2004 Summer Flounder, Scup, and Black Sea Bass Recreational Specifications

Environmental Assessment
Regulatory Impact Review and
Initial Regulatory Flexibility Analysis

March 2004

Mid-Atlantic Fishery Management Council

in cooperation with the

National Marine Fisheries Service

Mid-Atlantic Fishery Management Council
Room 2115, Federal Building
300 South New Street
Dover, Delaware 19904-6790
Tel. 302-674-2331
FAX 302-674-5399

March 12, 2004

EXECUTIVE SUMMARY

The proposed action would implement management measures to achieve the recreational harvest limits for the summer flounder, scup, and black sea bass fisheries, published in the Federal Register as part of the 2004 annual quota specifications (69 FR 2074, January 14, 2004). This Environmental Assessment analyzes the possession, size, and/or seasonal limits that will most likely achieve the 2004 recreational harvest limits for the three species.

For the summer flounder fishery, the preferred alternative (Alternative 1) would implement conservation equivalency, as recommended by the Mid-Atlantic Fishery Management Council (Council or MAFMC) and the Summer Flounder, Scup, and Black Sea Bass Management Board (Board) of the Atlantic States Marine Fisheries Commission (Commission). Conservation equivalency requires the states to develop state-specific management measures (i.e., possession limits, fish size limits, and seasons) to achieve state-specific harvest limits. Under this approach, each state may implement unique management measures appropriate to that state, so long as they are determined by the Commission to provide equivalent conservation. Also, as required under the conservation equivalency guidelines, the Council recommended precautionary default measures of an 18-inch total length (TL) minimum fish size, a 1-fish possession limit, and no closed season; these measures would apply to Federal permit holders landing summer flounder in states that do not implement conservation equivalency measures, or for which conservation equivalency measures are not approved by the Board. In addition, based on a Monitoring Committee recommendation, the Council and Board adopted a non-preferred coastwide alternative (Alternative 2) to be implemented in the EEZ if conservation equivalency is not implemented. These measures include a 17-inch TL minimum fish size, a 4-fish per person possession limit, and no closed season.

For scup, the Council and Board also evaluated three alternatives. The preferred alternative (Alternative 1) would implement a 10-inch TL minimum fish size, a 50-fish per person possession limit, and open seasons of January 1 through February 29, and August 15 through November 30 for 2004. Alternative 2 includes a 10-inch TL minimum fish size, 50-fish per person possession limit, and open seasons of January 1 through February 28, and July 1 through November 30. And Alternative 3 includes an 10-inch TL minimum fish size, a 50-fish per person possession limit, and open seasons of January 1 through February 29, and September 8 through November 30 for the 2004 recreational fishery.

When the scup management measures were presented at the Council meeting in December, Council and Board members were informed that the measures under the preferred alternative (Alternative 1) would achieve the required 58% reduction in recreational scup landings in 2004 assuming the measures are implemented by all states. However, after further analyses, council staff calculated that these management measures would reduce recreational scup landings by 48% in 2004 and not by 58% as

previously thought. However, the non-preferred management measures presented under Alternative 3 will achieve the needed 58% reduction in scup landings in 2004.

In addition, the Board adopted state-by-state conservation equivalency measures for scup in 2004 and directed the Commission staff to develop a draft addendum for conservation equivalency using the same parameters that were approved in Addendum VII to the Commission's Interstate Scup Fishery Management Plan (FMP). Because the Federal FMP does not contain provisions for scup conservation equivalency and states will be adopting their own unique measures, it is likely that Federal and state recreational scup measures will differ for the 2004 season. As such, the Federal measures would only apply to party/charter boats with Federal permits.

For black sea bass, the Council and Board evaluated three alternatives as well. The preferred alternative (Alternative 1) would implement a 12-inch TL minimum fish size, a 25-fish per person possession limit, and open seasons of January 1 through September 7, and September 22 through November 30 for the 2004 recreational fishery. Alternative 2 includes a coastwide 12-inch TL minimum fish size, 25-fish per person possession limit, and open seasons of January 1 through September 1, and September 16 through November 30. And Alternative 3 includes a 12-inch TL minimum fish size, a 20-fish per person possession limit, and an open season of January 1 through December 31.

Table ES-1 presents a qualitative summary of the impacts of the various alternatives. The environmental impacts of the proposed measures were analyzed and the anticipated level of significance of these impacts is discussed in accordance with the National Environmental Policy Act (NEPA) and National Oceanic and Atmospheric Administrative Order (NAO) 216-6 formatting requirements for an Environmental Assessment (EA). Because none of the preferred action alternatives are associated with significant impacts to the biological, social or economic, or physical environment, a "Finding of No Significant Impact" is determined.

The measures are expected to achieve the Council-recommended level of recreational landings for summer flounder and black sea bass for 2004. However, the scup preferred management measures would only achieve a 48% reduction in landings instead of the 58% reduction in landings needed for 2004. For each species, the Council analyzed the biological, social, and economic impacts of the preferred alternatives and two other alternatives. The proposed action is not expected to result in significant social or economic impacts, or significant natural or physical environmental effects.

Table ES-1. Overall qualitative summary of the expected impacts of various alternatives considered in this document. A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, and a zero is used for null impact. (S=short-term; L=long-term; NP=non-preferred action).

		Environmental Dimension				
		Biological	Economic	Social	Protected Resources	EFH
Summer Flounder	Alternative 1 Conservation Equivalency (preferred; status-quo)	0	+	+	0	0
	Precautionary Default Measures	+	0/-	0/-	0	0
	Alternative 2 Coastwide (NP; no-action)	0/+	0/-	0/-	0	0
Scup	Alternative 1 Coastwide (preferred)	-	0/+ (S) 0/- (L?)	0/+ (S) 0/- (L?)	0	0
	Alternative 2 Coastwide (NP; no-action; status-quo)	-	0/+ (S) 0/- (L?)	0/+ (S) 0/- (L?)	0	0
	Alternative 3 Coastwide (NP)	0	0/+	0/+	0	0
Black Sea Bass	Alternative 1 Coastwide (preferred)	0	0	0	0	0
	Alternative 2 Coastwide (NP; no-action; status-quo)	0	0	0	0	0
	Alternative 3 Coastwide (NP; monitoring committee recommendation)	0/+	0/-	0/-	0	0

TABLE OF CONTENTS

Environmental Assessment

1.0 Annual Specification Process

1.1 Introduction

The purpose of this document is to analyze recreational management measures designed to achieve the recreational harvest limits for summer flounder, scup, and black sea bass in 2004. This document examines the impacts to the environment that could result from implementation of a range of proposed alternatives recommended for recreational fisheries for these species. These measures include recreational size limits, recreational possession limits, and seasonal closures.

Comprehensive measures enacted by Amendment 2 of the Summer Flounder Fishery Management Plan (FMP) and modified in Amendments 3 through 7 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. These amendments established Monitoring Committees which meet annually to review the best available scientific data and make recommendations regarding the total allowable landings (TAL) and other management measures in the plan. The Committee's recommendations are made to achieve the target mortality 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.

The Council met jointly with the Commission's Board in July 2003, to consider the 2004 commercial quotas and recreational harvest limits for these species. The Monitoring Committees made recommendations to the Council which, in turn, made recommendations to the Regional Administrator. The Regional Administrator reviewed the recommendations to ensure that the FMP objectives were achieved. The "2004 Summer Flounder, Scup, and Black Sea Bass Specifications", submitted to the National Marine Fisheries Service (NMFS) by the Council in October 2003, described the environmental, economic and social impacts of the 2004 commercial quotas and recreational harvest limits for these fisheries (summer flounder, scup, and black sea bass) and also analyzed the impacts of commercial measures aimed at achieving the commercial quotas. The 2004 commercial quotas and recreational harvest limits, and the specific measures to attain the commercial quotas, were implemented by the NMFS on January 14, 2004 (69 FR 2074).

The Council and Board met again in December 2003 to recommend specific measures

to attain the recreational harvest limits that had been specified in July 2003. The Council and Board considered the recommendations of the Summer Flounder, Scup, and Black Sea Bass Monitoring Committees, and information provided by Council staff, advisors, and the public in the development of their recommendations for these recreational fisheries.

1.2 Purpose and Need

The purpose of this document is to analyze recreational management measures designed to achieve the recreational harvest limits for summer flounder, scup, and black sea bass in 2004. This document examines the impacts to the environment that could result from implementation of a range of proposed alternatives recommended for these fisheries. These measures include recreational size limits, recreational possession limits, and seasonal closures.

The management programs for summer flounder, scup, and black sea bass were examined in detail in the Environmental Impact Statements (EIS) 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 the environment (biological, socioeconomic, Essential Fish Habitat, and protected resources). Those EIS were updated in Amendment 13 (approved on March 4, 2003; 68 FR 10181; MAFMC 2002). Additionally, the impact of the 2004 recreational harvest limits for these species were analyzed in the 2004 Summer Flounder, Scup, and Black Sea Bass Specification Package (approved by NMFS on January 14, 2004; 69 FR 2074; MAFMC 2003).

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

This EA analyzes the possession, size, and/or seasonal limits that will most likely achieve the 2004 recreational harvest limits for summer flounder, scup, and black sea bass. It is an assessment of the impact of various alternatives on the environment relative to the no-action alternative, as required by NEPA. A full description of each alternative, including a discussion of a no-action alternative, is given in section 3.0 of the EA. The following discussion details the changes in management measures, if any, that will most likely be required to achieve the 2004 recreational harvest limits for summer flounder, scup, and black sea bass.

As published in the 2004 quota specifications (69 FR 2074, January 14, 2004), the recreational harvest limit for summer flounder in 2004 is 11.21 million lb (5.08 million kg), 20.8% more than the 2003 recreational harvest limit (MAFMC 2003). However, 2003 recreational landings are projected to be 11.56 million lb (5.24 million kg), 25% more than the 2003 recreational harvest limit. Assuming the same level of fishing effort in 2004, a 3% coastwide reduction in landings (pounds) would be required for summer flounder. Under conservation equivalency, the only states that would be required to reduce landings (in number of fish) would be New York (48.5%) and New Jersey (1.30%).

The 2004 specifications for scup implemented a recreational harvest limit identical to the recreational harvest limit implemented in 2003 (MAFMC 2003). However, due to differences in the research set aside established between those two time periods, the 2004 recreational harvest limit is 0.5% lower than the recreational harvest limit for 2003. The 2004 specifications for scup implement an adjusted recreational harvest limit of 3.99 million lb (1.80 million kg). The 2003 recreational scup landings are projected to be 9.59 million lb (4.34 million kg), 139% more than the 2003 recreational harvest limit. Assuming the same level of fishing effort in 2004, a 58% coastwide reduction in landings would be required for scup.

The black sea bass recreational harvest limit for 2004 is 4.01 million lb (1.81 million kg), 17% more than the 2003 recreational harvest limit (MAFMC 2003). The 2003 recreational black sea bass landings are projected to be 3.99 million lb (1.80 million kg), 16% more than the 2003 recreational harvest limit. However, assuming the same level of fishing effort in 2004, no coastwide reduction in landings would be required for black sea bass.

3.0 Alternatives Being Considered

This section provides a description of all considered management alternatives. Further discussion and evaluation of these alternatives is found in section 6.0 of the EA.

3.1 Summer Flounder

3.1.1 Alternative 1 - Conservation Equivalency (Status-Quo): Preferred

Based on a Monitoring Committee recommendation, the Council and Board voted to recommend conservation equivalency to achieve the 2004 summer flounder recreational harvest limit.

The Council and Board's preferred alternative (Alternative 1- conservation equivalency) would allow the states to implement conservation equivalent management measures. State-specific reductions associated with the 2004 coastwide recreational harvest limit of 11.21 million lb (5.08 million kg) are based on the number of fish landed in 1998, and the number of fish projected to have been landed in 2003 (Table 1). State-specific landings from 1998 are used as a base because 1998 is the last year that recreational summer flounder regulations were consistent along the coast. Recreational landings in 1998 were 6.978 million fish coastwide. As such, the 2004 recreational harvest limit in number of fish (the 2004 recreational harvest limit divided by the mean weight of summer flounder from 2002-2003) would have to be reduced by 36.4% to achieve this limit. State-specific 1998 landings were reduced by 36.4% to derive state-specific targets for 2004. These targets were then compared to 2003 landings to determine if state-specific reductions were necessary. Landings projections for 2003 indicate that New York and New Jersey will be the only states required to reduce recreational summer flounder landings in 2004 by 48.5% and 1.3%, respectively (Table 1).

In order to constrain recreational landings to the overall recreational harvest limit, the Commission established conservation equivalency guidelines that require each state, using state-specific tables, to determine and implement an appropriate possession limit, size limit, and closed season to achieve the landings target for each state. The state-specific tables are adjusted to account for the past effectiveness of the regulations in each state.

The Commission requires each state to submit its conservation equivalency proposal by January 15, 2004 (Table 2). The Commission's Summer Flounder Technical Committee will evaluate the proposals and advise the Board of each proposal's consistency with respect to achieving the coastwide recreational harvest limit. After the Technical Committee evaluation, the Board will meet to approve or disapprove each state's proposal. During the comment period for the proposed rule, the Commission will notify NMFS as to which state proposals have been approved or disapproved. If, at the final rule stage, the Commission recommends and NMFS accepts conservation equivalency, then NMFS would waive the Federal recreational measures that would otherwise apply in the Exclusive Economic Zone (EEZ). Federally permitted vessels as well as vessels fishing in the EEZ, would be subject to the recreational fishing measures

implemented by the state in which they land.

The FMP requires that the Council and Board specify precautionary default measures when conservation equivalency is recommended as the preferred alternative. These would be the measures required to be implemented by a state that either does not submit a summer flounder management proposal or for states whose measures do not achieve the required reduction. For 2004, the precautionary default measures include an 18-inch TL minimum fish size, a 1-fish per person possession limit, and no closed season. It is estimated that the precautionary default measures would reduce landings by 56% coastwide, assuming the measures are implemented by all states (Table 3). State-specific reductions would range from 41% in Delaware to an 88% in North Carolina (based on 2001 data; Table 4).

The Commission would allow states that had been assigned the precautionary default measures to resubmit revised management measures. In this case the Commission would notify NMFS of any resubmitted proposals that were approved after publication of the final rule implementing the recreational specifications. Afterwards, NMFS would publish a notice in the Federal Register to notify the public of any changes in a state's management measures.

3.1.2 Alternative 2 - Coastwide Management Measures (No-Action): Non-Preferred

Based on a Monitoring Committee recommendation, the Council and Board adopted a non-preferred coastwide alternative to be implemented in the EEZ if conservation equivalency is not implemented. These measures include a 17-inch total length (TL) minimum fish size, a 4-fish per person possession limit, and no closed season. It is estimated that the non-preferred coastwide alternative would reduce recreational landings by 11% coastwide, assuming the measures are implemented by all states (Table 3). State-specific reductions associated with these management measures would range from 0% in Maryland to 63% in North Carolina (based on 2001 data; Table 4).

3.2 Scup

3.2.1 Alternative 1 - Coastwide Measure: Preferred

The Council and Board voted to recommend a 10-inch TL minimum fish size, a 50-fish per person possession limit, and open seasons of January 1 through February 29, and August 15 through November 30, for 2004 scup recreational measures. When these management measures were presented at the Council meeting in December, Council and Board members were informed that these measures would achieve the required 58% reduction in recreational scup landings in 2004 assuming the measures are implemented by all states. However, after further analyses, council staff calculated that these management measures would reduce recreational scup landings by 48% in 2004 and not by 58% as previously thought (Tables 5 and 6a-b).

The Board adopted state-by-state conservation equivalency measures for 2004 and directed the Commission staff to develop a draft addendum for conservation equivalency using the same parameters that were approved in Addendum VII (ASMFC 2002) to the Commission's Interstate Scup FMP. Addendum VII (ASMFC 2002) required states from Massachusetts through New Jersey to develop state-specific management measures. Due to low scup landings in the southern states, the Board approved the retention of existing recreational scup measures from Delaware through North Carolina for 2004. Because the Federal FMP does not contain provisions for conservation equivalency and states will be adopting their own unique measures under an addendum to the Commission's Interstate FMP, it is likely that Federal and state recreational scup measures will differ for the 2004 season. As such, the Federal measures would only apply to party/charter boats with Federal permits.

3.2.2 Alternative 2 - Coastwide Measure (No-Action/Status-Quo): Non-Preferred

This non-preferred alternative (no-action/status-quo) for scup includes a 10-inch TL minimum fish size, 50-fish per person possession limit, and open seasons of January 1 through February 28, and July 1 through November 30 for the 2004 recreational fishery. It is estimated that this alternative would reduce recreational landings by 30%, assuming the measures are implemented by all states (Tables 5 and 6a-b).

3.2.3 Alternative 3 - Coastwide Measure: Non-Preferred

This non-preferred alternative for scup includes an 10-inch TL minimum fish size, a 50-fish per person possession limit, and open seasons of January 1 through February 29, and September 8 through November 30 for the 2004 recreational fishery. It is estimated that this alternative would reduce recreational landings by 58%, assuming the coastwide regulations are implemented by all states (Tables 5 and 6a-b).

3.3 Black Sea Bass

3.3.1 Alternative 1 - Coastwide Measure: Preferred

The black sea bass landings in 2003 are projected to be 3.99 million lb (1.80 million kg) or about 0.56 million lb (0.25 million kg) above the recreational harvest limit established that year. This implies that the management measures in place for 2003 (minimum fish size, possession limit, and seasons) did not constrain landings to the harvest limit for 2003 (3.43 million lb or 1.56 million kg). However, since projected landings for 2003 are only slightly less than the 2004 recreational harvest level of 4.01 million lb (1.81 million kg), the Council and Board recommended to implement regulations in 2004 that were nearly identical to the regulations that were in place in 2003 with a slight modification to the dates associated with the opening and closure of the seasons. In order to constrain recreational black sea bass landings to the 2004 recreational harvest limit the Council and Board recommended a 12-inch TL minimum fish size, a 25-fish per person possession limit, and open seasons of January 1 through September 7, and September

22 through November 30.

This preferred black sea bass alternative contains the same minimum size and possession limits implemented in 2003. However, the seasonal component under this preferred alternative is slightly different from the seasonal component implemented in 2003 (see Non-Preferred Alternative 2 below). More specifically, under this preferred alternative the fishery is closed from September 8 through September 21 and from December 1 through December 31. However, in 2003 the fishery was closed from September 2 through September 15 and from December 1 through December 31 (see status-quo Alternative 2 below). Therefore, under these two seasonal closures the fishery is closed during September (wave 5) and December (wave 6) for the same number of days (i.e., 14 days during September and 31 days in December). Since the value associated with closing one day per wave is the same across every day of that wave, the effectiveness of having the fishery closed during the two September periods discussed above is the same (Tables 7a-b). The Council and Board decided to slightly modify the seasonal component of the closure during September in order to allow for the fishery to stay open during labor day in 2004.

3.3.2 Alternative 2 - Coastwide Measure (No-Action/Status-Quo): Non-Preferred

The black sea bass landings in 2003 are projected to be 3.99 million lb (1.80 million kg) or about 0.56 million lb (0.25 million kg) above the recreational harvest limit established that year. This implies that the management measures in place for 2003 (minimum fish size, possession limit, and seasons) did not constrain landings to the harvest limit for 2003 (3.43 million lb or 1.56 million kg). However, these measures are projected to constrain landings to 3.99 million lb (1.80 million kg) in 2003. Since projected landings for 2003 are only slightly less than the 2004 recreational harvest level of 4.01 million lb (1.81 million kg), it is expected that these management measures would constrain 2004 recreational landings to the 2004 recreational harvest limit. The effectiveness of this management measure is the same as that under the Preferred Alternative 1 (see discussion in section 3.3.1 of the EA). However, under this alternative the fishery is closed during labor day. More specifically, black sea bass Non-Preferred Alternative 2 includes a coastwide 12-inch TL minimum fish size, 25-fish per person possession limit, and open seasons of January 1 through September 1, and September 16 through November 30 for the 2004 recreational fishery.

3.3.3 Alternative 3 - Coastwide Measure (Monitoring Committee Recommendation): Non-Preferred

A non-preferred alternative recommended to the Council by the monitoring committee includes a 12-inch TL minimum fish size, a 20-fish per person possession limit, and an open season of January 1 through December 31. It is estimated that this alternative would reduce recreational landings by approximately 3% (Tables 7a-b and 8).

3.4 No-Action Alternative

Section 5.03(b) of NAO 216-6, "Environmental review procedures for implementing the National Environmental Policy Act," states that "an Environmental Assessment (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 has explained that there are two distinct interpretations of the "no action": One interpretation is that the no-action alternative is essentially the status-quo, i.e., no change from the current management. The other interpretation is the situation that would exist if the proposed action did not take place.

The status-quo management for these fisheries involves a set of indefinite (i.e., in force until otherwise changed) management measures. These measures would continue as is, even if the proposed specifications are not implemented. However, the current management program includes specifications of possession limits, minimum fish sizes, and fishing seasons that are specific to the 2003 fishing year, and based on the 2003 TALs. Roll-over of the recreational measures specified for the 2003 fishing year would be inappropriate because the existing measures would not be likely to effect the 2004 Council-recommended harvest limits.

For the purposes of this EA, the no-action alternative is defined as implementation of the following: (1) For summer flounder, coastwide measures of a 17-inch TL minimum fish size, a 4-fish per person possession limit, and no closed season; (2) for scup, a 10-inch TL minimum fish size, a 50-fish per person possession limit, and open seasons of January 1 through February 28, and July 1 through November 30; and (3) for black sea bass, an 12-inch TL minimum size, a 25-fish per person possession limit, and an open season of January 1 through September 1, and September 16 through November 30.

The implications of the no-action alternative are substantial. For summer flounder, reductions in landings would range from 0% in MD to 63% in NC (based on 2001 data; Table 4). For scup, the status-quo measures would not be restrictive enough to effect the recommended 58% reduction in landings relative to 2003 (as described in section 2.0 of the EA). For black sea bass, the status-quo measures would constrain landings to the harvest limit for 2004.

In consideration of the Council-recommended recreational harvest limits established for the 2004 fishing year, implementation of the same recreational measures established for the 2003 fishing year would be inconsistent with the goals and objectives of the FMP and its implementing regulations, and, because it could result in overfishing of the scup fishery, also would be inconsistent with National Standard 1 of the Magnuson-Stevens Act. The impacts of the no-action alternative for each species is presented in section 6.0 of the EA.

3.5 Research Set-Aside Program

As part of the research set-aside program (RSA), 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 RSA program, the Council, in consultation with the National Marine Fisheries Service Northeast Regional Administrator, and the Commission have recommended three of these research projects (August 4, 2003 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 2004, the Council approved research set-asides equal to the amounts requested in the three projects that were conditionally accepted by NMFS (August 4, 2003 letter from Mears to Furlong). These RSA amounts would be 174,750 lb (79,265 kg), 160,000 lb (72,575 kg), and 134,792 lb (61,141 kg), for summer flounder, scup, and black sea bass, respectively. These research RSA amounts were deducted from the TALs for each species to adjust the commercial quota and recreational harvest limits for 2004. This procedure was described in detail in the 2004 Summer Flounder, Scup, and Black Sea Bass Specifications Package (MAFMC 2003). A summary of the various research set aside projects conditionally approved for 2004 is presented in Appendix A. This description includes project name, description and duration, amount of RSA requested, and gear to be used to conduct the various projects.

