard to commercial fishermen, the landings and revenue per vessel for the species whose quotas are being lowered in Alternative 1 (preferred) are such a small portion of overall landings and revenues for the majority of those vessels that impacts are expected to be small. In addition, the increase in the scup quota may help decrease potential losses from small reduction in the summer flounder and black sea bass fisheries.

5.2 Quota Alternative 2 (Most Restrictive)

This alternative examines the impacts on industry that would result from total harvest levels for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest levels specified in section 3.0 of the EA.

Under this alternative, the summer flounder specifications would result in an aggregate 12 percent decrease in allowable commercial landings relative to the 2002 quota and a 26 percent reduction in recreational harvest relative to 2001 landings (Tables 22 and 26). The scup specifications would result in an aggregate 10 percent increase in allowable commercial landings relative to the 2002 quota and a 35 percent decrease in recreational harvest relative to 2001 landings (Tables 22 and 27). The black sea bass specifications would result in an aggregate 35 percent increase in allowable commercial landings relative to the 2002 quota and a 32 percent decrease in the recreational harvest relative to 2001 landings (Tables 22 and 28). Again, this alternative makes the same assumptions about landings as are made in the previous analyses. Under Alternative 2, the scup commercial limit is the status quo measure.

5.2.1 Commercial Impacts

The results of the threshold analysis are reported in Table 29. The analysis of the harvest levels under this alternative indicate that the economic impacts ranged from expected revenue losses in the order of 40-49 percent for 5 vessels to no revenue loss (relative to 2002) for vessels that landed scup only. The majority of the revenue losses are attributed to quota reductions and overages associated with the summer flounder and black sea bass fisheries. In addition, 64 of the 1,073 commercial vessels would have an increase in revenue in 2002 relative to 2001. All vessels with revenue losses of 5 percent or higher had landed black sea bass only or summer flounder only, or a combination of black sea bass or summer flounder with the other two species.

Table 29. Threshold analysis of revenue impacts for participating vessels, "FLK" is summer flounder, "BSB" is black sea bass, and "SCP" is scup.

Quota Alternative 2 (Most Restrictive)				Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Class	Landings Combination	Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	\$50
1	SCP Only	24	0	24	0	0	0	0	0	0	0	0
2	BSB Only	177	95	0	0	82	8	15	13	54	5	0
3	FLK Only	282	47	0	0	235	12	35	0	0	0	0
4	SCP/BSB	77	33	15	0	29	6	10	5	2	0	0
5	SCP/FLK	27	7	2	0	18	6	1	0	0	0	0
6	BSB/FLK	131	39	0	0	92	19	11	5	4	0	0
7	SCP/BSB/FLK	355	77	23	0	255	61	14	1	1	0	0
	Totals	1,073	298	64	0	711	112	86	24	61	5	0

Impacts of the quotas provisions were examined relative to a vessel's home state as reported on the vessel's permit application (Table 30). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a Federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with

revenue reduction of less than 5 percent by home state ranged from 2 in Delaware and Maryland to 142 in Massachusetts. The number of vessels with revenue reduction of 5 to 49 percent, ranged from 2 vessels in Pennsylvania to 39 vessels in New York.

Table 30. Review of revenue impacts under quota Alternative 2, by home state.

State	Participating Vessels	Number of Vessels Impacted ≥ 5 percent	Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (percent)						
					<5	5-9	10-19	20-29	30-39	40-49	\$50
DE	6	4	0	0	2	0	1	1	2	0	0
MA	183	33	8	0	142	17	13	0	3	0	0
MD	12	10	0	0	2	3	2	4	1	0	0
NC	89	28	0	0	61	16	8	3	1	0	0
NJ	112	25	0	0	87	12	8	1	4	0	0
NY	150	39	17	0	94	16	12	2	8	1	0
PA	7	2	0	0	5	0	1	0	1	0	0
RI	99	17	3	0	79	11	2	0	4	0	0
VA	81	25	0	0	56	3	3	4	13	2	0
OTHER ^a	4	0	0	0	4	0	0	0	0	0	0
NOT KNOWN ^b	330	115	36	0	179	34	36	9	24	3	0
Total	1,073	298	64	0	711	112	86	24	61	2	0

^aStates with fewer than 4 vessels were aggregated.

^bVessels have shown landings of either of those three species in 2001, but do not hold any of the requisite Federal permits in 2002. These vessels may be fishing exclusively in state waters fisheries for those species, and landings are indicated because of reporting requirements for their other Federal permits or they do not hold a Federal permit to participate in these fisheries any longer.