4.0 Affected Environment

4.1 Physical Environment (Habitat)

A complete description of the physical environment (i.e., habitat) for summer flounder, scup, and black sea bass; the impact of fishing on summer flounder, scup, and black sea bass Essential Fish Habitat (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). A brief summary of the habitat description for these three species is given here.

Summer Flounder

Summer flounder spawn during the fall and winter over the open ocean areas of the shelf. Planktonic larvae are often found in the northern part of the Middle Atlantic Bight from September to February, and in the Southern part from November to May. From October to May larvae and postlarvae migrate inshore, entering coastal and estuarine nursery areas. Juveniles are distributed inshore and in many estuaries throughout the range of the species during spring, summer, and fall. Summer flounder exhibit strong seasonal inshore-offshore movements. Adult flounder normally inhabit shallow coastal and estuarine waters during the warmer months of the year and remain offshore during the colder months.

EFH is pelagic waters, demersal waters, saltmarsh creeks, seagrass beds, mudflats, and open bay areas, from the Gulf of Maine to North Carolina. Any actions implemented in the FMP that affect species with overlapping EFH were considered in the EFH assessment for Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Summer flounder are primarily landed with otter trawls. As stated in section 3.2.8 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP, the Council determined that both mobile bottom tending and stationary gear has a potential to adversely impact EFH. The same conclusion was drawn for other species with overlapping EFH. The best scientific information available indicates that ecosystem impacts from fishing gears on fishery productivity in this region are mostly unpredictable and unquantifiable. Thus, mobile and stationary gear are characterized as having a potential impact on EFH because: 1) the specific habitat types along the Atlantic coast have not been mapped or quantified and 2) fishing effort and intensity of the gear is also not recorded. Since the potential exists that mobile bottom gear and stationary gear are having adverse effects on EFH, the Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP includes alternatives that minimize the adverse effects on EFH as required pursuant to section 303(a)(7) of the SFA. The principal gear used in the recreational fishery for summer flounder is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse EFH impacts because the gear does not alter bottom structure.

Scup

Scup spawn once annually, over weedy or sand-covered areas in the spring. Scup eggs and newly hatched larvae are found in open water in bays and sounds of Southern New England during the spring-summer. Juvenile and adult scup are demersal using inshore waters in the spring and moving offshore in the winter.

EFH is demersal waters, sands, mud, mussel, and seagrass beds, from the Gulf of Maine or Cape Hatteras, North Carolina. Any actions implemented in the FMP that affect species with overlapping EFH were considered in the EFH assessment for Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Scup are primarily landed by fish pots/traps, bottom and midwater trawls, and lines. As stated in section 3.2.8 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP, the Council determined that both mobile bottom tending and stationary gear has a potential to adversely impact EFH. The same conclusion was drawn for other species with overlapping EFH. The best scientific information available indicates that ecosystem impacts from fishing gears on fishery productivity in this region are mostly unpredictable and unquantifiable. Thus, mobile and stationary gear are characterized as having a potential impact on EFH because: 1) the specific habitat types along the Atlantic coast have not been mapped or quantified and 2) fishing effort and intensity of the gear is also not recorded. Since the potential exists that mobile bottom gear and stationary gear are having adverse effects on EFH, the Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP includes alternatives that minimize the adverse effects on EFH as

required pursuant to section 303(a)(7) of the SFA. The principal gear used in the recreational fishery for scup is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse EFH impacts because the gear does not alter bottom structure.

Black Sea Bass

The northern population spawns on the Middle Atlantic Bight continental shelf during the spring trough fall, and their eggs are pelagic. Spawning begin in the spring in the southern portion of the range of this population, i.e., off North Carolina and Virginia, and progresses north into southern New England waters in the summer-fall; eggs are naturally, closely associated with spawning. Based on collections of ripe fish and egg distributions, the species spawns primarily on the inner continental shelf between Chesapeake Bay and Montauk Pt., Long Island. Because the duration of larval stage and habitat-related settlement cues are unknown, the distribution and habitat use of this pelagic stage may only partially overlap with that of the egg stage. Adult black sea bass are also very structure oriented, especially during their summer coastal residency. Unlike juveniles, they tend to enter only larger estuaries and are most abundant along the coast. Larger fish tend to be found in deeper water them smaller fish. A variety of coastal structure are known to be attractive, and these include shipwrecks, rocky and artificial reefs, mussel beds, and any other object or source of shelter on the bottom. In the warmer months, inshore residency, adult black sea bass are usually found associated with structured habitats.

EFH is pelagic waters, structured habitat (e.g., sponge beds), rough bottom shellfish, sand and shell, from the Gulf of Maine or Cape Hatteras, North Carolina. Black sea bass are primarily landed by fish pots/traps, bottom and midwater trawls, and lines. As stated in section 3.2.8 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP, the Council determined that both mobile bottom tending and stationary gear has a potential to adversely impact EFH. The same conclusion was drawn for other species with overlapping EFH. The best scientific information available indicates that ecosystem impacts from fishing gears on fishery productivity in this region are mostly unpredictable and unquantifiable. Thus, mobile and stationary gear are characterized as having a potential impact on EFH because: 1) the specific habitat types along the Atlantic coast have not been mapped or quantified and 2) fishing effort and intensity of the gear is also not recorded. Since the potential exists that mobile bottom gear and stationary gear are having adverse effects on EFH, the Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP includes alternatives that minimize the adverse effects on EFH as required pursuant to section 303(a)(7) of the SFA. The principal gear used in the recreational fishery for black sea bass is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse EFH impacts because the gear does not alter bottom structure.

4.2 Description of Protected Resources

There are numerous species which inhabit the environment within the management unit of the Summer Flounder, Scup, and Black Sea Bass FMP that are afforded protection under the Endangered Species Act of 1973 (ESA; i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act of 1972 (MMPA). Fifteen are classified as endangered or threatened under the ESA, while the remainder are protected by the provisions of the MMPA. The Council has determined that the following list of species protected either by the ESA, the MMPA, or the Migratory Bird Act of 1918 may be found in the environment utilized by summer flounder, scup, and black sea bass fisheries:

Cetaceans

Species	Status
Northern right whale (*Eubalaena glacialis*)	Endangered
Humpback whale (*Megaptera novaeangliae*)	Endangered
Fin whale (*Balaenoptera physalus*)	Endangered
Blue whale (*Balaenoptera musculus*)	Endangered
Sei whale (*Balaenoptera borealis*)	Endangered
Sperm whale (*Physeter macrocephalus*	Endangered
Minke whale (*Balaenoptera acutorostrata*)	Protected
Beaked whales (*Ziphius and Mesoplodon spp*.)	Protected
Risso's dolphin (*Grampus griseus*)	Protected
Pilot whale (*Globicephala spp*.)	Protected
White-sided dolphin (*Lagenorhynchus acutus*)	Protected
Common dolphin (*Delphinus delphis*)	Protected
Spotted and striped dolphins (*Stenella spp*.)	Protected
Bottlenose dolphin (*Tursiops truncatus*)	Protected

Sea Turtles

Species	Status
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered
Green sea turtle (*Chelonia mydas*)	Endangered
Hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered
Loggerhead sea turtle (*Caretta caretta*)	Threatened

Fish

Species	Status
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered
Atlantic salmon (*Salmo salar*)	Endangered

Birds

Species	Status
Roseate tern (*Sterna dougallii dougallii*)	Endangered
Piping plover (*Charadrius melodus*)	Endangered

Critical Habitat Designations

Species	Area
Right whale	Cape Cod Bay

Description of Species Listed as Endangered and Threatened which inhabit the management unit of the FMP

North Atlantic Right Whale

Right whales have occurred historically in all the world's oceans from temperate to subarctic latitudes. NMFS recognizes three major subdivisions of right whales: North Pacific, North Atlantic, and Southern Hemisphere. NMFS further recognizes two extant subunits in the North Atlantic: eastern and western (Waring *et al.* 2002). A third subunit may have existed in the central Atlantic (migrating from east of Greenland to the Azores or Bermuda), but this stock appears to be extinct (Perry *et al.* 1999).

The north Atlantic right whale has the highest risk of extinction among all of the large whales in the worlds oceans. The scarcity of right whales is the result of an 800-year history of whaling that continued into the 1960s (Klumov 1962). Historical records indicate that right whales were subject to commercial whaling in the North Atlantic as early as 1059. Between the 11th and 17th centuries, an estimated 25,000-40,000 right whales may have been harvested. The size of the western north Atlantic right whale population at the termination of whaling is unknown, but the stock was recognized as seriously depleted as early as 1750. However, right whales continued to be taken in shore-based operations or opportunistically by whalers in search of other species as late as the 1920's. By the time the species was internationally protected in 1935, there may have been fewer than 100 western north Atlantic right whales in the western Atlantic (Hain 1975; Reeves *et al.* 1992; Waring *et al.* 2002).

NMFS designated right whale critical habitat on June 3, 1994 (59 FR 28793) to help protect important right whale foraging and calving areas within the U.S. These include the waters of Cape Cod Bay and the Great South Channel off the coast of Massachusetts, and waters off the coasts of southern Georgia and northern Florida. In 1993, Canada's Department of Fisheries declared two conservation areas for right whales; one in the Grand Manan Basin in the lower Bay of Fundy, and a second in Roseway Basin between Browns and Baccaro Banks.

The northern right whale was listed as endangered throughout it's range on June 2, 1970 under the ESA. The current population is considered to be at a low level and the species remains designated as endangered (Waring *et al.* 2002). A Recovery plan has been published and currently is in effect (NMFS 1991). This is a strategic stock because the average annual fishery-related mortality and serious injury from all fisheries exceeds the Potential Biological Removal (PBR).

The western North Atlantic population of right whales was estimated to be 291 individuals in 1998 (Waring *et al.* 2002). The best available information makes it reasonable to conclude that the current death rate exceeds the birth rate in the western North Atlantic right whale population. The nearly complete reproductive failure in this population from 1993 to 1995 and again in 1998 and 1999 suggests that this pattern has continued for almost a decade, though the 2000/2001 season appears the most promising in the past 5 years, in terms of calves born. Because no population can sustain a high death rate and low birth rate indefinitely, this combination places the North Atlantic right whale population at high risk of extinction. Coupled with an increasing calving interval, the relatively large number of young right whales (0-4 years) and adults that are killed, by human-related factors, the likelihood of extinction is high. The recent increase in births gives rise to optimism, however these young animals must be provided with protection so that they can mature and contribute to future generations in order to be a factor in stabilizing of the population.

Right whales may be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources due to trophic effects resulting from a variety of activities including the operation of commercial fisheries. However, the major known sources of anthropogenic mortality and injury of right whales clearly are ship strikes and entanglement in commercial fishing gear. Waring *et al.* (2002) give a detailed description of the annual human related mortalities of right whales.

Humpback Whale

The humpback whale was listed as endangered throughout it's range on June 2, 1970. This species is the fourth most numerically depleted large cetacean worldwide. Humpback whales calve and mate in the West Indies and migrate to feeding areas in the northwestern Atlantic during the summer months. Six separate feeding areas are utilized in northern waters after their return (Waring *et al.* 2002). Only one of these feeding areas, the GOM, lies within U.S. waters and is within the action area of this consultation. Most of the humpbacks that forage in the GOM visit Stellwagen Bank and the waters of Massachusetts and Cape Cod Bays. Sightings are most frequent from mid-March through November between 41º N and 43º N, from the Great South Channel north along the outside of Cape Cod to Stellwagen Bank and Jeffreys Ledge (CeTAP 1982), and peak in May and August. Small numbers of individuals may be present in this area year-round. They feed on a number of species of small schooling fishes, particularly sand lance and Atlantic herring, by targeting fish schools and filtering large

amounts of water for their associated prey. Humpback whales have also been observed feeding on krill (Wynne and Schwartz 1999).

New information has recently become available on the status and trends of the humpback whale population in the North Atlantic. Although current and maximum net productivity rates are unknown at this time, the population is apparently increasing. It has not yet been determined whether this increase is uniform across all six feeding stocks (Waring *et al.* 2002). For example, the overall rate of increase has been estimated at 9.0% (CV=0.25) by Katona and Beard (1990), while a 6.5% rate was reported for the Gulf of Maine by Barlow and Clapham (1997) using data through 1991. The rate reported by Barlow and Clapham (1997) may roughly approximate the rate of increase for the portion of the population within the action area.

The minimum population estimate is the lower limit of the two-tailed 60% confidence interval of the lognormally distributed best abundance estimate. This is equivalent to the 20th percentile of the log-normal distribution as specified by Wade and Angliss (1997). The best estimate of abundance for Gulf of Maine humpback whales is 902 (CV=0.41). The minimum population estimate for this stock is 647 (Waring *et al.* 2002).

Potential Biological Removal (PBR) is the product of minimum population size, one-half the maximum productivity rate, and a “recovery” factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The minimum population size is 647 . The maximum productivity rate is the default value of 0.04. The “recovery” factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population is assumed to be 0.10 because this stock is listed as an endangered species under the ESA. PBR for the Gulf of Maine humpback whale stock is 1.3 whales (Waring *et al.* 2002).

The major known sources of anthropogenic mortality and injury of humpback whales include entanglement in commercial fishing gear and ship strikes. Based on photographs of the caudal peduncle of humpback whales, Robbins and Mattila (2001) estimated that at least 48% --- and possibly as many as 78% --- of animals in the Gulf of Maine exhibit scarring caused by entanglement. Several whales have apparently been entangled on more than one occasion. These estimates are based on sightings of free-swimming animals that initially survive the encounter. Because some whales may drown immediately, the actual number of interactions may be higher. In addition, the actual number of species-gear interactions is contingent on the intensity of observations from aerial and ship surveys.

For the period 1996 through 2000, the total estimated human-caused mortality and serious injury to the Gulf of Maine humpback whale stock is estimated as 3.0 per year (USA waters, 2.4; Canadian waters, 0.6). This average is derived from two components: 1) incidental fishery interaction records, 2.8 (USA waters, 2.2; Canadian waters, 0.6); and 2) records of vessel collisions, 0.2 (USA waters, 0.2; Canadian waters, 0). There were additional humpback mortalities and serious injuries that occurred in the

southeastern and mid-Atlantic states that could not be confirmed as involving members of the Gulf of Maine stock (Waring *et al.* 2002). These records represent an additional minimum annual average of 1.6 human-caused mortalities and serious injuries to humpbacks over the time period, of which 1.0 per year are attributable to incidental fishery interactions and 0.6 per year are attributable to vessel collisions (Waring *et al.* 2002).

Humpback whales may also be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources due to trophic effects resulting from a variety of activities including the operation of commercial fisheries.

Fin Whale

Fin whales inhabit a wide range of latitudes between 20-75˚ N and 20-75˚ S (Perry *et al.* 1999). Fin whales spend the summer feeding in the relatively high latitudes of both hemispheres, particularly along the cold eastern boundary currents in the North Atlantic and North Pacific Oceans and in Antarctic waters (IWC 1992). Most migrate seasonally from relatively high-latitude Arctic and Antarctic feeding areas in the summer to relatively low-latitude breeding and calving areas in the winter (Perry *et al.* 1999).

Various estimates have been provided to describe the current status of fin whales in western North Atlantic waters. Based on the catch history and trends in Catch Per Unit Effort, an estimate of 3,590 to 6,300 fin whales was obtained for the entire western North Atlantic (Perry *et al.* 1999). Hain *et al.* (1992) estimated that about 5,000 fin whales inhabit the Northeastern United States continental shelf waters. The latest (Waring *et al.* 2002) SAR gives a best estimate of abundance for fin whales of 2,814 (CV = 0.21). The minimum population estimate for the western North Atlantic fin whale is 2,362. This is currently an underestimate, as too little is known about population structure, and the estimate is derived from surveys over a limited portion of the western North Atlantic. There is also not enough information to estimate population trends. The NMFS has designated one stock of fin whale for U.S. waters of the North Atlantic (Waring *et al.* 2002) where the species is commonly found from Cape Hatteras northward.

The major known sources of anthropogenic mortality and injury of fin whales include ship strikes and entanglement in commercial fishing gear. However, many of the reports of mortality cannot be attributed to a particular source. Of 18 fin whale mortality records collected between 1991 and 1995, four were associated with vessel interactions, although the proximal cause of mortality was not known. The following injury/mortality events are those reported from 1996 to the present for which source was determined. These numbers should be viewed as absolute minimum numbers; the total number of mortalities and injuries cannot be estimated but is believed to be higher since it is unlikely that all carcasses will be observed. In general, known mortalities of fin whales are less than those recorded for right and humpback whales. This may be due

in part to the more offshore distribution of fin whales where they are either less likely to encounter entangling gear, or are less likely to be noticed when gear entanglements or vessel strikes do occur.

Fin whales may also be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources due to trophic effects resulting from a variety of activities including the operation of commercial fisheries. The fin whale was listed as endangered throughout it's range on June 2, 1970 under the ESA. Hain *et al.* (1992) estimated that about 5,000 fin whales inhabit the northeastern United States continental shelf waters. Waring *et al.* (2002) present a more recent estimate of 2,814 (CV=0.21) fin whales based on aerial and shipboard surveys of the area from Georges Bank to the mouth of the Gulf of S. Lawrence in 1999.

Sei Whale

Sei whales are a widespread species in the world's temperate, subpolar and subtropical and even tropical marine waters. However, they appear to be more restricted to temperate waters than other balaenopterids (Perry *et al.* 1999). The IWC recognized three stocks in the North Atlantic based on past whaling operations as opposed to biological information: (1) Nova Scotia; (2) Iceland Denmark Strait; (3) Northeast Atlantic (Perry *et al.* 1999). Mitchell and Chapman (1977) suggested that the sei whale population in the western North Atlantic consists of two stocks, a Nova Scotian Shelf stock and a Labrador Sea stock. The Nova Scotian Shelf stock includes the continental shelf waters of the northeastern United States, and extends northeastward to south of Newfoundland. The IWC boundaries for this stock are from the U.S. east coast to Cape Breton, Nova Scotia and east to longitude 42˚ (Waring *et al.* 2002). This is the only sei whale stock within the action area.

Sei whales winter in warm temperate or subtropical waters and summer in more northern latitudes. In the northern Atlantic, most births occur in November and December when the whales are on the wintering grounds. Conception is believed to occur in December and January. Gestation lasts for 12 months and the calf is weaned at 6-9 months when the whales are on the summer feeding grounds (Draft Recovery Plan, NMFS 1998a). Sei whales reach sexual maturity at 5-15 years of age. The calving interval is believed to be 2-3 years (Perry *et al.* 1999).

Sei whales occur in deep water throughout their range, typically over the continental slope or in basins situated between banks (Draft Recovery Plan, NMFS 1998a). In the northwest Atlantic, the whales travel along the eastern Canadian coast in autumn, June and July on their way to and from the Gulf of Maine and Georges Bank where they occur in winter and spring. Within the action area, the sei whale is most common on Georges Bank and into the Gulf of Maine/Bay of Fundy region during spring and summer, primarily in deeper waters. Individuals may range as far south as North Carolina. It is important to note that sei whales are known for inhabiting an area for weeks at a time then disappearing for year or even decades; this has been observed all

over the world, including in the southwestern GOM in 1986. The basis for this phenomenon is not clear.

There are insufficient data to determine trends of the sei whale population. Because there are no abundance estimates within the last 10 years, a minimum population estimate cannot be determined for NMFS management purposes (Waring *et al.* 2002). Abundance surveys are problematic not only because this species is difficult to distinguish from the fin whale but more significant is that too little is known of the sei whale's distribution, population structure and patterns of movement; thus survey design and data interpretation are very difficult.

Few instances of injury or mortality of sei whales due to entanglement or vessel strikes have been recorded in U.S. waters. Entanglement is not known to impact this species in the U.S. Atlantic, possibly because sei whales typically inhabit waters further offshore than most commercial fishing operations, or perhaps entanglements do occur but are less likely to be observed. A small number of ship strikes of this species have been recorded. The most recent documented incident occurred in 1994 when a carcass was brought in on the bow of a container ship in Charlestown, Massachusetts. Other impacts noted above for other baleen whales may also occur. Due to the deep-water distribution of this species, interactions that do occur are less likely to be observed or reported than those involving right, humpback, and fin whales that often frequent areas within the continental shelf (Waring *et al.* 2002).

Blue Whale

Like the fin whale, blue whales occur worldwide and are believed to follow a similar migration pattern from northern summering grounds to more southern wintering areas (Perry *et al.* 1999). Three subspecies have been identified: *Balaenoptera musculus musculus, B.m. intermedia*, and *B.m. brevicauda* (NMFS 1998b). Only *B. musculus* occurs in the northern hemisphere. Blue whales range in the North Atlantic extends from the subtropics to Baffin Bay and the Greenland Sea. The IWC currently recognizes these whales as one stock (Perry *et al.* 1999).

Blue whales are only occasional visitors to east coast U.S. waters. They are more commonly found in Canadian waters, particularly the Gulf of St. Lawrence where they are present for most of the year, and other areas of the North Atlantic. It is assumed that blue whale distribution is governed largely by food requirements (NMFS 1998b). In the Gulf of St. Lawrence, blue whales appear to predominantly feed on *Thysanoessa raschii* and *Meganytiphanes norvegica*. In the eastern North Atlantic, *T. inermis* and *M. norvegica* appear to be the predominant prey (NMFS 1998b).

Compared to the other species of large whales, relatively little is known about this species. Sexual maturity is believed to occur in both sexes at 5-15 years of age. Gestation lasts 10-12 months and calves nurse for 6-7 months. The average calving interval is estimated to be 2-3 years. Birth and mating both take place in the winter

season (NMFS 1998b), but the location of wintering areas is speculative (Perry *et al.* 1999). In 1992 the U.S. Navy and contractors conducted an extensive blue whale acoustic survey of the North Atlantic and found concentrations of blue whales on the Grand Banks and west of the British Isles. One whale was tracked for 43 days during which time it traveled 1,400 nautical miles around the general area of Bermuda (Perry *et al.* 1999).

Entanglement in fishing gear and ship strikes are believed to be the major sources of anthropogenic mortality and injury of blue whales. However, confirmed deaths or serious injuries from either are few. In 1987, concurrent with an unusual influx of blue whales into the Gulf of Maine, one report was received from a whale watch boat that spotted a blue whale in the southern Gulf of Maine entangled in gear described as probable lobster pot gear. A second animal found in the Gulf of St. Lawrence apparently died from the effects of an entanglement. In March 1998, a juvenile male blue whale was carried into Rhode Island waters on the bow of a tanker. The cause of death was determined to be due to a ship strike, although not necessarily caused by the tanker on which it was observed, and the strike may have occurred outside the U.S. EEZ (Waring *et al.* 2002). No recent entanglements of blue whales have been reported from the U.S. Atlantic. Other impacts noted above for other baleen whales may occur.