By virtue of holding a valid Federal permit for summer flounder, scup, or black sea bass a vessel is subject to any regulations that are promulgated under the FMP. From this perspective, these vessels are subject to any quota specification whether or not they actually choose to engage in any one of the three (summer flounder, scup, or black sea bass) fisheries. The decision to engage in any given fishery during a given time period is subject to numerous considerations from temporary suspension of fishing due to illness or vessel construction or repair to merely a reasoned decision to pursue other fisheries. Given the limited access nature of the fisheries, a vessel may wish to continue to hold a permit to preserve the opportunity to engage in the fishery when circumstance allows.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass \$1.55/lb), the 2003 quotas associated with Alternative 2 would approximately decrease summer flounder and black sea bass revenues by \$2.8 and \$1.7 million, respectively, and increase revenues for scup by \$0.6 million compared to 2002.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with Alternative 2 is distributed equally between the 795 vessels that landed summer flounder in 2001, the average decrease in revenue associated with the decrease in summer flounder quota is \$3,525/vessel. Assuming the increase in scup total gross revenues associated with this alternative is distributed equally between the 483 vessels that landed scup in 2001, the average increase in revenue associated with the increase in scup quota is \$1,212/vessel. Finally, if the decrease in black sea bass total gross revenues

associated with this alternative is distributed equally between the 740 vessels that landed black sea bass in 2001, the average decrease in revenue associated with the increase in black sea bass quota is \$2,264/vessel.

The overall reduction in gross revenue associated with the three species combined in 2003, compared to 2002, is approximately \$3.9 million (assuming 2001 ex-vessel prices) under Alternative 2. If this is distributed among the 1,073 vessels that landed summer flounder, scup, and black sea bass in 2001, the average decrease in revenue would be \$3,628/vessel. The changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

5.2.2 Recreational Impacts

Under this alternative, the summer flounder 2003 recreational harvest limit (adjusted for RSA) would be 8.56 million lb. This limit is a 26 percent decrease from 2001 recreational landings, and a 12 percent decrease from the 2002 recreational harvest limit (Table 26). The scup recreational harvest limit (adjusted for RSA) for 2003 would be set equal to 2.75 million lb. This is a 35 percent decrease over the 2001 recreational landings, and a 1 percent increase from the 2002 recreational harvest limit (Table 27). Finally, this alternative would set the black sea bass recreational harvest limit (adjusted for RSA) for 2003 at 2.32 million lb. This level represents a 32 percent decrease from the 2001 recreational landings, as well as the 2002 recreational harvest limit (Table 28).

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early to late 1990s, however, in 2000 and 2001 recreational trips have significantly increased. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2001 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2001, 1.6 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 2000 to 2001, was 1.5 million.

In the summer flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit, so any overages must be addressed by way of adjustments to the management measures. It is likely that management measures under this alternative would be required to restrict the recreational fishery for 2003 (compared to 2001 landings) and may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season). However, there is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Currently, the market demand for these sectors is relatively stable. It is unlikely these measures will result in any substantive decreases in the demand for party/charter boat trips.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is likely that party/charter anglers will target other species

when faced with potential reductions in the amount of summer flounder and scup that they are allowed to catch. As such, it is not probable that the decrease in the harvest limits, relative to the 2001 landings will have a substantial impact on the number of party/charter fishing trips.

5.2.3 Summary of Impacts

Alternative 2 allows commercial fishermen to land less summer flounder, scup, and black sea bass in 2003 versus 2002. Recreational landings would decrease for summer flounder, scup, and black sea bass relative to 2001 landings.

Under this alternative, a total of 298 of the 1,073 commercial vessels were projected to incur in revenue losses ranging from 5 to 49 percent. In addition, it is estimated that 64 vessels would increase revenue in 2003 compared to 2002 and 711 would have decrease in revenue of less than 5 percent. Vessels that landed black sea bass only were proportionally more affected with revenue losses of more than 5 percent.

Assuming 2001 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2003 versus 2002, the 2003 quotas in Alternative 2 (after overages and RSA have been applied) would decrease summer flounder and black sea bass ex-vessel revenues by approximately \$2.8 and \$1.7 million, respectively, and increase scup revenues by \$0.6 million, for a total revenue decrease of \$3.9 million.