Sperm Whale

Sperm whales inhabit all ocean basins, from equatorial waters to the polar regions (Perry *et al.* 1999). In the western North Atlantic they range from Greenland to the Gulf of Mexico and the Caribbean. The sperm whales that occur in the western North Atlantic are believed to represent only a portion of the total stock (Blaylock *et al.* 1995). Total numbers of sperm whales off the USA or Canadian Atlantic coast are unknown, although eight estimates from selected regions of the habitat do exist for select time periods. The best estimate of abundance for the North Atlantic stock of sperm whales is 4,702 (CV=0.36) (Waring *et al.* 2002). The minimum population estimate for the western North Atlantic sperm whale is 3,505 (CV=0.36). Sperm whales present in the Gulf of Mexico are considered by some researchers to be endemic, and represent a separate stock from whales in other portions of the North Atlantic. However, NMFS currently uses the IWC stock structure guidance which recognizes one stock for the entire North Atlantic (Waring *et al.* 2002).

Sperm whales generally occur in waters greater than 180 meters in depth. While they may be encountered almost anywhere on the high seas, their distribution shows a preference for continental margins, sea mounts, and areas of upwelling, where food is abundant (Leatherwood and Reeves 1983). Sperm whales in both hemispheres migrate to higher latitudes in the summer for feeding and return to lower latitude waters in the winter where mating and calving occur. Mature males typically range to much higher latitudes than mature females and immature animals but return to the lower latitudes in the winter to breed (Perry *et al.* 1999). Waring *et al.* (1993) suggest sperm whale distribution is closely correlated with the Gulf Stream edge. Like swordfish, which

feed on similar prey, sperm whales migrate to higher latitudes during summer months, when they are concentrated east and northeast of Cape Hatteras. In the U.S. EEZ, sperm whales occur on the continental shelf edge, over the continental slope, and into the mid-ocean regions (Waring *et al.* 1993), and are distributed in a distinct seasonal cycle; concentrated east-northeast of Cape Hatteras in winter and shifting northward in spring when whales are found throughout the mid-Atlantic Bight. Distribution extends further northward to areas north of Georges Bank and the Northeast Channel region in summer and then south of New England in fall, back to the mid-Atlantic Bight (Waring *et al.* 2002).

Few instances of injury or mortality of sperm whales due to human impacts have been recorded in U.S. waters. Because of their generally more offshore distribution and their benthic feeding habits, sperm whales are less subject to entanglement than are right or humpback whales. Documented takes primarily involve offshore fisheries such as the offshore lobster pot fishery and pelagic driftnet and pelagic longline fisheries. The NMFS Sea Sampling program recorded three entanglements (in 1989, 1990, and 1995) of sperm whales in the swordfish drift gillnet fishery prior to permanent closure of the fishery in January 1999. All three animals were injured, found alive, and released. However, at least one was still carrying gear. Opportunistic reports of sperm whale entanglements for the years 1993-1997 include three records involving offshore lobster pot gear, heavy monofilament line, and fine mesh gillnet from an unknown source. Sperm whales may also interact opportunistically with fishing gear. Observers aboard Alaska sablefish and Pacific halibut longline vessels have documented sperm whales feeding on longline caught fish in the Gulf of Alaska (Perry *et al.* 1999). Behavior similar to that observed in the Alaskan longline fishery has also been documented during longline operations off South America where sperm whales have become entangled in longline gear, have been observed feeding on fish caught in the gear, and have been reported following longline vessels for days (Perry *et al.* 1999).

Sperm whales are also struck by ships. In May 1994 a ship struck sperm whale was observed south of Nova Scotia (Waring *et al.* 2002). A sperm whale was also seriously injured as a result of a ship strike in May 2000 in the western Atlantic. Due to the offshore distribution of this species, interactions that do occur are less likely to be reported than those involving right, humpback, and fin whales that more often occur in nearshore areas. Other impacts noted above for baleen whales may also occur.

Due to their offshore distribution, sperm whales tend to strand less often than, for example, right whales and humpbacks. Preliminary data for 2000 indicate that of ten sperm whales reported to the stranding network (nine dead and one injured) there was one possible fishery interaction, one ship strike (wounded with bleeding gash on side) and eight animals for which no signs of entanglement or injury were sighted or reported. No sperm whales have stranded or been reported to the stranding network as of February 2001.

Loggerhead Sea Turtle

The loggerhead turtle was listed as "threatened" under the ESA on July 28, 1978, but is considered endangered by the World Conservation Union and under the Convention on International Trade in Endangered Species of Flora and Fauna. Loggerhead sea turtles are found in a wide range of habitats throughout the temperate and tropical regions of the Atlantic. These include open ocean, continental shelves, bays, lagoons, and estuaries (NMFS and USFWS 1995). In the management unit of this FMP they are most common on the open ocean in the northern Gulf of Maine, particularly where associated with warmer water fronts formed from the Gulf Stream. The species is also found in entrances to bays and sounds and within bays and estuaries, particularly in the Mid-Atlantic.

Since they are limited by water temperatures, sea turtles do not usually appear on the summer foraging grounds in the Gulf of Maine until June, but are found in Virginia as early as April. They remain in these areas until as late as November and December in some cases, but the large majority leave the Gulf of Maine by mid-September. Loggerheads are primarily benthic feeders, opportunistically foraging on crustaceans and mollusks (NMFS and USFWS 1995). Under certain conditions they also feed on finfish, particularly if they are easy to catch *(e.g.,* caught in gillnets or inside pound nets where the fish are accessible to turtles).

A Turtle Expert Working Group (TEWG 2000), conducting an assessment of the status of the loggerhead sea turtle population in the Western North Atlantic (WNA), concluded that there are at least four loggerhead subpopulations separated at the nesting beach in the WNA (TEWG 1998). However, the group concluded that additional research is necessary to fully address the stock definition question. The four nesting subpopulations include the following areas: northern North Carolina to northeast Florida, south Florida, the Florida Panhandle, and the Yucatan Peninsula. Genetic evidence indicates that loggerheads from Chesapeake Bay southward to Georgia appear nearly equally divided in origin between South Florida and northern subpopulations. Additional research is needed to determine the origin of turtles found north of the Chesapeake Bay.

The TEWG (1998) analysis also indicated the northern subpopulation of loggerheads may be experiencing a significant decline (2.5% - 3.2% for various beaches). A recovery goal of 12,800 nests has been assumed for the Northern Subpopulation, but TEWG (1998) reported nest number at around 6,200 (TEWG 1998). More recently, the addition of nesting data from the years 1996, 1997 and 1998, did not change the assessment of the TEWG that the number of loggerhead nests in the Northern Subpopulation is stable or declining (TEWG 2000). Since the number of nests have declined in the 1980's, the TEWG concluded that it is unlikely that this subpopulation will reach this goal given this apparent decline and the lack of information on the subpopulation from which loggerheads in the WNA originate. Continued efforts to reduce the adverse effects of fishing and other human-induced mortality on this population are necessary.

The most recent 5-year ESA sea turtle status review (NMFS and USFWS 1995)

highlights the difficulty of assessing sea turtle population sizes and trends. Most long--term data comes from nesting beaches, many of which occur extensively in areas outside U.S. waters. Because of this lack of information, the TEWG was unable to determine acceptable levels of mortality. This status review supports the conclusion of the TEWG that the northern subpopulation may be experiencing a decline and that inadequate information is available to assess whether its status has changed since the initial listing as threatened in 1978. NMFS and USFWS (1995) concluded that loggerhead turtles should remain designated threatened but noted that additional research will be necessary before the next status review can be conducted.

Leatherback Sea Turtle

Leatherback turtles are widely distributed throughout the oceans of the world, and are found in waters of the Atlantic, Pacific, Caribbean, and the Gulf of Mexico. The leatherback sea turtle is the largest living turtle and ranges farther than any other sea turtle species, exhibiting broad thermal tolerances (NMFS and USFWS 1995). Evidence from tag returns and strandings in the western Atlantic suggests that adults engage in routine migrations between boreal, temperate and tropical waters (NMFS and USFWS 1992). In the U.S., leatherback turtles are found throughout the action area of this consultation. Located in the northeastern waters during the warmer months, this species is found in coastal waters of the continental shelf and near the Gulf Stream edge, but rarely in the inshore areas. However, leatherbacks may migrate close to shore, as a leatherback was satellite tracked along the mid-Atlantic coast, thought to be foraging in these waters. A 1979 aerial survey of the outer Continental Shelf from Cape Hatteras, North Carolina to Cape Sable, Nova Scotia showed leatherbacks to be present throughout the area with the most numerous sightings made from the Gulf of Maine south to Long Island. Shoop and Kenney (1992) also observed concentrations of leatherbacks during the summer off the south shore of Long Island and off New Jersey. Leatherbacks in these waters are thought to be following their preferred jellyfish prey. This aerial survey estimated the leatherback population for the northeastern U.S. at approximately 300-600 animals (from near Nova Scotia, Canada to Cape Hatteras, North Carolina).

Compared to the current knowledge regarding loggerhead populations, the genetic distinctness of leatherback populations is less clear. However, genetic analyses of leatherbacks to date indicate female turtles nesting in St. Croix/Puerto Rico and those nesting in Trinidad differ from each other and from turtles nesting in Florida, French Guiana/Suriname and along the South African Indian Ocean coast. Much of the genetic diversity is contained in the relatively small insular subpopulations. Although populations or subpopulations of leatherback sea turtles have not been formally recognized, based on the most recent reviews of the analysis of population trends of leatherback sea turtles, and due to our limited understanding of the genetic structure of the entire species, the most conservative approach would be to treat leatherback nesting populations as distinct populations whose survival and recovery is critical to the survival and recovery of the species. Further, any action that appreciably reduced the

likelihood for one or more of these nesting populations to survive and recover in the wild, would appreciably reduce the species' likelihood of survival and recovery in the wild.

Leatherbacks are predominantly a pelagic species and feed on jellyfish (i.e., *Stomolophus, Chryaora*, and *Aurelia* (Rebel 1974)), cnidarians (medusae, siphonophores) and tunicates (salps, pyrosomas). Time-Depth-Recorder data recorded by Eckert *et al.* (1996) indicate that leatherbacks are night feeders and are deep divers, with recorded dives to depths in excess of 1000 meters. However, leatherbacks may come into shallow waters if there is an abundance of jellyfish nearshore. Leary (1957) reported a large group of up to 100 leatherbacks just offshore of Port Aransas, Texas associated with a dense aggregation of Stomolophus. Leatherbacks also occur annually in places such as Cape Cod and Narragansett Bays during certain times of the year, particularly the fall.

Anthropogenic impacts to the leatherback population are similar to those discussed above for the loggerhead sea turtle, including fishery interactions as well as intense exploitation of the eggs (Ross 1979). Eckert et al. (1996) and Spotila *et al.* (1996) record that adult mortality has also increased significantly, particularly as a result of driftnet and longline fisheries. Zug and Parham (1996) attribute the sharp decline in leatherback populations to the combination of the loss of long-lived adults in fishery related mortality, and the lack of recruitment stemming from elimination of annual influxes of hatchlings because of intense egg harvesting.

Poaching is not known to be a problem for U.S. nesting populations. However, numerous fisheries that occur in both U.S. state and Federal waters are known to negatively impact juvenile and adult leatherback sea turtles. These include incidental take in several commercial and recreational fisheries. Fisheries known or suspected to incidentally capture leatherbacks include those deploying bottom trawls, off-bottom trawls, purse seines, bottom longlines, hook and line, gill nets, drift nets, traps, haul seines, pound nets, beach seines, and surface longlines (NMFS and USFWS 1992). At a workshop held in the Northeast in 1998 to develop a management plan for leatherbacks, experts expressed the opinion that incidental takes in fisheries were likely higher than is being reported.

Leatherback interactions with the southeast shrimp fishery are also common. Turtle Excluder Devices (TEDs), typically used in the southeast shrimp fishery to minimize sea turtle/fishery interactions, are less effective for the large-sized leatherbacks. Therefore, the NMFS has used several alternative measures to protect leatherback sea turtles from lethal interactions with the shrimp fishery. These include establishment of a Leatherback Conservation Zone (60 FR 25260). NMFS established the zone to restrict, when necessary, shrimp trawl activities from off the coast of Cape Canaveral, Florida to the Virginia/North Carolina Border. It allows the NMFS to quickly close the area or portions of the area to the shrimp fleet on a short-term basis when high concentrations of normally pelagic leatherbacks are recorded in more coastal waters where the shrimp

fleet operates. Other emergency measures may also be used to minimize the interactions between leatherbacks and the shrimp fishery. For example, in November 1999 parts of Florida experienced an unusually high number of leatherback strandings. In response, the NMFS required shrimp vessels operating in a specified area to use TEDs with a larger opening for a 30-day period beginning December 8, 1999 (64 FR 69416) so that leatherback sea turtles could escape if caught in the gear.

Leatherbacks are also susceptible to entanglement in lobster and crab pot gear, possibly as a result of attraction to gelatinous organisms and algae that collect on buoys and buoy lines at or near the surface, attraction to the buoys which could appear as prey, or the gear configuration which may be more likely to wrap around flippers. The total number of leatherbacks reported entangled from New York through Maine from all sources for the years 1980 - 2000 is 119; out of this total, 92 of these records took place from 1990-2000. Entanglements are also common in Canadian waters where Goff and Lien (1988) reported that 14 of 20 leatherbacks encountered off the coast of Newfoundland/Labrador were entangled in fishing gear including salmon net, herring net, gillnet, trawl line and crab pot line. It is unclear how leatherbacks become entangled in such gear. Prescott (1988) reviewed stranding data for Cape Cod Bay and concluded that for those turtles where cause of death could be determined (the minority), entanglement in fishing gear is the leading cause of death followed by capture by dragger, cold stunning, or collision with boats.

Spotila *et al.* (1996) describe a hypothetical life table model based on estimated ages of sexual maturity at both ends of the species' natural range (5 and 15 years). The model concluded that leatherbacks maturing in 5 years would exhibit much greater population fluctuations in response to external factors than would turtles that mature in 15 years. Furthermore, the simulations indicated that leatherbacks could maintain a stable population only if both juvenile and adult survivorship remained high, and that if other life history stages (i.e., egg, hatchling, and juvenile) remained static. Model simulations indicated that an increase in adult mortality of more than 1% above background levels in a stable population was unsustainable. As noted, there are many human-related sources of mortality to leatherbacks; a tally of all leatherback takes anticipated annually under current biological opinions completed for the NMFS June 30, 2000, biological opinion on the pelagic longline fishery projected a potential for up to 801 leatherback takes, although this sum includes many takes expected to be nonlethal. Leatherbacks have a number of pressures on their populations, including injury or mortality in fisheries, other Federal activities (e.g., military activities, oil and gas development, etc.), degradation of nesting habitats, direct harvest of eggs, juvenile and adult turtles, the effects of ocean pollutants and debris, lethal collisions, and natural disturbances such as hurricanes (which may wipe out nesting beaches).

Spotila *et al.* (1996) recommended not only reducing mortalities resulting from fishery interactions, but also advocated protection of eggs during the incubation period and of hatchlings during their first day, and indicated that such practices could potentially double the chance for survival and help counteract population effects resulting from

adult mortality. They conclude, “stable leatherback populations could not withstand an increase in adult mortality above natural background levels without decreasing . . . the Atlantic population is the most robust, but it is being exploited at a rate that cannot be sustained and if this rate of mortality continues, these populations will also decline. ”

Estimated to number approximately 115,000 adult females globally in 1980 (Pritchard 1982) and only 34,500 by 1995 (Spotila *et al.* 1996), leatherback populations have been decimated worldwide, not only by fishery related mortality but, at least historically, primarily due to intense exploitation of the eggs (Ross 1979). On some beaches nearly 100% of the eggs laid have been harvested (Eckert *et al.* 1996). Eckert *et al.* (1996) and Spotila *et al.* (1996) record that adult mortality has also increased significantly, particularly as a result of driftnet and longline fisheries. Spotila *et al.* (1996) states that a conservative estimate of annual leatherback fishery-related mortality (from longlines, trawls and gillnets) in the Pacific during the 1990s is 1,500 animals. He estimates that this represented about a 23% mortality rate (or 33% if most mortality was focused on the East Pacific population).

Nest counts are currently the only reliable indicator of population status available for leatherback turtles. The status of the leatherback population in the Atlantic is difficult to assess since major nesting beaches occur over broad areas within tropical waters outside the United States. Recent information suggests that Western Atlantic populations declined from 18,800 nesting females in 1996 (Spotila *et al.* 1996) to 15,000 nesting females by 2000. Eastern Atlantic (i.e., off Africa, numbering ~ 4,700) and Caribbean (4,000) populations appear to be stable, but there is conflicting information for some sites and it is certain that some nesting populations (e.g., St. John and St. Thomas, U.S. Virgin Islands) have been extirpated (NMFS and USFWS 1995). It does appear, however, that the Western Atlantic portion of the population is being subjected to mortality beyond sustainable levels, resulting in a continued decline in numbers of nesting females.

Kemp’s Ridley Sea Turtle

The Kemp's ridley is probably the most endangered of the world's sea turtle species. The only major nesting site for ridleys is a single stretch of beach near Rancho Nuevo, Tamaulipas, Mexico (Carr 1963). Estimates of the adult population reached a low of 1,050 in 1985, but increased to 3,000 individuals in 1997. First-time nesting adults have increased from 6% to 28% from 1981 to 1989, and from 23% to 41% from 1990 to 1994, indicating that the ridley population may be in the early stages of growth (TEWG 1998). More recently the TEWG (2000) concluded that the Kemp's Ridley population appears to be in the early stages of exponential expansion. While the number of females nesting annually is estimated to be orders of magnitude less than historical levels, the mean rate of increase in the annual number of nests has accelerated over the period 1987-1999. Preliminary analyses suggest that the intermediate recovery goal of 10,000 nesting females by 2020 may be achievable (TEWG 2000).

Juvenile Kemp's ridleys inhabit northeastern US coastal waters where they forage and grow in shallow coastal during the summer months. Juvenile ridleys migrate southward with autumnal cooling and are found predominantly in shallow coastal embayments along the Gulf Coast during the late fall and winter months.

Ridleys found in mid-Atlantic waters are primarily post-pelagic juveniles averaging 40 cm in carapace length, and weighing less than 20 kg (NMFS 1998). After loggerheads, they are the second most abundant sea turtle in Virginia and Maryland waters, arriving in there during May and June and then emigrating to more southerly waters from September to November (NMFS 1998). In the Chesapeake Bay, ridleys frequently forage in shallow embayments, particularly in areas supporting submerged aquatic vegetation (Lutcavage and Musick 1985; NMFS 1998). The juvenile population in Chesapeake Bay is estimated to be 211 to 1,083 turtles (NMFS 1998).

The model presented by Crouse *et al.* (1987) illustrates the importance of subadults to the stability of loggerhead populations and may have important implications for Kemp's ridleys. The vast majority of ridleys identified along the Atlantic Coast have been juveniles and subadults. Sources of mortality in this area include incidental takes in fishing gear, pollution and marine habitat degradation, and other man-induced and natural causes. Loss of individuals in the Atlantic, therefore, may impede recovery of the Kemp's ridley sea turtle population. Sea sampling data from the northeast otter trawl fishery and southeast shrimp and summer flounder bottom trawl fisheries has recorded takes of Kemp's ridley turtles.

Green Sea Turtle

Green sea turtles are more tropical in distribution than loggerheads, and are generally found in waters between the northern and southern 20°C isotherms (NMFS 1998). In the wester Atlantic region, the summer developmental habitat encompasses estuarine and coastal waters as far north as Long Island Sound, Chesapeake Bay, and the North Carolina sounds, and south throughout the tropics (NMFS 1998). Most of the individuals reported in U.S. waters are immature (NMFS 1998). Green sea turtles found north of Florida during the summer must return to southern waters in autumn or risk the adverse effects of cold temperatures.

There is evidence that green turtle nesting has been on the increase during the past decade. For example, increased nesting has been observed along the Atlantic coast of Florida on beaches where only loggerhead nesting was observed in the past (NMFS 1998). Recent population estimates for the western Atlantic area are not available. Green turtles are threatened by incidental captures in fisheries, pollution and marine habitat degradation,
destruction/disturbance of nesting beaches, and other sources of man-induced and natural mortality.

Juvenile green sea turtles occupy pelagic habitats after leaving the nesting beach. At

approximately 20 to 25 cm carapace length, juveniles leave pelagic habitats, and enter benthic foraging areas, shifting to a chiefly herbivorous diet (NMFS 1998). Post-pelagic green turtles feed primarily on sea grasses and benthic algae, but also consume jellyfish, salps, and sponges. Known feeding habitats along U.S. coasts of the western Atlantic include shallow lagoons and embayments in Florida, and similar shallow inshore areas elsewhere (NMFS 1998).

Sea sampling data from the scallop dredge fishery and southeast shrimp and summer flounder bottom trawl fisheries have recorded incidental takes of green turtles

Shortnose Sturgeon

Shortnose sturgeon occur in large rivers along the western Atlantic coast from the St. Johns River, Florida (possibly extirpated from this system), to the Saint John River in New Brunswick, Canada. The species is anadromous in the southern portion of its range *(i.e.,* south of Chesapeake Bay), while northern populations are amphidromous (NMFS 1998). Population sizes vary across the species' range with the smallest populations occurring in the Cape Fear and Merrimack Rivers and the largest populations in the Saint John and Hudson Rivers (Dadswell 1979; NMFS 1998).

Shortnose sturgeon are benthic and mainly inhabit the deep channel sections of large rivers. They feed on a variety of benthic and epibenthic invertebrates including molluscs, crustaceans (arnphipods, chironomids, isopods), and oligochaete worms (Vladykov and Greeley 1963; Dadswell 1979). Shortnose sturgeon are long-lived (30 years) and mature at relatively old ages. In northern areas, males reach maturity at 5-10 years, while females reach sexual maturity between 7 and 13 years.

In the northern part of their range, shortnose sturgeon exhibit three distinct movement patterns that are associated with spawning, feeding, and overwintering periods. In spring, as water temperatures rise above 8° C, pre-spawning shortnose sturgeon move from overwintering grounds to spawning areas. Spawning occurs from mid/late April to mid/late May. Post-spawned sturgeon migrate downstream to feed throughout the summer.

As water temperatures decline below 8° C again in the fall, shortnose sturgeon move to overwintering concentration areas and exhibit little movement until water temperatures rise again in spring (NMFS 1998). Young-of-the-year shortnose sturgeon are believed to move downstream after hatching (NMFS 1998) but remain within freshwater habitats. Older juveniles tend to move downstream in fall and winter as water temperatures decline and the salt wedge recedes. Juveniles move upstream in spring and feed mostly in freshwater reaches during summer.

Shortnose sturgeon spawn in freshwater sections of rivers, typically below the first impassable barrier on the river *(e.g.,* dam). Spawning occurs over channel habitats containing gravel, rubble, or rock-cobble substrates (NMFS 1998). Additional

environmental conditions associated with spawning activity include decreasing river discharge following the peak spring freshet, water temperatures ranging from 9 -12 C, and bottom water velocities of 0.4 - 0.7 m/sec (NMFS 1998).

Atlantic salmon

The recent ESA-listing for Atlantic salmon covers the wild population of Atlantic salmon found in rivers and streams from the lower Kennebec River north to the U.S.-Canada border. These include the Dennys, East Machias, Machias, Pleasant, Narraguagus, Ducktrap, and Sheepscot Rivers and Cove Brook. Atlantic salmon are an anadromous species with spawning and juvenile rearing occurring in freshwater rivers followed by migration to the marine environment. Juvenile salmon in New England rivers typically migrate to sea in May after a two to three year period of development in freshwater streams, and remain at sea for two winters before returning to their U.S. natal rivers to spawn from mid October through early November. While at sea, salmon generally undergo an extensive northward migration to waters off Canada and Greenland. Data from past commercial harvest indicate that post-smolts overwinter in the southern Labrador Sea and in the Bay of Fundy. The numbers of returning wild Atlantic salmon within the Gulf of Maine Distinct Population Segment are perilously small with total run sizes of approximately 150 spawners occurring in 1999 (Baum 1997). Although capture of Atlantic salmon has occurred in commercial fisheries (usually otter trawl or gillnet gear) or by research/survey, no salmon have been reported captured in the Atlantic mackerel, squid and butterfish fisheries.

Seabirds

Fulmars occur as far south as Virginia in late winter and early spring. Shearwaters, storm petrels (both Leach's and Wilson's), jaegers, skuas, and some terns pass through this region in their annual migrations. Gannets and phalaropes occur in the Mid-Atlantic during winter months. Nine species of gulls breed in eastern North America and occur in shelf waters off the northeastern US. These gulls include: glaucous, Iceland, great black-backed, herring, laughing, ring-billed, Bonaparte's and Sabine's gulls, and black-legged caduceus. Royal and sandwich terns are coastal inhabitants from Chesapeake Bay south to the Gulf of Mexico. The Roseate tern is listed as endangered under the ESA, while the Least tern is considered threatened. In addition, the bald eagle is listed as threatened under the ESA and is a bird of aquatic ecosystems.

Like marine mammals, seabirds are vulnerable to entanglement in commercial and recreational fishing gear. The interaction has not been quantified in the recreational fishery, but impacts are not considered significant. Human activities such as coastal development, habitat degradation and destruction, and the presence of organochlorine contaminants are considered the major threats to some seabird populations.

4.3 Human Environment

4.3.1 Port and Community Description

The recreational summer flounder, scup, and black sea bass fisheries are important to many communities along the East Coast. A brief description of the relative importance of summer flounder, scup, and black sea bass recreational landings at the state level follows. The ports and communities that are dependent on summer flounder, scup, and black sea bass are fully described in Amendment 13 (section 3.4).

Data are not available to identify to what extent communities are dependent upon these recreational fisheries. The Marine Recreational Fisheries Statistical Survey (MRFSS) program does not identify port and community level data. Vessel Trip Report (VTR or "logbook") data can be analyzed on the port-level for party/charter boat landings. However, MRFSS data indicate that party/charter landings represented 14%, 16%, and 64%, of the total number (A+B1) of summer flounder, scup, and black sea bass recreational landings, respectively, from Maine through North Carolina, on average from 1981-2002 (Tables 9-11). As such, VTR data may not be representative of the importance of the entire summer flounder, scup, and black sea bass recreational fisheries to ports. However, as stated in section 4.3 of the 2004 Summer Flounder, Scup, and Black Sea Bass Specifications, for party/charter vessels, the largest number of permit holders for these species are located in Massachusetts, followed by New Jersey, and New York.

According to MRFSS estimates the top five states from Maine through North Carolina in 2002 that landed summer flounder were New Jersey, Virginia, New York, Rhode Island and North Carolina (Table 12). Massachusetts, Connecticut, Delaware, and Maryland each accounted for less than 5% of the total summer flounder landings. VTR data indicate that summer flounder accounted for 27%, 12%, 7%, and 5% of the total catch by party/charter vessels in the states of New York, New Jersey, Delaware, and Rhode Island, respectively, from 1996 to 2001 (Table 13).

The top five states that landed scup in 2002 were New York, Massachusetts, Connecticut, Rhode Island, and New Jersey (Table 12). These states accounted for nearly 100% of the total recreational scup landings in 2002. VTR data indicate that scup accounted for 25%, 20%, 9%, 7%, and 6% of the total catch by party/charter vessels in the states of New York, Massachusetts, Rhode Island, New Jersey, and Connecticut respectively, from 1996 to 2001 (Table 14).

The top five states that landed black sea bass in 2002 were New Jersey, Delaware, Maryland, New York, and Massachusetts (Table 12). New Jersey alone accounted for 51% of the landings. The states of Rhode Island, Connecticut, Virginia, and North Carolina each accounted for less than 5% of the total black sea bass recreational landings. VTR data indicate that black sea bass accounted for 61%, 38%, 34%, and 32% of the total catch by party/charter vessels in the states of Maryland, North Carolina, Virginia, and New Jersey, respectively, from 1996 to 2001. Black sea bass also accounted for at least 8% of the total catch of party/charter vessels in New York,

Delaware, and Rhode Island from 1996-2001 (Table 15).

4.3.2 Analysis of Permit Data

A full description and analysis of the vessels permitted to participate in the commercial and recreational fisheries for summer flounder, scup, and black sea bass is presented in section 4.3 of the 2004 Summer Flounder, Scup, and Black Sea Bass Specifications. Data from the Northeast permit application database indicates that 775 vessels held some combination of summer flounder, scup, and black sea bass permits in 2002. However, VTR data indicate that less than half of these vessels reported landings of summer flounder, scup, and/or black sea bass in 2002.

5.0 Description of Fisheries

5.1 Summer Flounder

Recreational catch and landings have fluctuated since Amendment 2 regulations were implemented in 1993. Landings increased to 8.83 million lb (4.01 million kg) in 1993 from the 1992 level of 7.15 million lb (3.24 million kg). From 1994 through 1999, recreational landings ranged from 5.42 million lb (1995; 2.46 million kg) to 12.48 million lb (1998; 5.66 million kg). Recreational landings in 2000 were estimated to be 16.47 million lb (7.47 million kg), the highest in the time series since 1987. Recreational landings dropped to 8.01 million lb (3.63 million kg) in 2002. Based on 2003 MRFSS data for waves 1-5 (January through October), summer flounder recreational landings for 2003 are projected to be 11.56 million lb (5.24 million kg) and recreational catches are projected to be 20.175 million fish.

5.1.1 Harvest Limits and Management Measures - A Review

As a review, recreational harvest limits have been established since 1993 (Table 16). In both 1993 and 1994, recreational landings were close to the harvest limits. The harvest limit established for 1993 was 8.38 million lb (3.80 million kg). In 1993, recreational fishermen landed 8.83 million lb (4.01 million kg), exceeding the target by approximately 0.45 million lb (0.2 million kg).

Most states implemented the coastwide recreational management measures of a 14-inch TL minimum fish size, a 6-fish possession limit, and a May 15 through September 30 open season (or equivalent) in 1993. However, several states were out of compliance with the plan including Connecticut (no possession limit or season), Maryland (10-fish possession limit), Virginia (10-fish possession limit and no season), and North Carolina (13-inch TL minimum size, no possession limit or season). However, even with the implementation of some management measures in the states, recreational landings increased in 1993 relative to the 1992 landings of 7.15 million lb (3.24 million kg).

The harvest limit established for 1994 was 10.67 million lb (4.84 million kg). Estimated landings in 1994 were 9.33 million lb (4.23 million kg) or 1.34 million lb (0.61 million kg) less than the harvest limit. Most states implemented the coastwide recreational management measures of a 14-inch TL minimum fish size, an 8-fish possession limit, and an April 15 through October 15 season (or equivalent) in 1994. However, two states did not fully implement the season in 1994; Virginia had no opening date but closed October 31 and North Carolina had no closed season at all. In addition, several states maintained the 1993 possession limit and season for their 1994 season (New Hampshire, Connecticut, and New York).

The Council and Board approved a recreational harvest limit of 7.76 million lb (3.52 million kg) for 1995. The landings estimate of 5.42 million lb (2.46 million kg) for 1995 was approximately 2.34 million lb (1.06 million kg) lower than the harvest limit. The limits implemented in 1995 were a 6-fish possession limit in the EEZ and an 8-fish possession limit in state waters, a 14-inch TL minimum fish size, and no closed season. All states had a 14-inch TL minimum fish size in 1995 and most states implemented the 8-fish possession limit although several states (New Hampshire, Connecticut, and New York) had a 6-fish possession limit.

The landings estimate for 1996 was about 2.41 million lb (1.09 million kg) greater than the limit approved by the Council and Board for that year (7.41 million lb or 3.36 million kg). The management measures implemented in 1996 were a 10-fish possession limit, a 14-inch TL minimum fish size, and no closed season.

A harvest limit of 7.41 million lb (3.36 million kg) was adopted for 1997. Recreational landings exceeded this limit by about 4.46 million lb (2.02 million kg). The management measures implemented in 1997 were an 8-fish possession limit and a 14.5-inch minimum size limit.

The recreational harvest limit was unchanged for 1998 at 7.41 million lb (3.36 million kg). The management measures that were proposed by the Council and Board to control landings in 1998 were an 8-fish possession limit and a 15-inch TL minimum fish size. However, some states did not implement these management measures until late in the season. Recreational landings exceeded the harvest limit by 5.07 million lb (2.30 million kg) in 1998.

The recreational harvest limit implemented in 1999 was 7.41 million lb (3.36 million kg). Although the harvest limit was the same as previous years, the Council and Board opted to modify the management system to allow states the flexibility to implement state-specific management measures. Specifically, the Council and Board adopted coastwide management measures of 8 fish possession limit, 15-inch TL minimum fish size, and an open season from May 29 to September 11. In addition, they gave the states the option of choosing the coastwide management measures or other combinations of management measures that would reduce their 1998 state-specific landings by 40%. As a result, states in New England opted for the coastwide measures

and the other states chose other alternatives including higher size limits and longer seasons.

The states used a form of conservation equivalency again in 2000 to achieve the coastwide harvest limit of 7.41 million lb (3.36 million kg). Specifically, the states were given the option of adopting state specific management measures or the coastwide measures of an 8-fish possession limit, a 15.5-inch minimum fish size, and an open season from May 10 through October 2. Coastwide management measures were based on number of fish landed and equated to a 41% reduction in landings relative to 1998 estimates. State specific measures also had to reduce landings by 41%. However, as in 1999, states from Massachusetts to New York opted for the coastwide management measures with other states choosing longer seasons and/or smaller size limits.

The 2001 season was complicated by the different TALs that were initially adopted by the Council and Board. Based on an emergency rule to comply with a court order, the Council recommended that the recreational harvest limit for 2001 be set at 7.16 million lb (3.25 million kg). However, the Board initially set the overall TAL higher and adopted a recreational harvest limit of 8.2 million lb (3.72 million kg) for 2001. The Commission later revised their TAL to the same level adopted by the Council. The Commission also adopted an addendum that required the states to develop recreational management measures to reduce landings by state-specific percentages based on average landings for 1998-2000, a 43% coastwide reduction, a base year of 1998, and a harvest limit of 7.16 million lb (3.25 million kg; Tables 16 and 17). Most states, with the exception of Massachusetts and New York, exceeded their targets in 2001. Coastwide landings exceeded the coastwide recreational harvest limit by 63% in 2001.

In 2001, the Council and Commission adopted, and NMFS approved, Framework 2 to the Summer Flounder, Scup, and Black Sea Bass FMP. This framework, which was first applied in 2002, implemented conservation equivalency as a management tool for the summer flounder recreational fishery and established a procedure to guide the Council and Board in developing recreational management measures for the upcoming year.

The framework established two possible ways that the Council and Commission could manage summer flounder in 2002. The first alternative was to develop coastwide management measures as was done from 1993 through 1998. Regulations would then be consistent from state to state and states would not have the flexibility to develop their own regulations. The other alternative was to implement regulations based on conservation equivalency for 2002. If conservation equivalency was adopted, the framework required that the Council and Board also adopt both a coastwide management measure as a non-preferred alternative and a precautionary default measure. Precautionary default measures are defined as measures that would achieve at least the overall required reduction in landings for each state.

The Council and Board adopted conservation equivalency for 2002. As a result, each state developed regulations to achieve a state-specific target (Table 18). In addition, the Council and Board adopted an 4-fish possession limit and 17-inch TL minimum fish size as a non-preferred, coastwide alternative and a 1-fish possession limit and 18-inch TL minimum fish size as a precautionary default measure. Almost all states were below their targets in 2002, some by significant amounts.

The Council and Commission used conservation equivalency to manage the summer flounder recreational fishery for 2003. As in 2002, each state developed regulations to achieve a state-specific target (Table 19). The Council and Commission also adopted a 4-fish possession limit and a 17-inch TL minimum fish size as a non-preferred, coastwide alternative and a one fish possession limit and 18-inch TL minimum fish size as a precautionary default measure. A comparison of the projected 2003 landings (based on waves 1-5) with the targets indicates that only the states of New York, New Jersey, and Connecticut will exceed their targets in 2003; New York by more than 100%, New Jersey by 9%, and Connecticut by 6% (Table 20).

5.1.2 Status of the Stock

The status of the summer flounder stock is evaluated annually. The summer flounder stock assessment was completed by the Northeast Fisheries Science Center (NEFSC) Southern Demersal Working Group in June 2003. The latest assessment indicates that the stock is not overfished and overfishing is not occurring relative to the Amendment 12 overfishing definitions. The fishing mortality rate estimated for 2002 is 0.23, a significant decline from the 1.32 estimated for 1994 and below the threshold F of 0.26. In addition, total stock biomass has increased substantially since 1991 to 124 million lb in 2002, 5% above the biomass threshold (117 million lb or 53.07 million kg). Spawning stock biomass has increased each year since 1993 to 93 million lb (42.18 million kg) in 2002, the highest value in the time series.

Year-class estimates indicate that the 1995 to 1999 year classes ranged from 30 to 39 million fish; the average for 1982 to 2001 is about 40 million. The 2000 and 2002 year classes were estimated to be about average and the 2001 year class was below average at 30 million fish.

5.1.3 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 to the Summer Flounder, Scup, and Black Sea Bass FMP. Additional information can be found in the 35th Stock Assessment Workshop (SAW-35; NEFSC 2002) documents. The following is taken from the “SAW Southern Demersal Working Group 2003 Advisory Report: Summer Flounder.”

“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; 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 the same as that in the 2002 SARC 35 VPA (NEFSC 2002). The uncertainty associated with the estimates of fishing mortality and stock biomass in 2002 was evaluated only with respect to research survey variability ."

"Fishing mortality calculated from the average of the currently fully recruited ages (3-5) has been high, varying between 0.9 and 2.1 during 1982-1997 (55%-82% exploitation), far in excess of the revised FMP Amendment 12 overfishing definition, $F_{threshold} = F_{target} = F_{max} = 0.26$ (21% exploitation). The fishing mortality rate has declined substantially since 1997 and was estimated to be 0.23 (18% exploitation) in 2002, the lowest observed in the 21-year VPA time series. There is an 80% probability that fishing mortality rate in 2002 was between 0.21 and 0.28. The estimate of F for 2002 may understate the actual fishing mortality; retrospective analysis shows that the current assessment method tends to underestimate recent fishing mortality rates (e.g., by about 40% over the last three years)."

"Total stock biomass has increased substantially since 1989, and in 2003 total stock biomass was estimated to be 56,100 mt, 5% above the current biomass threshold. There is an 80% chance that total stock biomass in 2003 was between 51,000 and 63,000 mt. The current biomass target (B_{MSY}) required to produce maximum sustainable yield (MSY=20,900 mt) is estimated to be B_{MSY} = 106,400 mt, and the current biomass threshold of one-half B_{MSY} = 53,200 mt."

"The arithmetic average recruitment from 1982 to 2002 is 40 million fish at age 0, with a median of 35 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 2002 year class is currently estimated to be about average at 38 million fish. There is no consistent retrospective pattern in the estimation of the abundance of age 0 fish over the last three years."

"Spawning stock biomass (SSB; Age 0+) declined 72% from 1983 to 1989 (18,800 mt to 5,200 mt), but has increased eight-fold, with improved recruitment and decreased fishing mortality, to 42,200 mt in 2002. 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 80% at ages 2 and older, and 19% at ages 5 and older. Under equilibrium conditions at F_{max}, about 85% of the spawning stock biomass would be expected to be ages 2 and older, with 50% at ages 5 and older."

5.1.4 Economic Environment

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 from Maine through North Carolina, indicates that summer flounder has increased in importance from 1991 to 2001, from a low of 3.8 million trips in 1992 to a high of 6.1 million trips in 2001. In 2002, the number of recreational fishing trips reported by anglers as targeting summer flounder decreased to 4.6 million. A detailed description of the economic aspects of the commercial and recreational fisheries for summer flounder was presented in section 3.3.1 of Amendment 13. Additional economic analysis regarding this fishery is presented in section 6.0 of the EA and in the Regulatory Impact Review/Initial Regulatory Flexibility Analysis (RIR/IRFA) section. Information regarding fishing trends is presented in section 4.3 of the RIR/IRFA.

5.2 Scup

Recreational catch and landings of scup have fluctuated since 1981. Recreational catch peaked in 1986 at 30.87 million fish and then declined to 2.67 million fish in 1998, the lowest value in the times series. Recreational landings peaked at 11.61 million lb (5.27 million kg) in 1986 and then trended downward to a low of 0.88 million lb (0.40 million kg) in 1998. In 2000, catch and landings increased significantly to 11.28 million fish and 5.44 million lb (2.47 million kg), respectively. Catch and landings dropped in 2002 to 7.58 million fish and 3.62 million lb (1.64 million kg), respectively. Based on 2002 landings by wave and 2003 data for waves 1-5, scup recreational landings for 2003 are projected to be 9.59 million lb (4.34 million kg).

5.2.1 Harvest Limits and Management Measures - A Review

The Council and Commission approved a recovery strategy that reduces overfishing on scup over a 7 year time frame. That recovery strategy called for minimum fish sizes and commercial gear regulations in 1996, year 1 of the plan. In 1996, the minimum size for the recreational fishery was 7-inch TL (Table 21). The minimum fish size was also 7-inch TL for each year from 1997 to 2000. Several states had larger minimum sizes (Massachusetts - 9-inch, Rhode Island - 9-inch, Connecticut - 8-inch) and maintained them for 1996-2000.

Beginning in 1997, recreational harvest limits were established to achieve the target exploitation rates. The harvest limit in 1997 was 1.947 million lb (0.88 million kg). Estimated landings in 1997 were 1.2 million lb (0.54 million kg) or about 0.74 million lb (0.34 million kg) less than the limit. Similarly, landings in 1998 were 0.875 million lb (0.40 million kg) or about 0.68 million lb (0.31 million kg) less than the limit of 1.553 million lb (0.70 million kg). In 1999, landings exceeded the harvest limit of 1.238 million lb (0.56 million kg) by 52% or about 650,000 lb (294,835 kg).

In 2000, the harvest limit was 1.238 million lb (0.56 million kg), the same limit adopted by the Council and Board for 1999. The Council and Board were presented with projected landings for 1999 that indicated landings would exceed this limit by 32%. In

response, they recommended a 50-fish possession limit with a coastwide minimum size of 7-inch TL and no closed season for 2000. Those management measures were rejected by NMFS as ineffective. In fact, MRFSS data indicated that such a limit would reduce landings by approximately 1% on a coastwide basis, based on 1999 recreational data. Although a coastwide possession limit was never implemented in the EEZ, some states did have a 50-fish possession limit in effect in 2000.

The harvest limit for 2001 was 1.76 million lb (0.80 million kg). At their meeting in December, 2000, the Council adopted coastwide management measures of a 50-fish possession limit, a 9-inch TL minimum size limit, and an open season from August 15 through October 31. The Board postponed their decision until early 2001 and decided to implement a system of conservation equivalency to reduce landings by 33% and allow for different regulations in each of the states (Table 22).

The various size, possession and seasonal limits did not constrain landings to the harvest limit in 2001. Landings for 2001 were 4.26 million lb (1.93 million kg) or about 2.50 million lb (1.13 million kg) more than the limit of 1.76 million lb (0.80 million kg).

The Council and Board met in December 2001 to recommend management measures to achieve the harvest limit of 2.71 million lb (1.23 million kg). The Council recommended that NMFS implement a 10-inch TL minimum fish size, a 50-fish possession limit and open seasons of January 1 through February 28, and July 1 through October 31. However, the Council's recommendation was rejected by NMFS and instead a 20-fish possession limit, a 10-inch TL minimum fish size, and open seasons of January 1 through February 28, and July 1 through October 2 was implemented. The regulations became effective on August 2, 2002.

In addition, the Board postponed action and prepared an addendum to allow states from Massachusetts through New York to develop state-specific management measures for 2002 (Table 23). The Board approved a 50-fish possession limit , a 10-inch TL minimum fish size, and an open season from July 1 through October 31. States from Delaware to North Carolina were allowed to retain their existing measures.

The combination of the 2001 Federal management measures that rolled over into 2002, the Federal management measures that went into place on August 2, and the unique management measures implemented by the states, did not constrain landings to the recreational harvest limit in 2002. The landings for 2002 were about 34% higher than the harvest limit. Massachusetts, was the only major state that had a 9-inch TL size limit in 2002.

The Council and Board met in December 2002 to recommend management measures to achieve the harvest limit of 4.01 million lb (1.81 million kg). The Council recommended that NMFS implement a 10-inch TL minimum fish size, a 50-fish possession limit and an open seasons from January 1 through February 28, and July 1 through November 30.

The Commission adopted Addendum 9 to manage the recreational fishery in state waters in 2003. State-specific allocations were derived and states developed state-specific management measures to achieve those limits (Table 24). The combination of state and Federal limits in 2003 did not constrain the fishery. In fact, all the state limits were exceeded and landings were about 6 million pounds more than the limit on a coastwide basis (Table 21).

5.2.2 Status of the Stock

The most recent assessment on scup was completed in June, 2002 (35th Stock Assessment Review Committee or 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. Biomass estimates are based on three year averages and the estimate for 2002 (3 yr average of 2001-2002-2003) is 3.31 kg/tow, or about 19 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.

However, the spring survey values dropped significantly in 2003. The 2003 index of 0.15 kg/tow was lower than the 2001 value of 0.54 kg/tow and much lower than 9.24 kg/tow, the index for 2002. A similar decline was evident in the winter trawl survey; the 2003 index is the second lowest in the series. Last year, the Council and Commission discussed the uncertainty associated with the spring survey estimate for 2002 and decided not to use it in setting the total allowable catch. In fact, 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.

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 (NEFSC 2000). 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 2002 value is about 3 percent of the 1997 value.

5.2.3 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships of scup are fully described in section 3.1.2 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Scup was last fully assessed at SAW-35 in 2002 (NEFSC 2002). As in previous assessment reviews, the 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-inch 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 (NEFSC 2002).

5.2.4 Economic 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. Additional economic analysis regarding this fishery is presented in section 6.0 of the EA and in the RIR/IRFA section. Information regarding fishing trends is presented in section 4.3 of the RIR/IRFA.