If the decrease in total summer flounder and black ex-vessel gross revenues associated with Alternative 2 is distributed equally between the vessels landed each of those species in 2001, the average decrease in revenue in the summer flounder and black sea bass fisheries would be \$3,525/vessel and \$2,264/vessel, respectively. If the increase in total scup gross revenues associated with this alternative is also distributed equally between the vessels landed scup in 2001, the average increase in revenue in the scup fishery would be \$1,212/vessel. However, it is important to mention that the changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices (i.e., 2001) for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

The total harvest levels for summer flounder, scup, and black sea bass analyzed under this alternative is more conservative than that presented in Alternative 1 (preferred). More specifically, the commercial summer flounder, scup, and black sea bass harvest levels (after overages and RSA have been applied) under this alternative are approximately 1.1, 4.5, and 1.1 million lb lower than the limits specified under Alternative 1, respectively. While these measures may present an improved probability of attaining the rebuilding objectives specified in the FMP, the negative economic impacts upon small entities are significantly higher than under Alternative 1. Therefore, this alternative was not selected by the Council and Board because of the potential adverse economic impacts associated with it.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2003 for quota overages in 2002 that were not accounted for here.

5.3 Quota Alternative 3 (Least Restrictive)

This alternative examines the impacts on industry that would result from total harvest levels for summer flounder, scup and black sea bass. To analyze the economic effects of this alternative, the total harvest levels specified in section 3.0 of the EA were employed.

Under this alternative, the summer flounder specifications would result in a negligible aggregate percent decrease (i.e., 0.34 percent) in allowable commercial landings relative to the 2002 quota and a 17 percent reduction in recreational harvest relative to 2001 landings (Tables 22 and 26). The scup specifications would result in an aggregate 130 percent increase in allowable commercial landings relative to the 2002 quota and a 23 percent increase in recreational harvest relative to 2001 landings (Tables 22 and 27). The black sea bass specifications would result in an aggregate 6 percent increase in allowable commercial landings relative to the 2002 quota and a 6 percent increase in the recreational harvest relative to 2001 landings (Tables 22 and 28). Again, this alternative makes the same assumptions about landings as are made in the previous analyses. Under Alternative 3, the summer flounder commercial limit is the status quo measure.

5.3.1 Commercial Impacts

The results of the threshold analysis indicates that across all vessel classes, a total of 1,073 vessels were projected to be impacted by revenue increase (relative to 2002). There were no vessels projected to incur in revenue losses relative to 2002.

Even though, the overall summer flounder quota for 2003 (adjusted) is projected to be slightly lower (i.e., 0.34 percent) relative to the quota specified in 2002, no vessels would be expected to incur a loss in revenue. This is likely due to the fact that although there is an overall decrease in summer flounder in 2003 compared to 2002, most states, with the exception of Maine and Delaware are projected to have a 0.02 percent increase in fishing opportunity. The overall negative projected quota for Maine and Delaware is the consequence of overages in previous years for Maine and overages in previous years and projected 2002 overages for Delaware. Summer flounder landings in Maine and Delaware are typically only a few thousand pounds per year and it is possible that vessels landing small quantities of summer flounder in Maine and Delaware also landed larger quantities of summer flounder in other states, thus benefitting from the increase in quota in those other states in 2003 versus 2002. In addition, it is possible that some of these vessels also landed scup and black sea bass along with summer flounder, thus benefitting from the increase in scup and black sea bass quotas in 2003 and therefore not showing a reduction in ex-vessel revenue. The vessel distribution by landing combination and home port state for these vessels is similar to that presented under the 3rd column from the left in Table 29 and 2nd column from the left in Table 30, respectively.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2001 ex-vessel prices (summer flounder - \$1.62/lb; scup - \$0.84/lb; and black sea bass \$1.55/lb), the 2003 quotas associated with Alternative 3 would decrease summer flounder revenues by approximately 81 thousand dollars, and increase revenues for scup and black sea bass by approximately \$7.9 million and \$0.3 million, respectively, compared to 2002.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with Alternative 3 is distributed equally between the 795 vessels that landed summer flounder in 2001, the average decrease in revenue associated with the decrease in summer flounder quota is \$101/vessel. Assuming the increase in scup total gross revenues associated with this alternative is distributed equally between the 483 vessels that landed scup in 2001, the average increase in revenue associated with the increase in scup quota is \$16,444/vessel. Finally, if the increase in black sea bass total gross revenues associated with this alternative is distributed equally between the 740 vessels that landed black sea bass in 2001, the average increase in revenue associated with the increase in black sea bass quota is \$404/vessel.