5.3 Black Sea Bass

Recreational catch and landings of black sea bass have fluctuated since 1981.

Recreational catches peaked in 1986 at 28.95 million fish and then fluctuated between 5.05 and 14.06 million fish from 1987 through 1999. Catches increased significantly in 2000 to 16.93 million fish and then dropped to 13.89 million fish in 2001. In 2002 the recreational catch of black sea bass was estimated at 14.70 million fish. Recreational landings peaked at 12.39 million lb (5.62 million kg) in 1986 and then fluctuated between 1.15 and 6.21 million lb (0.52 and 2.82 million kg) from 1987 through 1999. Landings were estimated at 3.99 million lb (1.80 million kg) in 2000 and dropped to 3.42 million lb in 2001 (1.55 million kg). In 2002 black sea bass landings were estimated at 4.35 million lb (1.97 million kg). Based on 2001 landings by wave and 2003 data for waves 1-4, black sea bass recreational landings for 2003 are projected to be 3.22 million lb (1.46 million kg) and recreational catches are projected to be 10.58 million fish.

5.3.1 Harvest Limits and Management Measures - A Review

The Council and the Commission approved a recovery strategy that reduces overfishing on black sea bass over an 8-year time frame. That recovery strategy called for minimum fish sizes and commercial gear regulations in 1996 and 1997, years 1 and 2 of the plan. In 1996, the minimum size for the recreational fishery was 9-inch TL (Table 25). However, the minimum fish size was only in place for the last couple of weeks of 1996. The minimum fish size remained at 9-inch TL in 1997.

The Council and Board approved a harvest limit of 3.148 million lb (1.43 million kg) for 1998. The management measures that were proposed to control landings were a 10-inch TL minimum size limit and a closure from August 1 through August 15. Some states implemented these regulations late or not at all in 1998. In addition, although the plan requires a coastwide possession, size, and/or seasonal limit, some states implemented alternative regulations in 1998. Landings in 1998 were 1.15 million lb (0.52 million kg).

The 1999 harvest limit was also 3.148 million lb (1.43 million kg). For 1999, the Council and Board adopted a 10-inch TL minimum size limit. The landings for 1999 were 1.67 million lb (0.76 million kg) or about 1.5 million lb (0.68 million kg) less than the limit.

The harvest limit remained at 3.148 million (1.43 million kg) for 2000 and the minimum size limit was 10-inch TL. Management measures differed by state with some states implementing a 20-fish possession limit (Massachusetts, Connecticut, and North Carolina) or a 50-fish possession limit (Virginia). The landings for 2000 exceeded the limit by approximately 840,000 lb (381,018 kg).

The harvest limit remained at 3.148 million lb (1.43 million kg) in 2001. The Council and Board adopted a 11-inch TL minimum size, a 25-fish possession limit and a closed season from March 1 through May 9 to control landings in 2001. In addition, Virginia adopted an alternative closed season, North Carolina had a lower size limit, and Massachusetts had 12-inch TL size limit and 20-fish possession limit (Table 26).

However, the combination of size, possession and seasonal limits failed to constrain landings to the harvest limit in 2001. Projected landings exceed the limit by about 0.5 million lb (0.23 million kg).

In contrast, the management measures implemented in 2002 did not constrain landings to the harvest limit. In most states, the possession limit was 25 fish combined with a size limit of 11.5-inch TL and an open season all year (Table 27). However, a closed season was in effect in the EEZ, i.e., management measures were complicated by the August implementation of the 2002 regulations by NMFS. Specifically, the 2001 regulations remained in effect until August 2, 2002. As a result, the fishery was closed in the EEZ until May 10, 2002.

The harvest limit for 2003 was 3.43 million lb (1.56 million kg). Most states adopted the Federal regulations of 25-fish per person possession limit, 12-inch TL minimum fish size, and an open seasons from January 1 to September 1, and September 16 to November 30 (Table 28).

5.3.2 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; NEFSC 1998). 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 2003. 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 2002 biomass index is 1.26 kg/tow (the three-year average for 2001-2003) or about 40% above the threshold (MAFMC 1998). Because of this value, the stock is no longer overfished.

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 1996. The index for 2002 of 0.799 kg/tow is the highest value in the time series (1968-2002) and the 2003 index of 0.493 is above average, 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.

Results for 2000 indicate a strong year class; the index is 2.782 no./tow, the highest in the time series. The 2002 year class was good. The index was about three times the average for the period and the fourth largest value since 1968.

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 2002 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, NEFSC 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 2002 decreased relative to the 1998 values; assuming a 48 percent rate for 1998, the exploitation rate in 2002 was 29 percent below the target exploitation rate of 37 percent.

5.3.3 Stock Characteristics and Ecological Relationships

The stock characteristics and ecological relationships are fully described in section 3.1.3 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. 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 (NEFSC 1998).

5.3.4 Economic 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. Additional economic analysis regarding this fishery is presented in section 6.0 of the EA and in the RIR/IRFA section. Information regarding fishing trends is presented in section 4.3 of the RIR/IRFA.

5.4 Marine Recreational Descriptive Statistics

In 1994, sportfishing surveys were conducted by NMFS in the Northeast Region (Maine to Virginia) to obtain demographic and economic information on marine recreational fishing participants from Maine to Virginia. Data from the surveys were then used to access socioeconomic characteristics of these participants, as well as to identify their marine recreational fishing preferences and their perceptions of current and prospective fishery management regulations. This information will be used in future stages of the

research to estimate statistical models of the demand for marine recreational fishing for eight important recreational species. The information that follows is excerpted and paraphrased from a preliminary report by Steinback *et al.* (1999).

"Marine recreational fishing is one of the most popular outdoor recreational activities in America. In 1992, the lowest level of participation during the last ten years, approximately 2.57 million residents of coastal states in the Northeast Region participated in marine recreational fishing in their own state. Participation increased approximately 5% in 1993 (2.7 million) and increased another 14% in 1994 (3.1 million), exceeding the ten-year average of 2.9 million. Although the total number of finfish caught in the Northeast Region has declined over the past ten years effort (trips) has remained relatively stable. An estimated 22.4 million fishing trips were taken in 1994, up from 19.3 million in 1993."

The following discussion contains demographic and socioeconomic characteristics of anglers, as well as their preferences, attitudes, and opinions, toward recreational fishing activities and regulations. There was little or no difference in mean age across subregions. "The largest proportion of anglers in both subregions were 36-45 years old (NE=28%, MA=25%). However, New England (NE) anglers were younger than Mid-Atlantic (MA) anglers. Results show that participation in marine recreational fishing increased with age, peaked between ages of 36 to 45, and subsequently declined thereafter. The resultant age distribution is similar to the findings of other marine recreational studies. However, the distribution is not reflective of the general population in these subregions. Bureau of the Census estimates indicate population peaks between the ages of 25 to 34 in both subregions, declines until the age of 64 and then increases substantially." The complete distribution of recreational anglers by age for both subregions is as follows: less than 18, 25.2% in NE and 25.6% in MA; between the ages of 18-24, 9.8% in NE and 9.7% in MA; between 25-34, 16.4% in NE and 17.0% in MA; between 35-44, 16.3% in NE and 16.2% in MA; between 45-54, 11.5% in NE and 11.8% in MA; between 55-64, 8.2% in NE and 8.4% in MA; and 65 and over, 12.6% in NE and 11.3% in MA. In this survey, anglers under the age of 16 were not interviewed and are not included in the analysis.

In both subregions, at least 88% of the anglers (age 25 and over) had obtained at least a high school degree (NE=91%, MA=88%). "While the educational background is similar across subregions, a greater portion of the anglers in New England earned college or post graduate/professional degrees (NE=29%, MA=23%). The shape of the educational distribution essentially mirrored the general population in both subregions. However, the average number of anglers without a high school degree was considerably lower than Bureau of the Census estimates (age 25 and over) for the general population. On the other hand, it appears that anglers in New England and the Mid-Atlantic earned less post graduate/professional degrees than Bureau of Census estimates."

When anglers were asked to describe their racial or ethnic origin, almost all of the

anglers interviewed in both subregions considered themselves to be white (NE=95%, MA=90%). "In the Mid-Atlantic, most of the remaining individuals were black (7%), leaving 3% to be of other ethnic origins. In New England, the remaining anglers were evenly distributed across other ethnic origins. The high occurrence of white fishermen is representative of the general population of the coastal states in New England. Approximately 94% of the population in 1993 was estimated to be white. However, in the Mid-Atlantic, the percentage of white anglers was considerable higher than Bureau of Census populations estimates, and the percentage of black fishermen was 12% lower."

When anglers were asked to indicate from a range of categories what their total annual household income was, only minor differences between subregions were found. "The largest percentage of household incomes fell between $30,001 and $45,000 for both subregions (NE=27%, MA=26%). In comparison to the general population, anglers' annual household incomes are relatively higher in both subregions...Results are consistent with previous studies which showed that angler household incomes are generally higher than the population estimates."

If it is assumed that "years fished" is a proxy for "experience," the survey data shows that anglers in New England are relatively less experienced than anglers in the Mid-Atlantic. The distribution of recreational anglers years of experience is as follows: 0-5 years of experience, 22% in NE and 16% in MA; 6-10 years of experience, 10% in NE and 10% in MA; 11-15 years of experience, 13% in NE and 14% in MA; 16-20 years of experience, 9% in NE and 9% in MA; 21-25 years of experience, 12% in NE and 12% in MA; 26-30 years of experience, 13% in NE and 12% in MA; and 30 or more years of experience, 21% NE and 26% in MA.

Survey results show that over 50% of the anglers in both subregions indicated boat ownership (NE=51%, MA=53%). These results were obtained when anglers were asked if anyone living in their household owns a boat that is used for recreational saltwater fishing.

Regarding the duration of the interviewed trip, "at least 80% of the anglers in both subregions indicated they were on a one-day fishing trip (NE=80%, MA=84%). One-day fishing trips were defined to be trips in which an angler departs and returns on the same day. Less than one fourth of the respondents indicated the day fishing was part of a longer trip which they spent at least one night away from their residence (NE=20%, MA=16%)."

"Respondents were asked why they chose to fish at the site they were interviewed... ‘Convenience’ and ‘better catch rates’ were the main reasons why anglers chose fishing sites in both subregions. Forty-nine percent of the anglers in New England and 57% of the anglers in the Mid-Atlantic indicated ‘convenience’ as either first or second reason for site choice. ‘Better catch rates’ was the first or second stated reason for site choice by 51% of the anglers in New England and 50% of the anglers in the Mid-Atlantic.

Other notable responses were ‘always go there,’ ‘boat ramp,’ ‘access to pier,’ and ‘scenic beauty.’...Results indicate that although anglers chose fishing sites for many different reasons, sites that offered good catch rates and were convenient attracted the most anglers."

Recreational anglers were asked to rate recreational fishing against their other outdoor activities during the last two months. Specifically, they were asked if fishing was their most important outdoor activity, their second most important outdoor activity, or only one of many outdoor activities? "Over 60% of the respondents in both subregions (NE=61%, MA=68%) reported marine recreational fishing was their most important outdoor activity during the past two months. Less than 30% in both subregions (NE=27%, MA=20%) said recreational fishing was only one of many outdoor activities.” This is consistent with national outdoor recreation surveys carried over the past three decades indicating that fishing is consistently one of the top outdoor recreational activities in terms of number of people who participate.

Recreational anglers ratings of reasons (7 preestablished reasons) for marine fishing are presented in Table 29. More than 65% of the anglers in both subregions said that it was very important to go marine fishing because it allowed them to: spend quality time with friends and family (NE=81%, MA=85%); enjoy nature and the outdoors (NE=89%, MA=87%); experience or challenge of sport fishing (NE=69%, MA=66%); and relax and escape from my daily routine (NE=83%, MA=86%). "The reasons that were rated as not important by the largest proportion of anglers consisted of: catch fish to eat (NE=42%), to be alone (NE=55%, MA=58%), and to fish in a tournament or when awards were available (NE=79%, MA=73%). In the Mid-Atlantic, although to catch fish to eat was rated as being somewhat important by the largest proportion of anglers (40%), approximately 31% felt that catching fish to eat was very important. However, in New England, only 20% concurred. It is clear from these responses that marine recreational fishing offers much more than just catching fish to anglers. Over 80% of the respondents in both subregions perceived recreational fishing as a time to spend with friends and family, a time to escape from their daily routine, and time to enjoy nature and outdoors. While catching fish to eat is somewhat important to anglers, findings of this survey generally concur with previous studies that found non-catch reasons are rated highly by almost all respondents while catch is very important for about a third and catching to eat fish is moderately important for about another third."

"The economic survey sought to solicit anglers opinions regarding four widely applied regulatory methods used to restrict total recreational catch of the species of fish for which they typically fish: (1) limits on the minimum size of the fish they can keep; (2) limits on the number of fish they can keep; (3) limits on the times of the year when they can keep the fish they catch; and (4) limits on the areas they fish. Anglers were asked whether or not they support or opposed the regulations." As indicated in Table 30, strong support existed for all regulatory methods in both subregions. Limits on the minimum size of fish anglers could keep generated the highest support in both regions (NE=93%, MA=93%), while limits on the area anglers can fish, although still high,

generated relatively lower support (NE=68%, MA=66%).

Regulations which limit the number of fish anglers can keep ranked second (NE=91%, MA=88%). The results from this solicitation indicate that recreational anglers in the Northeast Region appear to be conservation oriented and generally support regulations employed to restrict total catch. Not surprisingly, when analyzing anglers' opinions regarding the four widely applied regulatory methods, it was found that anglers in all modes indicated strong support for the regulatory measures. With minimum size limits generating the strongest support, followed by catch limits, seasonal closures, and lastly, area closures (Table 31). "Although party/charter, private/rental, and shore respondents did offer varying degrees of support for each of a selection of regulatory measures, similar support existed across all modes. Support was highest for common regulatory methods currently being implemented in New England and the Mid-Atlantic (e.g., size and bag limits), than for area and seasonal closures."

5.5 Vessel Trip Report (VTR) Data

Vessel Trip Report data (logbook data) has been collected by NMFS since 1994 for the recreational and commercial fisheries. In the recreational fishery, this data is collected from party/charter vessels that have permits to operate in Federal waters as required by the FMPs or amendments for Summer Flounder, Scup, Black Sea Bass, Northeast Multispecies, and Atlantic Mackerel, Butterfish, and Squids. VTR data was used to describe summer flounder, scup, and black sea bass catch disposition as well as contribution of these species to the total catch made by party/charter vessels for 1996 through 2001. VTR data for 1994 and 1995 was not used because reporting compliance was medium to low. Furthermore, neither year has been completely audited. As such, the VTR data for 1996 through 2001 is the most recent and complete data submitted by fishermen.

General trends in VTR data (1996-2001) for party/charter boats indicate that for all species combined, landings increased from a low of 3.38 million fish in 1996 to a high of 3.96 million fish in 2001. Summer flounder landings decreased from a high of 369,000 fish in 1997 to a low of 137,000 fish in 2001. Scup landings increased from a low of 252,000 fish in 1997 to a high of 954,000 fish in 2001. Black sea bass landing fluctuated between a high of 1.20 million fish in 1996 and a low of 471,000 fish in 1998. In 2001, 995,000 black sea bass were landed, representing an 8% decrease from 2000 (Table 32). General trends in VTR data indicate that the number of fish discarded by party/charter boats has increased overall since 1996. The number of fish discarded from 2000 to 2001, increased by 84% for scup, 8% for black sea bass, and 4% for all species combined (Table 32). However, the number of summer flounder discarded by party/charter boats decreased by 30% from 2000 to 2001.

Tables 13-15 detail the proportion of summer flounder, scup, and black sea bass to the total catch (by number) made by anglers on party/charter vessels for the combined years of 1996-2001. Summer flounder represented 12% of the total catch (by number)

for the 1996-2001 period (Table 13). The contribution of summer flounder to the total catch of party/charter vessels fluctuated throughout the year, ranging from 2% or less in January though April to 22% in July. The largest proportion of summer flounder was caught from May through September (Table 13). Analysis of the recreational landings by state indicates that the proportion of summer flounder in the total catch ranged from less than 1% to 27% for party/charter vessels by state (Table 13).

Vessel trip reporting data indicate that scup represented 11% of the total catch (by number) for the 1996-2001 period (Table 14). The contribution of scup to the total catch of party/charter vessels fluctuated throughout the year, ranging from 5% or less in January through May to 28% in October. The largest proportion of scup was caught from September through November (Table 14). Analysis of the recreational landings by state indicates that the proportion of scup in the total catch ranged from less than 1% to 25% for party/charter vessels by state (Table 14).

Vessel trip reporting data indicate that black sea bass represented 24% of the total catch (by number) for the 1996-2001 period (Table 15). The contribution of black sea bass to the total catch of party/charter vessels fluctuated throughout the year, ranging from 10% in January though April to 50% in November, with the largest proportion of black sea bass caught from May through December (Table 15). Analysis of the recreational landings by state indicates that the proportion of black sea bass to the total catch ranged from less than 1 to 61% for party/charter vessels by state (Table 15).

6.0 Analysis of Impacts on the Environment

This EA analyzes the impacts of the recreational management measures considered for the year 2004 specifications for summer flounder, scup, and black sea bass, relative to the status-quo measures for each species. The analyses of 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 were conducted under the 2004 Summer Flounder, Scup, and Black Sea Bass Specifications Package. The Council and Board met in December 2003 to adopt specific recreational management measures (i.e., bag limits, size limits, seasonal closures) for 2004. As stated in the FMP, the recreational specifications may alter the fishing season, minimum fish size, and the possession limit to achieve the recreational harvest limit. None of the preferred alternatives contain major changes to existing management programs. However the impact of each alternative is analyzed below.

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 to the Summer Flounder, Scup, and Black Sea Bass FMP (approved on March 4, 2003; 68 FR 10181).

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 to the Summer Flounder, Scup, and Black Sea Bass FMP. 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 Summer Flounder Alternatives

6.1.1 Alternative 1 - Conservation Equivalency (Status-Quo): Preferred Alternative

The preferred alternative for summer flounder is the status-quo alternative and would require states to use conservation equivalency to develop state-specific management measures in 2004. A full description of this alternative is presented in section 3.0 of the EA.

6.1.1.1 Biological Impacts

Projected landings for 2003 (based on waves 1-5) are 11.56 million lb (5.24 million kg) or 2.28 million lb (1.03 million kg) more than the limit of 9.28 million lb (4.21 million kg). A comparison of the projected 2003 landings with the targets indicates that only the states of New York, New Jersey, and Connecticut will exceed their targets in 2003 (Table 20). State-specific reductions associated with the 2004 coastwide recreational harvest limit of 11.21 million lb (5.08 million kg) are based on the number of fish landed in 1998, and the number of fish projected to have been landed in 2003 (Table 1). Assuming the same level of fishing effort in 2004, a 3% coastwide reduction in landings (pounds) would be required for summer flounder. However, under conservation equivalency, the only states that would be required to reduce landings (in number of fish) would be New York (48.5%) and New Jersey (1.30%).

Conservation equivalent recreational management measures would allow each state to develop specific recreational measures to allow the fishery to operate in each state during critical fishing periods while still achieving conservation goals. It is expected that state-specific management measures for summer flounder will constrain summer flounder landings to the recreational harvest limit in 2004. As such, there will be no biological impacts (positive or negative) as a result of this alternative.

A full description of the precautionary default measures (an 18-inch TL minimum fish size, a 1-fish per person possession limit, and no closed season) is presented in section

3.0 of the EA.

Specific states that fail to implement conservation equivalent measures as specified in Framework 2 to the Summer Flounder, Scup, and Black Sea Bass FMP would be required to implement precautionary default measures. Precautionary default measures are defined as measures that would achieve at least the overall required reduction in landings for each state. The precautionary default measures would reduce state specific landings from 41% to 88% (based on 2001 data; Table 4). The state specific reduction in landings associated with the precautionary default measures are likely to be substantially higher than the state reductions to be implemented via conservation equivalency. As such, it is expected that states will avoid the impacts of precautionary approach measures by establishing conservation equivalent management measures.

State-specific reductions associated with the 2004 coastwide recreational harvest limit of 11.21 million lb (5.08 million kg) are based on the number of fish landed in 1998, and the number of fish projected to have been landed in 2003 (Table 1). Assuming the same level of fishing effort in 2004, a 3% coastwide reduction in landings (pounds) would be required for summer flounder. The precautionary default measures could reduce recreational landings by 56% coastwide, assuming the measures are implemented by all states (Table 3). A 56% reduction in landings is not required to achieve the recreational harvest limit. It is expected that the precautionary default measures would reduce the recreational landings below the 2004 recreational harvest limit. Since this alternative is expected to result in a larger reduction in landings than needed in 2004, it has positive biological impacts.

6.1.1.2 Socioeconomic Impacts

Conservation equivalent recreational management measures would allow each state to develop specific recreational measures to allow the fishery to operate in each state during critical fishing periods while still achieving conservation goals. This would enable the summer flounder fishery to operate in a way that dissipates potential adverse economic effects in specific states. Table 33 details the proportion of summer flounder harvested in state and Federal waters. On average (1995-2001), approximately 92% of the harvested summer flounder (by number) came from state waters. The Board will either approve or disapprove each state's measures in February 2004 (Table 2). No quantitative analysis is provided here since the measures have yet to be adopted by the states.

There is very little information available to empirically estimate how sensitive the affected anglers might be to regulations implemented through conservation equivalency. It is possible that proposed management measures by states could restrict the recreational fishery (i.e., via a reduced possession limit, larger minimum fish size, or closed season) for 2004. However, due to lack of data, these effects cannot be quantified.

There is no data available at the port or community level that shows the dependence of the party/charter boat fishery, the private/rental boat fishery, or the shore fishery on summer flounder, scup, and black sea bass. However, for party/charter vessels, the largest number of permit holders for these species are located in Massachusetts, followed by New Jersey, and New York (section 4.3 of the 2004 Summer Flounder, Scup, and Black Sea Bass Specifications). Projected data from MRFSS indicate that anglers fished 34.66 million days in 2003 in the Northeast Region (Maine through North Carolina). Party/charter anglers comprised about 5% (1.66 million) of the angler fishing days in 2003, 51% (17.70 million) for private/rental mode, and 44% (15.31 million) for shore mode (Table 34).

A description by port of importance to the commercial summer flounder, scup, and black sea bass fisheries is presented in Amendment 13. In addition to this, demographic and economic information on marine recreational fishing participants by region is presented in section 5.4 of the EA. There is a distinction to be made between negative impacts to individuals and negative impacts to the larger communities. If the number of affected individuals in a community is large (i.e., large numbers of recreational anglers in a community), the degree of impacts on individuals and communities would be expected to be the same. However, where the number of recreational anglers in a community is proportionally small, the degree of impacts on individuals and communities would differ. In this situation, some individual fishermen and their families could find the final recreational management measures for 2004 to have significant impacts, whereas the larger communities and towns in which they live would not. The economic diversity of a community may enable a community to be sustained, although the recreational fishing sector might be adversely impacted. On the other hand, small, remote and less economically diverse communities that are more dependent upon recreational fishing are less likely to be sustained through restrictive regulations.

Even though, the proposed management measures could affect the demand for trips for summer flounder, it is not expected that it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. This is because recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (scup, black sea bass, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.), or fish within the new limits established by the 2004 regulations. Furthermore, this alternative would allow each state to develop specific recreational measures to allow the fishery to operate in each state during critical fishing periods while still achieving conservation goals. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure.

The Council and Board also must recommend precautionary default measures for Federal permit holders landing summer flounder in states that do not submit approved conservation equivalency measures. The precautionary default measures consist of an 18-inch TL minimum fish size, a 1-fish possession limit, and no closed season. The precautionary default measures result in a coastwide reduction in landings of 56%

(Table 3). State reductions ranging from 41% in Delaware to 88% in North Carolina could also occur (based on 2001 data; Table 4). The state-specific reduction in landings associated with the precautionary default measures are substantially higher than the state-specific reductions that are associated with conservation equivalency for most states (Tables 1 and 4). As such, it is expected that states will avoid the impacts of the precautionary default measures by establishing conservation equivalent measures. In other words, because states have a choice, it is more rational for the states to adopt the conservation equivalent measures that result in fewer adverse economic impacts than to adopt the much more restrictive precautionary default measures.

Impacted trips were defined as trips taken in 2003 that landed at least one summer flounder smaller than 18 inches TL or landed more than 1 summer flounder. The analysis concluded that the measure would affect 5.91% of the party/charter boat trips, 5.29% of the private/rental boat trips, and a 0.19% of the shore trips (Table 39).

It is likely that the potential effects on angler effort associated with the precautionary default measures would be greater than those associated with conservation equivalency or the coastwide measures. The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.1.1.3 Essential Fish Habitat Impacts

The environment in which these fisheries are prosecuted was described in Amendment 13, section 3.2.4. The fishery management unit for summer flounder is from Maine to the southern border of North Carolina. The analyses in Amendment 13 include the impacts of the overall management measures on stock health and abundance, spawning stock biomass, and protected species, as well as on the economy and affected fishermen. A brief description of the physical environment is resented in section 4.1 of the EA.

The measures in this alternative do not contain major changes to existing management measures. The FMP limits recreational specifications to minimum fish size, possession limit, and fishing season. The impacts of any changes in recreational harvest limit were analyzed in the EA for the 2004 quota specifications. The principal gear used in the recreational fishery for summer flounder is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse impacts because the gear does not alter bottom structure. As such, there will be no EFH impacts (positive or negative) as a result of this alternative compared to the no-action alternative (Alternative 2).

6.1.1.4 Impacts on Protected Resources

Numerous species of marine mammals and threatened or endangered species occur in the Northwest Atlantic Ocean. These species are described in detail in section 4.2 of

the EA. The impacts of the summer flounder, scup, and black sea bass recreational fisheries upon endangered and threatened species and marine mammal populations are also described in detail in Amendment 13. Recreational fisheries, in general, have very limited interactions with marine mammals and endangered or threatened species. However, recreational fishermen do contribute to difficulties for species of endangered and threatened marine life in that it is estimated that recreational fishermen discard over 227 million lb (103 million kg) of litter each year (O'Hara *et al*. 1988). More than nine million recreational vessels are registered in the United States. The greatest concentrations of recreational vessels in the United States are found in the waters off New York, New Jersey, the Chesapeake Bay, and Florida (O'Hara *et al*. 1988). Recreational fishermen are also a major source of debris in the form of monofilament fishing line. The amount of fishing line lost or discarded by the 17 million U.S. fishermen during an estimated 72 million fishing trips in 1986 is not known, but if the average angler snares or cuts loose only one yard of line per trip, the potential amount of deadly monofilament line is enough to stretch around the world (O'Hara *et al*. 1988). Although the recreational fishery may impact these marine species, nothing considered in this alternative, relative to the no-action alternative (Alternative 2), will have a significant impact on marine mammals and threatened or endangered species.

The measures in this alternative do not contain major changes to existing management measures. Changes in overall fishing effort as a result of changes in recreational harvest limits are unknown. Because the alternatives are not expected to cause large changes in fishing effort, it is concluded that this alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations. Therefore, any potential negative impacts on protected species associated with this alternative are expected to be negligible. EFH impacts (positive or negative) as a result of this alternative compared to the no-action alternative (Alternative 2) are not expected.

6.1.2 Alternative 2 - Coastwide Management Measures (No-Action): Non-Preferred

The summer flounder non-preferred alternative (coastwide management measures) adopted by the Council and Board was a 17-inch TL minimum fish size, an 4-fish per person possession limit, and no closed season for the 2004 recreational fishery. A full description of this alternative is presented in section 3.0 of the EA.

6.1.2.1 Biological Impacts

Based on 2003 MRFSS data for waves 1-5 (January through October), summer flounder recreational landings for 2003 are projected to be 11.56 million lb (5.24 million kg) or 2.28 million lb (1.03 million kg) more than the limit of 9.28 million lb (4.21 million kg). The recreational harvest limit for 2004 is 11.21 million lb (5.08 million kg).

A comparison of the projected 2003 landings with the targets indicates that only the states of New York, Connecticut, and New Jersey will exceed their targets in 2003; New

York by more than 100%, New Jersey by 9%, and Connecticut by 6% (Table 20). A preliminary review of the data by MRFSS personnel indicates that there are no errors in the data or estimates for either New York or New Jersey. Their review indicates that both the number of successful trips and the average number of fish landed significantly increased in both the party/charter and private/rental boat modes in those states (T. Sminkey, NMFS pers. com.). These increases account for the increase in the landings.

Angler catches and landings in 2003 may be explained by regulatory effects. Analysis of coastwide intercept data indicates that 90% of the trips landed less than 3 fish in 2003 based on data through wave 4 (Table 35). This compares to 90% of the trips landing 4 fish or less in 1992, the year before the fishery was regulated with possession limits (Table 36).

Landings were constrained by the various minimum size limits that were in effect in 2003 based on an analysis of length frequencies (Table 37). However, there was significant numbers of fish measured less than the size limit in some states. The percent of measured fish less than the specific size limit ranged from 5% (Maryland) to 58% (North Carolina).

Analysis of wave data suggests that some landings may have been affected by seasonal restrictions in 2003 (Table 38). Obviously, greater effects would be associated with seasonal closures in waves with a higher proportion of landings.

State-specific reductions associated with the 2004 coastwide recreational harvest limit of 11.21 million lb (5.08 million kg) are based on the number of fish landed in 1998, and the number of fish projected to have been landed in 2003 (Table 1). Assuming the same level of fishing effort in 2004, a 3% coastwide reduction in landings (pounds) would be required for summer flounder. This non-preferred coastwide alternative could reduce recreational landings by 11% coastwide, assuming the measures are implemented by all states (Table 3). A 11% reduction in landings is not required to achieve the recreational harvest limit. It is expected that the non-preferred coastwide alternative would reduce the recreational landings below the 2004 recreational harvest limit. Since this alternative is expected to result in a larger reduction in landings than needed in 2004, it has positive biological impacts.

6.1.2.2 Socioeconomic Impacts

The impacts of recreational management measures on the demand for trips and the social impacts of recreational measures on ports and communities described in section 6.1.1.2 of the EA also apply here.

Impacted trips were defined as trips taken in 2003 that landed at least one summer flounder smaller than 17 inches TL or landed more than 4 summer flounder. The analysis concluded that the measure would affect 1.13% of the party/charter boat trips, 1.13% of the private/rental boat trips, and a 0.01% of the shore trips (Table 39).

There is very little information available to empirically estimate how sensitive the affected anglers might be to the proposed fishing regulations. It is possible that the proposed management measures could restrict the recreational fishery for 2004 and cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size). However, due to lack of data, these effects cannot be quantified.

Although the proposed regulations may change the number and size of the fish that can be landed, they do not prohibit anglers from engaging in catch and release fishing. In addition, recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (scup, black sea bass, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.). Even though, the proposed management measures could affect the demand for trips for summer flounder, it is not expected that it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. Therefore the demand for fishing trips should remain relatively unaffected. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure. The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.1.2.3 Essential Fish Habitat Impacts

The EFH impacts under this alternative are similar to those described under section 6.1.1.3 of the EA.

6.1.2.4 Impacts on Protected Resources

The protected resources impacts under this alternative are similar to those described in section 6.1.1.4 of the EA.

6.2 Scup Alternatives

6.2.1 Alternative 1 - Coastwide Measure: Preferred

The preferred alternative for scup includes a coastwide 10-inch TL minimum fish size, a 50-fish per person possession limit, and open seasons of January 1 through February 29, and August 15 through November 30 for the 2004 recreational fishery. A full description of this alternative is presented in section 3.0 of the EA.

6.2.1.1 Biological Impacts

The 2004 specifications for scup implemented a recreational harvest limit identical to the recreational harvest limit implemented in 2003. However, due to differences in the research set aside established between those two time periods, the 2004 recreational harvest limit is 0.5% lower than the recreational harvest limit for 2003. The 2004

specifications for scup implement an adjusted recreational harvest limit of 3.99 million lb (1.80 million kg). The 2003 recreational scup landings are projected to be 9.59 million lb (4.34 million kg), 139% more than the 2003 recreational harvest limit. Assuming the same level of fishing effort in 2004, a 58% coastwide reduction in landings would be required for scup.

Possession and size limits will be used to constrain landings to the harvest limit in 2004. Potential reductions need to be adjusted to account for levels of effectiveness. It is improbable that a regulation will be 100% effective. In fact, analysis of catch and length frequencies indicate that anglers do exceed the possession limit and land scup smaller than the size limit (Table 40). In 2001, the Board, with the assistance of the Commission's Technical Committee, determined that an effective way to deal with this inefficiency was to remove fish less than the size limit or in excess of the possession limit from the data before constructing the table that is used to determine the reductions associated with the size/possession limit combinations. The adjusted table can then be used to guide recommendations on the appropriate limits for 2004 (Table 41).

Recreational limits act to constrain landings as the availability of fish increases. If availability is low, few anglers will be affected by the regulations and landings will be lower than the harvest limit. As availability of scup to anglers increases, as expected for 2004, constraints imposed by the limits increase, i.e., anglers are more constrained by a size limit when there is a good year class of scup produced and more constrained by a possession limit when the availability of larger fish is high. The most recent assessment indicates that the scup biomass increased in 2003 and is likely to increase again in 2004. Survey information also indicates that strong year classes were produced from 2000-2002. If the 2000, 2001, and 2002 year classes are large and mortality of undersized fish is reduced, substantial biomass could be added to the stock by 2004 and availability of legal-sized fish could increase. The correct management measures will allow anglers to land up to the harvest limit but not exceed the limit.

Analysis of length frequencies indicate that landings were constrained by the 10-inch TL size limit implemented in the states from Rhode Island to New Jersey. Massachusetts, was the only major state that had a 9-inch TL size limit in 2003. Coastwide, approximately 10.6% of the measured fish were less than 10-inch TL in the first four waves of 2003 (Table 40). In 2001, almost 20.2% of the measured fish were less than 10-inch TL.

Landing frequencies for the first four waves of 2003 indicate about 90% of the trips had 20 or less fish per trip with about 50% of the trips landing 4 or less scup (Table 42). As might be expected given the landing levels, anglers were much more successful in 2003 compared to 2002. In 2002, about 90% of the successful trips landed 8 or less scup per trip (Table 43).

If availability of scup increases as expected, the possession limit will act to control landings and will have more of an effect than the size limit. However, the possession

limit depends on the length of the closed season. For example, because a 10-inch TL minimum size limit combined with a 7-fish possession limit could reduce landings by 58%, a seasonal closure would not be required. However, maintaining the current 50-fish possession limit with the 10-inch TL minimum size limit, would require that a seasonal closure be implemented to further reduce landings.

Cumulative reductions associated with size/possession limits and seasonal closures are not additive, i.e., the total recreational reduction does not equate to the sum of the size/possession limit reduction and the seasonal closure reduction. To derive the cumulative effect, an approach similar to that used in other Commission FMPs is used. Specifically, the following equation is used:

$$\text{Total Reduction} = X + [(1-X)*Y]$$

where X=percent reduction associated with seasonal closures and Y=the percent reduction associated with the size/possession limit. In order to achieve a combined effect of 58% with a 50-fish possession limit and a 10-inch TL minimum fish size, the seasonal closure would have to be 51%.

The Council and Board voted to recommend a 10-inch TL minimum fish size, a 50-fish per person possession limit, and open seasons of January 1 through February 29, and August 15 through November 30, for 2004 scup recreational measures. When these management measures were presented at the Council meeting in December, Council and Board members were informed that these measures would achieve the required 58% reduction in recreational scup landings in 2004 assuming the measures are implemented by all states. However, after further analyses, council staff calculated that these management measures would reduce recreational scup landings by 48% in 2004 and not by 58% as previously thought (Tables 5 and 6a-b). However, the non-preferred management measures presented under Alternative 3 will achieve the needed 58% reduction in scup landings in 2004.

While these management measures do not constrain scup landings to the 2004 recreational harvest limit, they are expected to constrain landings more than the no-action or status-quo alternative (Alternative 2). Therefore, it results in positive biological impacts relative to that alternative.

6.2.1.2 Socioeconomic Impacts

The impacts of recreational management measures on the demand for trips and the social impacts of recreational measures on ports and communities described in section 6.1.1.2 of the EA also apply here.

Impacted trips were defined as trips taken in 2003 that landed at least one scup smaller than 10 inches TL, or landed more than 50 scup, or landed 1 scup during the closed season (March 1 through August 14, and December 1 through December 31). The

analysis concluded that the measure would affect 2.38% of the party/charter boat trips, 1.57% of the private/rental boat trips, and a 0.47% of the shore trips (Table 39).

There is very little information available to empirically estimate how sensitive the affected anglers might be to the proposed fishing regulations. It is possible that the proposed management measures could restrict the recreational fishery for 2004 and cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size, or closed season). However, due to lack of data, these effects cannot be quantified.

Although the proposed regulations may change the number and size of the fish that can be landed, they do not prohibit anglers from engaging in catch and release fishing. In addition, recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (summer flounder, black sea bass, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.). Even though, the proposed management measures could affect the demand for trips for scup, it is not expected that it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. Therefore the demand for fishing trips should remain relatively unaffected. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure.

It is likely that the potential effects on angler effort associated with this alternative would be greater than those associated with Alternative 2 (no-action alternative) because the reductions associated with the management measures under this alternative have a larger impact on angler effort compared to those under Alternative 2 (no-action alternative; Table 39). The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.2.1.3 Essential Fish Habitat Impacts

The environment in which these fisheries are prosecuted was described in Amendment 13, section 3.2.4. The fishery management unit for scup is from Maine to the Cape Hatteras, North Carolina. The analyses in Amendment 13 include the impacts of the overall management measures on stock health and abundance, spawning stock biomass, and protected species, as well as on the economy and affected fishermen. A brief description of the physical environment is resented in section 4.1 of the EA.

The measures in this alternative do not contain major changes to existing management measures. The FMP limits recreational specifications to minimum fish size, possession limit, and fishing season. The impacts of any changes in recreational harvest limit were analyzed in the EA for the 2004 quota specifications. The principal gear used in the recreational fishery for scup is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse impacts because the gear does not alter bottom structure. As such, there will be no EFH impacts (positive or negative) as a result of this alternative compared to the no-action alternative (Alternative 2).

6.2.1.4 Impacts on Protected Resources

Numerous species of marine mammals and threatened or endangered species occur in the Northwest Atlantic Ocean. These species are described in detail in section 4.2 of the EA. The impacts of the summer flounder, scup, and black sea bass recreational fisheries upon endangered and threatened species and marine mammal populations are also described in detail in Amendment 13. Recreational fisheries, in general, have very limited interactions with marine mammals and endangered or threatened species. However, recreational fishermen do contribute to difficulties for species of endangered and threatened marine life in that it is estimated that recreational fishermen discard over 227 million lb (103 million kg) of litter each year (O'Hara *et al*. 1988). More than nine million recreational vessels are registered in the United States. The greatest concentrations of recreational vessels in the United States are found in the waters off New York, New Jersey, the Chesapeake Bay, and Florida (O'Hara *et al*. 1988). Recreational fishermen are also a major source of debris in the form of monofilament fishing line. The amount of fishing line lost or discarded by the 17 million U.S. fishermen during an estimated 72 million fishing trips in 1986 is not known, but if the average angler snares or cuts loose only one yard of line per trip, the potential amount of deadly monofilament line is enough to stretch around the world (O'Hara *et al*. 1988). Although the recreational fishery may impact these marine species, nothing considered in this alternative, relative to the no-action alternative (Alternative 2), will have a significant impact on marine mammals and threatened or endangered species.

The measures in this alternative do not contain major changes to existing management measures. Changes in overall fishing effort as a result of changes in recreational harvest limits are unknown. Because the alternatives are not expected to cause large changes in fishing effort, it is concluded that this alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations. Therefore, any potential negative impacts on protected species associated with this alternative are expected to be negligible. EFH impacts (positive or negative) as a result of this alternative compared to the no-action alternative (Alternative 2) are not expected.

6.2.2 Alternative 2 - Coastwide Measure (No-Action/Status-Quo): Non-Preferred

Scup Non-Preferred Alternative 2 includes a coastwide 10-inch TL minimum fish size, 50-fish per person possession limit, and open seasons of January 1 through February 28, and July 1 through November 30 for the 2004 recreational fishery. This alternative is also the status-quo/no-action alternative. A full description of this alternative is presented in section 3.0 of the EA.

6.2.2.1 Biological Impacts

This is the alternative that was implemented by NMFS in the EEZ for the 2003 recreational fishing season. However, this alternative was not implemented by the

states. In 2003, the Board adopted conservation equivalency and the management alternatives that were implemented by the states did not constrain recreational landings to the harvest limit. The 2003 scup recreational landings are projected to be 9.59 million lb (4.34 million kg), while the recreational harvest limit for 2003 was 4.01 million lb (1.81 million kg). The 2004 specifications for scup implemented a recreational harvest limit identical to the recreational harvest limit implemented in 2003. However, due to differences in the research set aside established between those two time periods, the 2004 recreational harvest limit is 0.5% lower than the recreational harvest limit for 2003. As indicated in section 2.0 of the EA, an estimated 58% reduction in landings is necessary to achieve the 2004 recreational harvest limit.

The technical information regarding the role of recreational limits, recreational landings, and the effects of possession limits and size limits discussed in section 6.2.1.1 of the EA is also relevant to this section. Employing the formula presented in section 6.2.1.1 and using the reductions associated with the size/bag limits shown in Table 5 and seasonal closures shown in Tables 6a-b, this alternative could reduce scup recreational landings by 30% in 2004. Projected reductions are based the assumption that regulations would be implemented by all the states. These measures are not expected to constrain scup landings to the 2004 recreational harvest limit. As such, this alternative (no-action alternative) is expected to result in negative biological impacts.

6.2.2.2 Socioeconomic Impacts

The impacts of recreational management measures on the demand for trips and the social impacts of recreational measures on ports and communities described in section 6.1.1.2 of the EA also apply here.

Impacted trips were defined as trips taken in 2003 that landed at least one scup smaller than 10 inches TL, or landed more than 50 scup, or landed 1 scup during the closed season (March 1 through June 30, and December 1 through December 31). The analysis concluded that the measure would affect 1.20% of the party/charter boat trips, 0.57% of the private/rental boat trips, and a 0.10% of the shore trips (Table 39).

There is very little information available to empirically estimate how sensitive the affected anglers might be to the proposed fishing regulations. It is possible that the proposed management measures could restrict the recreational fishery for 2004 and cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size, or closed season). However, due to lack of data, these effects cannot be quantified.

Although the proposed regulations may constrain the number and size of the fish that can be landed, they do not prohibit anglers from engaging in catch and release fishing. In addition, recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (summer flounder, black sea bass, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.). Even though, the proposed management measures could affect the demand for trips for scup, it is not expected that

it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. Therefore the demand for fishing trips should remain relatively unaffected. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure.

This alternative evaluates the status-quo management measures for scup. Even though these are the same coastwide management measures that were in place in 2003, the analysis conducted indicates that there would be a small number of impacted trips in 2004 if these measure were implemented. This is likely due to the fact that not all states implemented these coastwide measures in 2003 and angler compliance was not 100%.

It is likely that the potential effects on angler effort associated with this alternative would be smaller than those associated with coastwide measures under Alternatives 1 (preferred) and 3 (non-preferred) because the reductions associated with the management measures under this alternative have a smaller impact on angler effort compared to those under Alternatives 1 and 3 (Table 39). The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.2.2.3 Essential Fish Habitat Impacts

The environment in which these fisheries are prosecuted was described in Amendment 13, section 3.2.4. The fishery management unit for scup is from Maine to the Cape Hatteras, North Carolina. The analyses in Amendment 13 include the impacts of the overall management measures on stock health and abundance, spawning stock biomass, and protected species, as well as on the economy and affected fishermen. A brief description of the physical environment is resented in section 4.1 of the EA.

The measures in this alternative do not contain major changes to existing management measures. The FMP limits recreational specifications to minimum fish size, possession limit, and fishing season. The impacts of any changes in recreational harvest limit were analyzed in the EA for the 2004 quota specifications. The principal gear used in the recreational fishery for scup is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse impacts to because the gear does not alter bottom structure.

6.2.2.4 Impacts on Protected Resources

Numerous species of marine mammals and threatened or endangered species occur in the Northwest Atlantic Ocean. These species are described in detail in section 4.2 of the EA. The impacts of the summer flounder, scup, and black sea bass recreational fisheries upon endangered and threatened species and marine mammal populations are also described in detail in Amendment 13. Recreational fisheries, in general, have

very limited interactions with marine mammals and endangered or threatened species. However, recreational fishermen do contribute to difficulties for species of endangered and threatened marine life in that it is estimated that recreational fishermen discard over 227 million lb (103 million kg) of litter each year (O'Hara *et al*. 1988). More than nine million recreational vessels are registered in the United States. The greatest concentrations of recreational vessels in the United States are found in the waters off New York, New Jersey, the Chesapeake Bay, and Florida (O'Hara *et al*. 1988). Recreational fishermen are also a major source of debris in the form of monofilament fishing line. The amount of fishing line lost or discarded by the 17 million U.S. fishermen during an estimated 72 million fishing trips in 1986 is not known, but if the average angler snares or cuts loose only one yard of line per trip, the potential amount of deadly monofilament line is enough to stretch around the world (O'Hara *et al*. 1988).

The measures in this alternative do not contain major changes to existing management measures. Changes in overall fishing effort as a result of changes in recreational harvest limits are unknown. Because the alternatives are not expected to cause large changes in fishing effort, it is concluded that this alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations. Therefore, any potential negative impacts on protected species associated with this alternative are expected to be negligible.

6.2.3 Alternative 3 - Coastwide Measure: Non-Preferred

Scup Non-Preferred Alternative 3 includes a coastwide 10-inch TL minimum fish size, 50-fish per person possession limit, and open seasons of January 1 through February 29, and September 8 through November 30 for the 2004 recreational fishery. A full description of this alternative is presented in section 3.0 of the EA.