The overall change in gross revenue associated with the three species combined in 2003 compared to 2002 is approximately \$8.2 million (assuming 2001 ex-vessel prices) under Alternative 3. If this is distributed among the 1,073 vessels that landed summer flounder, scup, and black sea bass in 2001, the average increase in revenue would be \$7,605/vessel. The changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

5.3.2 Recreational Impacts

Under this "least restrictive" alternative, the summer flounder 2003 recreational harvest limit (adjusted for RSA) would be 9.68 million lb. This level is a 17 percent decrease from 2001 recreational landings, and <1% decrease over the 2002 recreational harvest limit. Under this alternative, the scup recreational harvest limit (adjusted for RSA) for 2003 would be 5.22 million lb. This is a 23 percent increase over the 2001 landings, and a 93 percent increase over the 2002 harvest limit. For black sea bass, the recreational harvest limit (adjusted for RSA) for 2003 would be 3.64 million lb, a 6 percent increase over both the 2001 recreational landings and 2002 recreational harvest limit.

It is likely that management measures proposed to restrict the recreational summer flounder for 2003 (compared to 2001 landings) may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season). Given that the scup and black sea bass harvest limits levels are projected to increase, it is not anticipated that restrictive measures would be required under this alternative. There is no indication that any of these measures would lead to a decline in the demand for party/charter boat trips. Given the relatively stable market demand that these sectors are experiencing, it is unlikely these measures will result in any substantive decreases in the demand for party/charter boat trips.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch. It is not probable that the decrease in the summer flounder harvest limits, relative to the 2001 landings, will have a substantial impact on the number of party/charter fishing trips, as the increased scup and black sea bass harvest limits will allow for greater recreational opportunities in those fisheries.

5.3.3 Summary of Impacts

Alternative 3 allows commercial fishermen to land more summer flounder in 2003 than in each year from 1996-2001, and about the same amount as in 2002. It would also allow fishermen to land more scup in 2003 than in each year from 1997-2002, and more black sea bass than in each year from 1998-2002. Recreational landings would increase for black sea bass and scup (relative to 2001 landings) and decrease for summer flounder.

The threshold analysis indicates that all 1,073 commercial vessels were projected to incur revenue gain. This due to the fact that for the most part quotas in 2003 are higher than in 2002.

Assuming 2001 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2003 versus 2002, the 2003 quotas in Alternative 3 (after overages and RSA have been applied) would decrease summer flounder ex-vessel revenues by 81 thousand dollars and increase scup and black sea bass revenues by approximately \$7.9 million and \$0.3 million, relative to 2002, respectively, for a total revenue increase of \$8.2 million.

If the decrease in total summer flounder ex-vessel gross revenues associated with Alternative 3 is distributed equally between the vessels landed summer flounder in 2001, the average decrease in revenue in the summer flounder fishery would be \$101/vessel. If the increase in total scup and black sea bass gross revenues are distributed equally between the vessels landed these species in 2001, the average increase in revenue in the scup and black sea bass fisheries would be \$16,444/vessel and \$402/vessel, respectively. However, it is important to mention that the changes in gross revenues associated with the potential changes in landings in 2003 versus 2002 assumed static prices (i.e., 2001) for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend since the early to late 1990s. However, in 2000 and 2001, recreational trips have significantly increased. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2001 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. In 2001, 1.6 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined. On average, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined, from 2000 to 2001, was 1.5 million.

These measures under this alternative would allow for significant increases in the overall harvest of summer flounder, scup, and black sea bass. None of these harvest levels have a high probability of achieving the rebuilding goals of the FMP. Therefore, while this alternative may mitigate the impacts on small entities, it does not comport with the fishing mortality and exploitation rates specified in the FMP. While the economic benefits associated from this alternative are higher than those described under the Preferred Alternative (Alternative 1), it was not chosen by the Council and Board because it does not meet the overall recovery objectives of the FMP. Alternative 1 (preferred) on the other hand provides overall positive net benefits and establishes required overall harvest levels that address the general goals of the FMP.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to trip limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2003 quota due to overages that were not accounted for here. These measures are specified in order to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass.

6.0 OTHER IMPACTS

6.1 County Impacts

For the reasons specified in section 3.1 of this RIR/IRFA, the economic impacts on vessels of a specified home port were analyzed on a county wide basis. As stated in section 3.1, this profile of impacted counties was based on impacts under various alternatives evaluated. Counties included in the profile had to meet the following criteria:

- the number of vessels with revenue loss exceeding 5 percent per county was either greater than 4, or
- all vessels with revenue loss exceeding 5 percent in a given state were from the same home county.