6.2.3.1 Biological Impacts

The technical information regarding the role of recreational limits, recreational landings, and the effects of possession limits and size limits discussed in section 6.2.1.1 of the EA is also relevant to this section. Employing the formula presented in section 6.2.1.1 and using the reductions associated with the size/bag limits shown in Table 5 and seasonal closures shown in Tables 6a-b, this alternative could reduce scup recreational landings by 58% in 2004. Projected reductions are based the assumption that regulations would be implemented by all the states. Therefore, these measures are expected to constrain scup landings to the 2004 recreational harvest limit. As such, this alternative is expected to result in positive biological impacts relative to the no-action alternative (Alternative 2).

6.2.3.2 Socioeconomic Impacts

The impacts of recreational management measures on the demand for trips and the social impacts of recreational measures on ports and communities described in section

6.1.1.2 of the EA also apply here.

Impacted trips were defined as trips taken in 2003 that landed at least one scup smaller than 10 inches TL, or landed more than 50 scup, or landed 1 scup during the closed season (March 1 through September 7, and December 1 through December 31). The analysis concluded that the measure would affect 3.17% of the party/charter boat trips, 2.25% of the private/rental boat trips, and a 0.72% of the shore trips (Table 39).

There is very little information available to empirically estimate how sensitive the affected anglers might be to the proposed fishing regulations. It is possible that the proposed management measures could restrict the recreational fishery for 2004 and cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size, or closed season). However, due to lack of data, these effects cannot be quantified.

Although the proposed regulations may change the number and size of the fish that can be landed, they do not prohibit anglers from engaging in catch and release fishing. In addition, recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (summer flounder, black sea bass, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.). Even though, the proposed management measures could affect the demand for trips for scup, it is not expected that it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. Therefore the demand for fishing trips should remain relatively unaffected. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure.

It is likely that the potential effects on angler effort associated with this alternative would be greater than those associated with Alternatives 1 (preferred alternative) and 2 (no-action alternative) because the reductions associated with the management measures under this alternative have a larger impact on angler effort compared to those under Alternatives 1 and 2 (Table 39). The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.2.3.3 Essential Fish Habitat Impacts

The EFH impacts under this alternative are similar to those described under section 6.2.1.3 of the EA.

6.2.3.4 Impacts on Protected Resources

The protected resources impacts under this alternative are similar to those described in section 6.2.1.4 of the EA.

6.3 Black Sea Bass Alternatives

6.3.1 Alternative 1 - Coastwide Measure: Preferred

The preferred alternative for black sea bass includes a coastwide 12-inch TL minimum fish size, a 25-fish per person possession limit, and open seasons of January 1 through September 7, and September 22 through November 30 for the 2004 recreational fishery. A full description of this alternative is presented in section 3.0 of the EA.

6.3.1.1 Biological Impacts

The black sea bass landings in 2003 are projected to be 3.99 million lb (1.80 million kg) or about 0.56 million lb (0.25 million kg) above the recreational harvest limit established that year. This implies that the management measures in place for 2003 (minimum fish size, possession limit, and seasons) did not constrain landings to the harvest limit for 2003 (3.43 million lb or 1.56 million kg). However, since projected landings for 2003 are only slightly less than the 2004 recreational harvest level of 4.01 million lb (1.81 million kg), the Council and Board recommended to implement regulations in 2004 that were nearly identical to the regulations that were in place in 2003 with a slight modification to the dates associated with the opening and closure of the seasons. In order to constrain recreational black sea bass landings to the 2004 recreational harvest limit the Council and Board recommended a 12-inch TL minimum fish size, a 25-fish per person possession limit, and open seasons of January 1 through September 7, and September 22 through November 30.

Possession and size limits can be used to constrain landings to the harvest limit. However, potential reductions need be adjusted to account for levels of effectiveness. It is improbable that a regulation will be 100% effective. In 2001, the Board, with the assistance of the Commission's Technical Committee, determined that an effective way to deal with this inefficiency was to remove fish less than the size limit or in excess of the possession limit from the data before constructing the table used to determine the reductions associated with the size/possession limit combinations was constructed. The adjusted table can then be used to guide recommendations on the appropriate limits for 2003.

Recreational limits act to constrain landings as the availability of fish increases. If availability is low, few anglers will be affected by the regulations and landings will be lower than the harvest limit. As availability of black sea bass to anglers increases, as expected for 2004, constraints imposed by the limits increase, i.e., anglers are more constrained by a size limit when there is a good year class of black sea bass produced and more constrained by a possession limit when the availability of larger fish is high.

Landing frequencies for the first four waves of 2003 indicate that 90% of the trips landed 9 or less fish per trip with 50% of the successful trips landing between 1 and 2 black sea bass (Table 44). This compares to 2002 when 90% of the trips landed 11 or less black sea bass per trip (Table 45).

Analysis of length frequencies indicates that landings were constrained by the 12-inch TL size limit in the first four waves of 2003 (Table 46). A total of 9.5% of the measured

black sea bass was less than 12-inch TL in 2003 samples compared to 42.3% in 1996, the year before the 10-inch size limit was implemented.

Based on the NEFSC spring survey, stock size has increased in recent years and is likely to increase in 2004. In fact, the index for 2002 was the highest value in the time series, 1968-2003; the 2003 value was the third highest. Survey results indicate that the three-year moving average for 2001-2003 is 30% larger than the value for 2000-2002. In addition, the recruitment index for 2000 is the highest in the time series and it appears that the 2002 year class is also above average. The correct limits will allow anglers to land up to the harvest limit but not exceed the limit in 2004.

If availability of black sea bass increases as expected, the possession limit will act to control landings and will have more of an effect than the size limit. However, the size of the possession limit will depend on the length of the closed season. Cumulative reductions associated with size/possession limits and seasonal closures are not additive, i.e., the total recreational reduction does not equate to the sum of the size/possession limit reduction and the seasonal closure reduction. To derive the cumulative effect, an approach similar to that used in other Commission FMPs is used. Specifically, the following equation is used:

$$\text{Total Reduction} = X + [(1-X)*Y]$$

where X=percent reduction associated with seasonal closures and Y=the percent reduction associated with the size/possession limit.

This preferred black sea bass alternative contains the same minimum size and possession limits implemented in 2003. However, the seasonal component under this preferred alternative is slightly different from the seasonal component implemented in 2003 (see Non-Preferred Alternative 2 below). More specifically, under this preferred alternative the fishery is closed from September 8 through September 21 and from December 1 through December 31. However, in 2003 the fishery was closed from September 2 through September 15 and from December 1 through December 31. Therefore, under these two seasonal closures the fishery is closed during September (wave 5) and December (wave 6) for the same number of days (i.e., 14 days during September and 31 days in December). Since the value associated with closing one day per wave is the same across every day of that wave, the effectiveness of having the fishery closed during the two September periods discussed above is the same (Tables 7a-b). The Council and Board decided to slightly modify the seasonal component of the closure during September in order to allow for the fishery to stay open during labor day in 2004.

The management measures under this alternative are expected to constrain black sea bass landings to the 2004 recreational harvest limit based on the assumption that regulations would be implemented by all states. Since the management measures associated with this alternative and the no-action/status-quo (Alternative 2) are

expected to equally constrain black sea bass landings in 2004, there are no biological impacts (positive or negative) associated with this alternative when compared to the no-action alternative (Alternative 2).

6.3.1.2 Socioeconomic Impacts

The impacts of recreational management measures on the demand for trips and the social impacts of recreational measures on ports and communities described in section 6.1.1.2 of the EA also apply here.

Impacted trips were defined as trips taken in 2003 that landed at least one black sea bass smaller than 12 inches TL, or landed more than 25 black sea bass, or landed 1 black sea bass during the closed season (September 8 through September 21, and December 1 through December 31). The analysis concluded that the measure would affect 0.85% of the party/charter boat trips, 0.09% of the private/rental boat trips, and a 0.01% of the shore trips (Table 39).

There is very little information available to empirically estimate how sensitive the affected anglers might be to the proposed fishing regulations. It is possible that the proposed management measures could restrict the recreational fishery for 2004 and cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size, or closed season). However, due to lack of data, these effects cannot be quantified.

Although the proposed regulations may change the number and size of the fish that can be landed, they do not prohibit anglers from engaging in catch and release fishing. In addition, recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (summer flounder, scup, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.). Even though, the proposed management measures could affect the demand for trips for black sea bass, it is not expected that it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. Therefore the demand for fishing trips should remain relatively unaffected. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure.

As previously stated, the impact of the closed seasons under this alternative and Alternative 2 (no-action/status-quo) is the same (section 6.3.1.1 of the EA) because under each alternative the fishery is closed during September (wave 5) and December (wave 6) for the same number of days (i.e., 14 days during September and 31 days in December). Since the value associated with closing one day per wave is the same across every day of that wave, the effectiveness of having the fishery closed during the two September periods discussed above is the same (Tables 7a-b). However, the analysis on angler effort associated with these alternatives indicate that the potential impact associated with Alternative 1 would be slightly greater than those associated with Alternative 2 (no-action/status-quo alternative).

This inconsistency can be easily explained by looking at the data employed to conduct the analysis and the differences between the seasonal closures associated with each alternative. More specifically, under both alternatives, impacted trips were defined as trips taken in 2003 that landed at least one black sea bass smaller than 12 inches TL or landed more than 25 black sea bass. In addition, under Alternative 1, trips that landed 1 black sea bass during the closed season from September 8 through September 21, and December 1 through December 31 or landed 1 black sea bass during the closed season from September 2 through September 15, and December 1 through December 31 under Alternative 2 would also be impacted. When assessing the potential impacts of proposed management measures, 2003 MRFSS data was used. In 2003, the black sea bass fishery was closed from September 2 through September 15, and December 1 through December 31. Therefore, when the seasonal component under Alternative 1 is evaluated, the gains from keeping the fishery open from September 2 through September 7 are not captured in the analysis because the fishery was closed during that time period in 2003. Nevertheless, the impacts on effort under Alternative 1 are likely to be close to those under Alternative 2. The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.3.1.3 Essential Fish Habitat Impacts

The environment in which these fisheries are prosecuted was described in Amendment 13, section 3.2.4. The fishery management unit for black sea bass is from Maine to the Cape Hatteras, North Carolina. The analyses in Amendment 13 include the impacts of the overall management measures on stock health and abundance, spawning stock biomass, and protected species, as well as on the economy and affected fishermen. A brief description of the physical environment is resented in section 4.1 of the EA.

The measures in this alternative do not contain major changes to existing management measures. The FMP limits recreational specifications to minimum fish size, possession limit, and fishing season. The impacts of any changes in recreational harvest limit were analyzed in the EA for the 2004 quota specifications. The principal gear used in the recreational fishery for scup is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse impacts because the gear does not alter bottom structure. As such, there will be no EFH impacts (positive or negative) as a result of this alternative compared to the no-action alternative (Alternative 2).

6.3.1.4 Impacts on Protected Resources

Numerous species of marine mammals and threatened or endangered species occur in the Northwest Atlantic Ocean. These species are described in detail in section 4.2 of the EA. The impacts of the summer flounder, scup, and black sea bass recreational fisheries upon endangered and threatened species and marine mammal populations are also described in detail in Amendment 13. Recreational fisheries, in general, have

very limited interactions with marine mammals and endangered or threatened species. However, recreational fishermen do contribute to difficulties for species of endangered and threatened marine life in that it is estimated that recreational fishermen discard over 227 million lb (103 million kg) of litter each year (O'Hara *et al*. 1988). More than nine million recreational vessels are registered in the United States. The greatest concentrations of recreational vessels in the United States are found in the waters off New York, New Jersey, the Chesapeake Bay, and Florida (O'Hara *et al*. 1988). Recreational fishermen are also a major source of debris in the form of monofilament fishing line. The amount of fishing line lost or discarded by the 17 million U.S. fishermen during an estimated 72 million fishing trips in 1986 is not known, but if the average angler snares or cuts loose only one yard of line per trip, the potential amount of deadly monofilament line is enough to stretch around the world (O'Hara *et al*. 1988). Although the recreational fishery may impact these marine species, nothing considered in this alternative, relative to the no-action alternative (Alternative 2), will have a significant impact on marine mammals and threatened or endangered species.

The measures in this alternative do not contain major changes to existing management measures. Changes in overall fishing effort as a result of changes in recreational harvest limits are unknown. Because the alternatives are not expected to cause large changes in fishing effort, it is concluded that this alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations. Therefore, any potential negative impacts on protected species associated with this alternative are expected to be negligible. EFH impacts (positive or negative) as a result of this alternative compared to the no-action alternative (Alternative 2) are not expected.

6.3.2 Alternative 2 - Coastwide Measure (No-Action/Status-Quo): Non-Preferred

Black sea bass Non-Preferred Alternative 2 includes a coastwide 12-inch TL minimum fish size, 25-fish per person possession limit, and open seasons of January 1 through September 1, and September 16 through November 30 for the 2004 recreational fishery. This alternative is also the status-quo/no-action alternative. A full description of this alternative is presented in section 3.0 of the EA.

6.3.2.1 Biological Impacts

The technical information regarding the role of recreational limits, recreational landings, and the effects of possession limits and size limits discussed in section 6.3.1.1 of the EA is also relevant to this section.

The black sea bass landings in 2003 are projected to be 3.99 million lb (1.80 million kg) or about 0.56 million lb (0.25 million kg) above the recreational harvest limit established that year. This implies that the management measures in place for 2003 (minimum fish size, possession limit, and seasons) did not constrain landings to the harvest limit for 2003 (3.43 million lb or 1.56 million kg). However, these measures are projected to

constrain landings to 3.99 million lb (1.80 million kg) in 2003. Since projected landings for 2003 are only slightly less than the 2004 recreational harvest level of 4.01 million lb (1.81 million kg), it is expected that the management measures under this alternative would constrain recreational black sea bass landings to the 2004 recreational harvest limit.

6.3.2.2 Socioeconomic Impacts

The impacts of recreational management measures on the demand for trips and the social impacts of recreational measures on ports and communities described in section 6.1.1.2 of the EA also apply here.

Impacted trips were defined as trips taken in 2003 that landed at least one black sea bass smaller than 12 inches TL, or landed more than 25 black sea bass, or landed 1 black sea bass during the closed season (September 2 through September 15, and December 1 through December 31). The analysis concluded that the measure would affect 0.66% of the party/charter boat trips, 0.07% of the private/rental boat trips, and a 0.01% of the shore trips (Table 39).

There is very little information available to empirically estimate how sensitive the affected anglers might be to the proposed fishing regulations. It is possible that the proposed management measures could restrict the recreational fishery for 2004 and cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size, or closed season). However, due to lack of data, these effects cannot be quantified.

Although the proposed regulations may constrain the number and size of the fish that can be landed, they do not prohibit anglers from engaging in catch and release fishing. In addition, recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (summer flounder, scup, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.). Even though, the proposed management measures could affect the demand for trips for black sea bass, it is not expected that it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. Therefore the demand for fishing trips should remain relatively unaffected. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure.

This alternative evaluates the status-quo management measures for black sea bass. Even though these are the same coastwide management measures that were in place in 2003, the analysis conducted indicates that there would be a small number of impacted trips in 2004 if these measure were implemented. This is perhaps due to the fact that not all states implemented these coastwide measures in 2003 and angler compliance was not 100%. The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.3.2.3 Essential Fish Habitat Impacts

The environment in which these fisheries are prosecuted was described in Amendment 13, section 3.2.4. The fishery management unit for black sea bass is from Maine to the Cape Hatteras, North Carolina. The analyses in Amendment 13 include the impacts of the overall management measures on stock health and abundance, spawning stock biomass, and protected species, as well as on the economy and affected fishermen. A brief description of the physical environment is resented in section 4.1 of the EA.

The measures in this alternative do not contain major changes to existing management measures. The FMP limits recreational specifications to minimum fish size, possession limit, and fishing season. The impacts of any changes in recreational harvest limit were analyzed in the EA for the 2004 quota specifications. The principal gear used in the recreational fishery for scup is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse impacts because the gear does not alter bottom structure.

6.3.2.4 Impacts on Protected Resources

Numerous species of marine mammals and threatened or endangered species occur in the Northwest Atlantic Ocean. These species are described in detail in section 4.2 of the EA. The impacts of the summer flounder, scup, and black sea bass recreational fisheries upon endangered and threatened species and marine mammal populations are also described in detail in Amendment 13. Recreational fisheries, in general, have very limited interactions with marine mammals and endangered or threatened species. However, recreational fishermen do contribute to difficulties for species of endangered and threatened marine life in that it is estimated that recreational fishermen discard over 227 million lb (103 million kg) of litter each year (O'Hara *et al*. 1988). More than nine million recreational vessels are registered in the United States. The greatest concentrations of recreational vessels in the United States are found in the waters off New York, New Jersey, the Chesapeake Bay, and Florida (O'Hara *et al*. 1988). Recreational fishermen are also a major source of debris in the form of monofilament fishing line. The amount of fishing line lost or discarded by the 17 million U.S. fishermen during an estimated 72 million fishing trips in 1986 is not known, but if the average angler snares or cuts loose only one yard of line per trip, the potential amount of deadly monofilament line is enough to stretch around the world (O'Hara *et al*. 1988).

The measures in this alternative do not contain major changes to existing management measures. Changes in overall fishing effort as a result of changes in recreational harvest limits are unknown. Because the alternatives are not expected to cause large changes in fishing effort, it is concluded that this alternative will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations. Therefore, any potential negative impacts on protected species associated with this alternative are expected to be negligible.

6.3.3 Alternative 3 - Coastwide Measure (Monitoring Committee

Recommendation): Non-Preferred

Black sea bass Non-Preferred Alternative 3 includes a coastwide 12-inch TL minimum fish size, 20-fish per person possession limit, and open seasons of January 1 through December 31 for the 2004 recreational fishery. This non-preferred alternative was recommended to the Council by the Monitoring Committee. A full description of this alternative is presented in section 3.0 of the EA.

6.3.3.1 Biological Impacts

The black sea bass landings in 2003 are projected to be 3.99 million lb (1.80 million kg) or about 0.56 million lb (0.25 million kg) above the recreational harvest limit established that year. Since projected landings for 2003 are only slightly less than the 2004 recreational harvest level of 4.01 million lb (1.81 million kg), there is no reduction in landings necessary to achieve the 2004 recreational harvest limit.

The technical information regarding the role of recreational limits, recreational landings, and the effects of possession limits and size limits discussed in section 6.3.1.1 of the EA is also relevant to this section.

Employing the formula presented in section 6.3.1.1 and using the reductions associated with the size/bag limits shown in Table 8 and seasonal closures shown in Tables 7a-b, this alternative could reduce black sea bass recreational landings by 3% in 2004. Projected reductions are based the assumption that regulations would be implemented by all the states. These measures are expected to constrain black sea bass landings to the 2004 recreational harvest limit. In addition, since this alternative is expected to constrain landings more than the no-action alternative (Alternative 2), it is expected to result in positive biological impacts compared to that alterative.

6.3.3.2 Socioeconomic Impacts

The impacts of recreational management measures on the demand for trips and the social impacts of recreational measures on ports and communities described in section 6.1.1.2 of the EA also apply here.

Impacted trips were defined as trips taken in 2003 that landed at least one black sea bass smaller than 12 inches TL or landed more than 20 black sea bass. The analysis concluded that the measure would affect 1.42% of the party/charter boat trips, 0.02% of the private/rental boat trips, and <0.01% of the shore trips (Table 39).

There is very little information available to empirically estimate how sensitive the affected anglers might be to the proposed fishing regulations. It is possible that the proposed management measures could restrict the recreational fishery for 2004 and cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size). However, due to lack of data, these effects cannot be quantified.

Although the proposed regulations may change the number of the fish that can be landed, they do not prohibit anglers from engaging in catch and release fishing. In addition, recreational anglers may choose not to stop recreational fishing altogether, and may choose to fish for alternative species (summer flounder, scup, spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.). Even though, the proposed management measures could affect the demand for trips for black sea bass, it is not expected that it would affect in a negative way the overall number of recreational fishing trips in the North and Mid-Atlantic regions. Therefore the demand for fishing trips should remain relatively unaffected. As such, there should not be significant adverse impacts to ports and communities as a result of this management measure.

It is likely that the potential effects on angler effort associated with this alternative would be greater than those associated with Alternatives 1 (preferred alternative) and 2 (no-action alternative) because the reductions associated with the management measures under this alternative have a larger impact on angler effort compared to those under Alternatives 1 and 2 (Table 39). The economic impacts of the proposed measures under this and other alternatives are further discussed in section 6.4 of the EA.

6.3.3.3 Essential Fish Habitat Impacts

The EFH impacts under this alternative are similar to those described under section 6.3.1.3 of the EA.

6.3.3.4 Impacts on Protected Resources

The protected resources impacts under this alternative are similar to those described in section 6.2.1.4 of the EA.

6.4 Cumulative Impacts

A cumulative impact analysis is required by the Council on Environmental Quality's (CEQ) regulation for implementation of NEPA. Cumulative effects are defined under NEPA as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other action (40 CFR section 1508.7)." A formal cumulative impact assessment is not necessarily required as part of an Environmental Assessment under NEPA as long as the significance of cumulative impacts has been considered (U.S. EPA 1999). The following remarks address the significance of the expected cumulative impacts as they relate to the federally managed summer flounder, scup, and black sea bass fisheries.

The cumulative impacts of past, present, and future Federal fishery management actions (including the specification recommendations proposed in this document) should generally be positive. Although past fishery management actions to conserve and protect fisheries resources and habitats may have been more timely, the mandates of

the MSFCMA as currently amended by the SFA require the management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. It is, therefore, expected that under the current management regime, the totality of Federal fisheries management impacts to the environment will, in general, contribute toward improving the human environment.

To compensate for any overharvest, and to preserve the conservation intent of the management regime, the FMP under which summer flounder, scup, and black sea bass are managed 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 in the following year. 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. In addition, 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. 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 fishery 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. A detailed historical account of overages in these fisheries is presented below (see "historical account of overages" below).

Cumulative effects to the physical and biological dimensions of the environment may also come from non-fishing activities. Non-fishing activities, in this sense, relate to habitat loss from human interaction and alteration or natural disturbances. These activities are widespread and can have localized impacts to habitat such as accretion of sediments from at-sea disposal areas, oil and mineral resource exploration, and significant storm events. In addition to guidelines mandated by the MSFMCA, NMFS reviews these types of effects during the review process required by Section 404 of the Clean water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by Federal, state, and local authority. The jurisdiction of these activities is in "waters of the United States" and includes both riverine and marine habitats. A database which could facilitate documentation regarding cumulative impacts of non-fishing activities on the physical and biological habitat covered by the summer flounder, scup, and black sea bass management units is not available at this time. The development of a habitat and effect database would accelerate the review process and outline areas of increased disturbance. Inter-agency coordination would also prove beneficial.

The Council first considered the development of an FMP for summer flounder in late 1977. During the early discussions, the fact that a significant portion of the catch was taken from state waters was considered. As a result, on 17 March 1978 a questionnaire was sent by the Council to east coast state fishery administrators seeking comment on

whether the plan should be prepared by the Council or by the states acting through the Commission.