The results of these analyses are summarized below. The following counties were identified as impacted under Alternative 2 (most restrictive): Sussex County, DE; Barnstable, Bristol, Dukes, Plymouth, and Suffolk Counties, MA; Worcester County, MD; Carteret, Dare, Hyde, and Pamlico Counties, NC; Cape May, Monmouth, and Ocean Counties, NJ; Suffolk County, NY; Newport and Washington Counties, RI; and Accomack, Norfolk City, and Virginia Beach City Counties, VA. Counties not included in this analysis (e.g., in CT) did not have enough impacted vessels to meet the criteria specified, i.e., there were less than 4 impacted vessels per county, or all impacted vessels in a state were not home ported within the same county.

Table 31 details population, employment personal income and the contribution of commercial fishing and sea food processing to total personal income for selected counties. Counties presented in Table 31 correspond to the counties identified as impacted (≥ 4 vessels with revenue loss exceeding 5 percent per county) due to the management measures evaluated (i.e., as described in the above paragraph). Data presented in Table 31 were obtained from data bases supplied by the Minnesota IMPLAN Group for the calendar year 1998.

Of the 20 counties identified in Table 31, the percentage of total personal income derived from commercial fishing sales was less than 1% for most counties with the exemption of Bristol, MA (1.39%), Washington, RI (2.42%), Cape May, NJ (1.09%), and Pamlico, NC (2.39%). The percentage of total personal income derived from processing sales was less than 1% for most counties with the exemption of Accomack, VA (1.15%) and Pamlico, NC (1.54%). These data indicate that each of the identified counties in Table 31 are not substantially dependent upon sales of commercial fishing products to sustain the county economies. Population in these counties ranged from less than six thousand in Hyde County to 1.4 million in Suffolk County.

Table 31. Counties identified as having ≥ 4 commercial vessels showing revenue reductions in the 5 to 49 percent range as a consequence of the most restrictive alternative (Alternative 2) evaluated in this document (section 3.1 the RIR/IRFA).

State	County ^a	Population ^b	Employment ^c	Total Personal Income ^d (million of \$'s)	Commercial Fishing Employment	Percent of Personal Income Derived from Commercial Fishing	Fresh and Frozen Seafood Processing Employment	Percent of Personal Income Derived from Seafood Processing
MA	Barnstable	213,221	120,375	3,729.63	1,105	0.68%	32	0.03%
MA	Bristol	529,469	263,558	8,532.57	3,880	1.39%	712	0.24%
MA	Dukes	14,208	11,020	321.495	30	0.26%	0	0
MA	Plymouth	478,363	217,971	7,582.23	77	0.03%	0	0
MA	Suffolk	656,503	699,650	35,168.70	219	0.01%	374	0.04%
RI	Newport	87,401	49,389	1,783.76	457	0.52%	0	0
RI	Washington	127,249	59,155	1,764.21	1,357	2.42%	77	0.15%
NY	Nassau	1,355,236	748,564	31,851.12	153	0.01%	*	*
NY	Suffolk	1,427,096	695,522	27,877.06	563	0.03%	*	*
NJ	Cape May	100,736	52,277	1,497.58	698	1.09%	*	*
NJ	Monmouth	619,846	304,465	12,480.74	81	0.01%	*	*
NJ	Ocean	503,141	173,836	5,682.67	202	0.10%	0	0
DE	Sussex	140,374	84,060	2,761.88	224	0.06%	*	*
MD	Worcester	43,470	30,109	694.625	83	0.10%	0	0
VA	Accomack	32,805	17,098	387.305	298	0.88%	337	1.15%
VA	City of Norfolk	218,954	234,331	9,207.74	4	<0.01%	70	0.01%
VA	City of VA Beach	439,892	223,837	6,530.41	14	<0.01%	0	0
NC	Carteret	62,315	30,253	657.077	61	0.02%	25	0.09%
NC	Dare	30,042	23,643	492.549	*	*	19	0.05%
NC	Hyde	5,823	3,764	3,839.13	269	0.05%	178	0.07%
NC	Pamlico	12,810	4,368	114.641	417	2.39%	96	1.54%

* = < 10 observations.

a = Data obtained from the Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 1999.

b = Year-round population.

c = Includes both full-time and part-time workers.

d = Includes employee compensation (wage and salary payments and benefits paid by employers) and proprietary income (payments received by self-employed individuals as income).

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