It was decided that the initial plan would be prepared by the Commission. The Council arranged for NMFS to make some of the Council's programmatic grant funds available to finance preparation of the Commission's plan. New Jersey was designated as the state with lead responsibility for the plan. The state/federal draft was adopted by the Commission at its annual meeting in October 1982. The original Council Summer Flounder FMP was based on the Commission's management plan. NMFS approved the original FMP on 19 September 1988.

Amendment 1 to the FMP was developed in the summer of 1990 solely to protect the 1989 and 1990 year classes by imposing a minimum net mesh size comparable to the 13-inch minimum fish size included in the original FMP. On 15 February 1991 the Council was notified that NMFS had approved the overfishing definition for summer flounder contained in Amendment 1, but had disapproved the minimum net mesh provision.

Amendment 2, which was fully implemented in 1993, was a comprehensive amendment designed to rebuild a severely depleted summer flounder stock. Amendment 2 was approved by NMFS on 6 August 1992. It contained a number of management measures to regulate the commercial and recreational fisheries for summer flounder. These included a rebuilding schedule, commercial quotas, recreational harvest limits, size limits, gear restrictions, and permit and reporting requirements. Amendment 2 also established the Summer Flounder Monitoring Committee, which meets annually to review the best available biological and fisheries data and make recommendations regarding the commercial quota, recreational harvest limit, and other management measures.

Amendment 3 to the Summer Flounder FMP was developed in response to fishermen's concerns that the demarcation line for the small mesh exempted fishery bisected Hudson Canyon and was difficult to enforce. Amendment 3 revised the Northeast exempted fishery line to 72°30.0'W. In addition, Amendment 3 increased the large mesh net threshold to 200 pounds during the winter fishery, 1 November to 30 April. Furthermore, Amendment 3 stipulated that otter trawl vessels fishing from 1 May through 31 October could only retain up to 100 pounds of summer flounder before using the large mesh net. Amendment 3 was approved by the Council on 21 January 1993 and submitted to NMFS on 16 February 1993.

Amendment 4 adjusted Connecticut's commercial landings of summer flounder and revised the state-specific shares of the coastwide commercial summer flounder quota as requested by The Commission. Amendment 5 allowed states to transfer or combine the commercial quota. Amendment 6 allowed multiple nets on board as long as they were properly stowed and changed the deadline for publishing the overall catch limits and commercial management measures to 15 October and the recreational

management measures to 15 February. Amendment 7 revised the fishing mortality rate reduction schedule for summer flounder.

The Council began the development of an FMP for black sea bass in 1978. Although preliminary work was done to support the development of an FMP, a plan was not completed. Work on an FMP began again in January, 1990 when the Council and the Commission began the development of an FMP for black sea bass. However, the development of a black sea bass plan was delayed through a series of amendments to the Summer Flounder FMP and work on a separate Black Sea Bass FMP was not resumed until 1993.

In 1996, NMFS requested that the black sea bass and scup regulations be incorporated into another FMP to reduce the number of separate fisheries regulations issued by the federal government. As a result, the Scup FMP and the Black Sea Bass FMP were incorporated into the summer flounder regulations as Amendment 8 and 9 (included EISs) to the Summer Flounder FMP, respectively. Amendment 8 established management measures for scup and Amendment 9 established a management program for black sea bass. Both of these were major amendments that implemented a number of management measures for scup and black sea bass including commercial quotas, commercial gear requirements, minimum size limits, recreational harvest limits, and permit and reporting requirements.

The Council was notified at a June, 1996 meeting that the Regional Director planned to disapprove the provision in Amendment 9 that would implement a state-by-state commercial quota. The official disapproval letter was dated July 16, 1996. In the letter, the Regional Director concluded that the state-by-state quota provision was not consistent with National Standard 7. Specifically, he stated that the provisions that apply to the area of north of Cape Hatteras, North Carolina would impose significant administrative and enforcement costs on NMFS and the state of North Carolina. The letter referenced the fact that Cape Hatteras separates two distinct stocks of black sea bass, a northern stock that would be managed by Amendment 9 regulations and a southern stock regulated by the Snapper/Grouper FMP. The disapproval letter stated that the amendment failed to address how a commercial quota that bifurcated the state of North Carolina and only applied to the northern stock of black sea bass would be implemented. Based on these comments, the Council voted to replace the state-by-state quota system with a coastwide quota allocated in quarterly periods over the year.

Amendment 10 made a number of changes to the summer flounder regulations implemented by Amendment 2 and later amendments to the Summer Flounder, Scup and Black Sea Bass FMP. Specifically this amendment modified the commercial minimum mesh regulations, continued the moratorium on entry of additional commercial vessels, removed provisions that pertain to the expiration of the moratorium permit, prohibited the transfer of summer flounder at sea, and established a special permit for party/charter vessels to allow the possession of summer flounder parts smaller than the minimum size.

Amendment 11, approved by NMFS in 1998, was implemented to achieve consistency among Mid-Atlantic and New England FMPs regarding vessel replacement and upgrade provisions, permit history transfer, splitting, and renewal regulations for fishing vessels issued Northeast Limited Access federal fishery permits.

Amendment 12 was developed to bring the Summer Flounder, Scup, and Black Sea Bass FMP into compliance with the new and revised National Standards and other required provisions of SFA. Specifically, the amendment revised the overfishing definitions (National Standard 1) for summer flounder, scup, and black sea bass and addressed the new and revised National Standards (National Standard 8 - consider effects on fishing communities; National Standard 9 - reduce bycatch; and National Standard 10 - promote safety at sea) relative to the existing management measures. The amendment also identified essential habitat for summer flounder, scup and black sea bass. In addition, Amendment 12 added a framework adjustment procedure that allows the Council to add or modify management measures through a streamlined public review process. Amendment 12 was partially approved on 28 April 1999.

Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP, which became effective March 31, 2003, established an annual (calendar year) coastwide quota to complement a state-by-state quota system adopted by the Commission for the commercial black sea bass fishery. This system replaces the quarterly quota allocation system previously in place (i.e., implemented in Amendment 9).

The cumulative impacts of this FMP were last fully addressed in the EIS for Amendment 13. All three species in the management units are managed primarily via annual quotas to control fishing mortality. This FMP requires a specifications process which allows for the review and modifications to management measures specified in the FMP on an annual basis which allows for review. In addition, as mentioned before the Council added a framework adjustment procedure in Amendment 12 which allows the Council to add or modify management measures through a streamlined public review process. As noted above, the cumulative impact of this FMP and annual specification process has been positive since its implementation after passage of the Magnuson Act. Summer flounder, scup, and black sea bass were overfished prior to management and the status of these fisheries have subsequently improved. For example, the summer flounder stock is at record levels and the resource is no longer overfished and overfishing is not occurring. The robust recovery of the summer flounder stock is a direct reflection of the positive impacts that the management measures have had on the resource. The most recent scup assessment indicates that the scup fishery is no longer overfished and that relative exploitation rates have shown a downward trend since the late 1990s. Finally, the black sea bass stock is no longer considered overfished and the stock continues to recover.

Through development of the FMP and the subsequent annual specification process, the Council continues to manage these resources in accordance with the National Standards required under the Magnuson-Stevens Act. First and foremost the Council

has met the obligations of National Standard 1 by adopting and implementing conservation and management measures that have prevented overfishing, while achieving, on a continuing basis, the optimum yield for the three species and the United States fishing industry. The Council uses the best scientific information available (National Standard 2) and manages these three resources throughout their range (National Standard 3). The management measures do not discriminate between residents of different states (National Standard 4), they do not have economic allocation as its sole purpose (National Standard 5), the measures account for variations in fisheries (National Standard 6), avoid unnecessary duplication (National Standard 7), they take into account the fishing communities (National Standard 8) and promote safety at sea (National Standard 10). Finally, the management measures are consistent with National Standard 9, which addresses bycatch in fisheries. Amendment 13 fully addresses how the management measures implemented to successfully manage these three species comply with the National Standards. Amendment 13 also addresses the fishing gear impacts to essential fish habitat. The Council has implemented many regulations, that have indirectly acted to reduce fishing gear impacts on EFH.

By continuing to meet the National Standards requirements of the Magnuson-Stevens Act through future FMP Amendments and actions, the Council will insure that cumulative impacts of these actions will remain overwhelmingly positive for the ports and communities that depend on these fisheries, the Nation as a whole, and certainly for the resources.

The cumulative effects of the proposed quotas will be examined for the following five areas: targeted species, non-targeted species, protected species, habitat, and socioeconomic.

Targeted species

First and foremost with these three species, the Council has met the obligations of National Standard 1 by adopting and implementing conservation and management measures that have prevented overfishing, while achieving, on a continuing basis, the optimum yield for the three species and the United States fishing industry. Summer flounder, scup, and black sea bass were overfished prior to management and the status of these fisheries have subsequently improved. For example, the summer flounder stock is at record levels and the resource is no longer overfished and overfishing is not occurring. The robust recovery of the summer flounder stock is a direct reflection of the positive impacts that the management measures have had on the resource. The most recent scup assessment indicates that the scup fishery is no longer overfished and that relative exploitation rates have shown a downward trend since the late 1990s. Finally, the black sea bass stock is no longer considered overfished and the stock continues to recover.

The Council manages these three species only in the EEZ. Any anthropogenic activities in the EEZ that did not consider these three species could impact their populations

locally. However, these activities are not quantifiable at present. The Council has commented on anthropogenic projects such as beach replenishment and ocean dumping in the past while raising concerns for the local health of summer flounder, scup, and black sea bass. Since these three species occur over wide areas of the mid and north Atlantic, it is unlikely that any anthropogenic activity could currently significantly impact either population on more than simply a local level.

Non-targeted species or bycatch

National Standard 9 addresses bycatch in fisheries. This National Standard requires Councils to consider the bycatch effects of existing and planned conservation and management measures. Bycatch can, in two ways, impede efforts to protect marine ecosystems and achieve sustainable fisheries and the full benefits they can provide to the Nation. First, bycatch can increase substantially the uncertainty concerning total fishing-related mortality, which makes it more difficult to assess the status of stocks, to set the appropriate optimal yield (OY) and define overfishing levels, and to ensure that OYs are attained and overfishing levels are not exceeded. Second, bycatch may also preclude other more productive uses of fishery resources.

The term "bycatch" means fish that are harvested in a fishery, but that are not sold or kept for personal use. Bycatch includes the discard of whole fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality). Bycatch does not include any fish that legally are retained in a fishery and kept for personal, tribal, or cultural use, or that enter commerce through sale, barter, or trade. Bycatch does not include fish released alive under a recreational catch-and-release fishery management program. A catch-and-release fishery management program is one in which the retention of a particular species is prohibited. In such a program, those fish released alive would not be considered bycatch.

There is a significant recreational fisheries for summer flounder, scup, and black sea bass. A high portion of the summer flounder, scup, and black sea bass that are caught are released after capture. It is estimated that 10%, 15%, and 25% of the summer flounder, scup, and black sea bass that are caught and released by anglers die after release, i.e, the majority of the fish are released alive and are expected to survive after release. The fish that survive are not defined as bycatch under the SFA. The Council and Commission believe that information and education programs relative to proper catch and release techniques for summer flounder, scup, black sea bass and other species caught by recreational fishermen should help to maximize the number of these species released alive.

Current recreational management measures could effect the discards of summer flounder, scup, and black sea bass. These measures include a possession limit, size limit, and season. The effects of the possession limit would be greatest at small limits and be progressively less at higher limits. The size limit would have similar effects but

the level of discarding will be dependent upon the levels of incoming recruitment and subsequent abundance of small fish. Seasonal effects would differ depending on the length of the season and the amount of summer flounder, scup, and black sea bass caught while targeting other species.

Minimum size limits, bag limits and seasons have proven to be effective management tools in controlling fishing mortality in the recreational fishery. A notable example is the recent success in the management of the Atlantic coast striped bass fishery. The recreational striped bass fishery is managed principally through the use of minimum size limits, bag limits and seasons. When these measures were first implemented, release rates in the recreational striped bass fishery exceeded 90%. However, the quick and sustained recovery of the striped bass stock after implementation of these measures provides evidence of their effectiveness in controlling fishing mortality in recreational fisheries.

The Council and Commission can currently implement annual changes in commercial and recreational management measures in response to changes in fishermen behavior or an increased level of discards, through the annual specifications process. The framework adjustment procedure implemented in Amendment 12 can be used to allow the Council and Commission to respond quickly to changes in the fishery through the implementation of new management measures or the modification of existing measures.

None of the proposed management measures would have any significant effect on non-target species by itself, or in conjunction with other anthropogenic activities.

Protected resources

There are numerous species which inhabit the environment within the management unit of this FMP that are afforded protection under the ESA of 1973 (i.e., for those designated as threatened or endangered) and/or the MMPA of 1972. Fifteen are classified as endangered or threatened under the ESA, while the remainder are protected by the provisions of the MMPA. The Council examined the list (section 4.2 of the EA) of species protected either by the ESA, the MMPA, or the Migratory Bird Act of 1918 that may be found in the environment utilized by the summer flounder, scup, and black sea bass fisheries.

The impacts of the summer flounder, scup, and black sea bass recreational fisheries upon endangered and threatened species and marine mammal populations are also described in detail in Amendment 13. As described in section 6.0 of the EA, recreational fisheries, in general, have very limited interactions with marine mammals and endangered or threatened species. However, recreational fishermen do contribute to difficulties for species of endangered and threatened marine life in that it is estimated that recreational fishermen discard over 227 million lb (103 million kg) of litter each year (O'Hara *et al*. 1988). More than nine million recreational vessels are registered in the United States. The greatest concentrations of recreational vessels in the United States

are found in the waters off New York, New Jersey, the Chesapeake Bay, and Florida (O'Hara *et al*. 1988). Recreational fishermen are also a major source of debris in the form of monofilament fishing line. The amount of fishing line lost or discarded by the 17 million U.S. fishermen during an estimated 72 million fishing trips in 1986 is not known, but if the average angler snares or cuts loose only one yard of line per trip, the potential amount of deadly monofilament line is enough to stretch around the world (O'Hara *et al*. 1988).

Changes in overall fishing effort as a result of changes in recreational harvest limits are unknown. However, because the alternatives discussed in this document are not expected to cause large changes in fishing effort, it is concluded that they will not affect endangered and threatened species or critical habitat in any manner not considered in prior consultations. None of the proposed quotas or other management measures would have any significant effect on protected resources by itself, or in conjunction with other anthropogenic activities.

Habitat

The environment in which these fisheries are prosecuted was described in Amendment 13, section 3.2.4. The fishery management unit for summer flounder is from Maine to the southern border of North Carolina and from Maine to the Cape Hatteras, North Carolina for scup and black sea bass. A brief description of the physical environment is presented in section 4.1 of the EA.

The principal gear used in the recreational fishery for summer flounder is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse impacts to EFH because the gear does not alter bottom structure. The measures in this specifications document do not contain major changes to existing management measures and are not expected to result in changes in fishing effort. None of the proposed quotas or other management measures would have any significant effect on habitat by itself, or in conjunction with other anthropogenic activities.

Socioeconomic

Although the management measures established by the Council for summer flounder, scup, and black sea bass are implemented on a species-by-species basis to examine the overall impacts of the proposed actions, the measures must be considered simultaneously. Thus, an evaluation of the potential combinations of alternatives across species is provided in this section. This evaluation contains an assessment of the total number of projected recreational fishing trips, by mode, that would be affected from implementation of all combinations of proposed management measures. In addition, the potential short-run reduction in reduced angler expenditures and associated regional losses (sales, income, and employment) to businesses that supply goods and services to saltwater fishermen was explored for all potential management combinations of

alternatives.

Projected data from Marine Recreational Fisheries Statistics Survey (MRFSS) indicate that 34,663,731 fishing trips were taken in the Northeast Region (Maine-North Carolina) in 2003. It is estimated that the number of trips by fishing mode was 1,657,523 party/charter boat trips, 17,698,585 private/rental boat trips, and 15,307,623 shore trips (Table 34).

Affected Effort

Assuming angler effort in 2004 will be the same as that estimated for 2003, fishing impacts were examined by estimating the number of recreational fishing trips in 2003 that would have been affected by the 2004 management measures proposed for all three species. All 2003 fishing trips that would have been constrained by the proposed 2004 measures in the Northeast Region were considered to be "affected" trips. To date, the first five waves of MRFSS effort data are available for 2003 (January - October). Wave six effort estimates for 2002 (November - December) were used as a proxy for 2003 effort.

Of the potential 18 combinations of alternatives across species that could be analyzed, the measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 2 (when considered together), were estimated to effect the fewest number of party/charter boat trips in the Northeast Region (49,603; Table 47). For private/rental boat trips and shore trips, the combination of measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 3, were estimated to have the lowest overall effect on fishing effort. However, since the management measures under summer flounder Alternative 1 (i.e., conservation equivalency) have yet to be adopted the effort effects of this alternative could not be analyzed in conjunction with the alternatives proposed for scup and black sea bass. Since conservation equivalency allows each state to tailor specific recreational fishing measures to the needs of their state, while still achieving conservation goals, it is likely that the measures developed under summer flounder Alternative 1 when considered in combination with the measures proposed for scup and black sea bass would have lower overall adverse effects on fishing effort than any of the combinations that could be analyzed.

The percent of total party/charter boat trips in the Northeast Region that were estimated to be affected by the proposed actions ranged from a low of 2.99% for the combination of measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 2 to 10.49% for the precautionary default measures for summer flounder combined with the measures proposed under scup Alternative 3 and black sea bass Alternative 3 (Table 47). Affected private/rental effort ranged from a low of 1.72% of total private/rental trips for the combination of measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 3 to 7.63% of total private/rental effort for the precautionary default measures for summer

flounder combined with scup Alternative 3 and black sea bass Alternative 1. Finally, estimated affected shore fishing trips ranged from a low of 0.11% of total shore trips for summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 3 to 0.93% for the precautionary default measures for summer flounder combined with the combination of measures proposed for scup Alternative 3 and black sea bass Alternative 1.

Unfortunately, no empirical information is available to determine how sensitive the affected anglers might be to the proposed regulations. In other words, it's not possible to determine how the affected anglers will respond to the new regulations. Will the affected anglers trip taking behavior remain unchanged, or will the management measures result in anglers taking fewer recreational fishing trips - or no recreational trips at all if suitable alternative target species are unavailable? Although the potential changes in trip taking behavior cannot be quantified, given the marginal changes in management measures from 2003 to those proposed for 2004, and the fact that the proposed measures do not prohibit anglers from engaging in catch and release fishing, the demand for fishing trips should remain relatively unaffected. Nevertheless, to the extent that the affected anglers do take fewer trips economic losses may accrue to businesses that support marine recreational activities. The next section describes the procedures used to estimate the potential losses to these supporting businesses.

Short-term regional economic impacts

An input-output model was employed to assess the potential economic losses (sales, income, and employment) associated with implementation of all combinations of the proposed management alternatives to businesses that support marine recreational fishing activities in the Northeast Region. Reductions in sales, income, and employment could occur in the Northeast Region if the affected anglers reduce fishing effort, and hence, expenditures, in response to the new regulations. Since it is unknown how anglers' trip taking behavior will change upon implementation of the proposed regulations, economic losses were estimated for two hypothetical scenarios: (1) a 25% reduction in the number of fishing trips that are predicted to be affected by implementation of the management measures in the Northeast Region; and (2) a 50% reduction in the number of fishing trips that are predicted to be affected in the Northeast Region.

Reductions in anglers' trip-related purchases will have a direct effect on the sales, income, and employment of businesses that supply goods and services to saltwater fishermen. Businesses providing these goods and services must also purchase goods and services and hire employees, which in turn, will affect the sales, income, and employment of many additional businesses.

Three levels of economic impacts result from purchases by saltwater fishermen: (1) direct, (2) indirect, and (3) induced. Direct effects occur when anglers spend money at retail and service oriented fishing businesses (e.g., purchases of ice at convenience

stores or access fees paid to owners of for-hire vessels). Indirect effects occur as the retail and service sectors purchase fishing supplies from wholesale trade businesses and manufacturers, and pay operating expenditures (e.g., the retailer must purchase fishing rods from the manufacturer or wholesaler and pay electric bills). These secondary industries must then, in turn, purchase additional supplies and this cycle of industry to industry purchasing continues until the amount remaining within the region of interest is negligible. Finally, induced effects result when employees of the direct and indirect sectors make purchases from retailers and service establishments in the normal course of household consumption (e.g., convenience store employees spend money on groceries and pay federal and state taxes). The summation of direct, indirect, and induced effects are total effects.

Data and Methods

Input-output (I/O) analysis is the most common approach available for determining the direct, indirect, and induced effects associated with an overall change in economic activity in a particular region. For the analysis presented here, a ready-made regional I/O modeling system called IMPLAN Pro (Impact Analysis for Planning) was used to determine the economic losses associated with the hypothetical reductions in fishing trips under all 18 potential combinations of alternatives. The IMPLAN Pro system is a widely used, nationally recognized tool, that provides detailed purchasing information for 528 industrial sectors and a user-friendly media for customizing input-output models to specific applications (Minnesota IMPLAN Group, Inc. 1997).

Angler expenditures in the Northeast Region by state and mode for marine fishing were obtained from Steinback and Gentner (2001). These expenditure data were produced from extensive surveys of marine recreational fishermen in the Northeast Region in 1998 (Table 48). The surveys were conducted as part of the MRFSS. Average fishing trip expenditures were provided for each state and mode of fishing (i.e., private boat, party/charter, and shore) in the Northeast region in 1998. Trip-related expenditure categories shown in the report included food, lodging, travel costs, boat fuel, party/charter fees, access or boat launching fees, equipment rental, bait, and ice. In addition to trip-related expenditures, Steinback and Gentner (2001) also estimated anglers' expenditures for semi-durable items (e.g., rods, reels, lines, clothing, etc.) and durable goods (e.g., motor boats, vehicles, etc.). However, expenditures for these items are not likely to change after implementation of the proposed regulations since semi-durable and durable items can be used for many fishing trips. Thus, in the analysis presented here, it is assumed that the proposed management measures will only affect anglers' trip-related expenditures.

The economic losses associated with reductions in angler expenditures were estimated by applying the product of the estimated number of affected trips and the average trip expenditure estimates from Steinback and Gentner (2001) to the appropriate IMPLAN sector multipliers in each state. The multipliers measure the direct, indirect, and induced relationships between industries and households. Input-output models require

all values to be in producer prices (manufacturer prices) so each of the angler expenditure categories was associated with its corresponding IMPLAN producing sector. In IMPLAN, margins are used to convert the retail-level prices paid by anglers into the appropriate producer values. Margins ensure that the correct value is assigned to products as they move from producers, to wholesalers, through the transportation sectors, and finally on to retail establishments.

Economic losses were estimated for sales, income, and employment. Sales reflect the aggregate reductions in total dollar sales generated from expenditures by anglers in the Northeast Region. Income represents the aggregate reductions in wages, salaries, benefits, and proprietary income generated from angler expenditures across the coastal states in the Northeast Region. Employment includes both full-time and part-time workers and is expressed as aggregate reductions in total jobs across states.

Results

The projected economic losses in the Northeast Region associated with the hypothetical reductions in affected marine recreational fishing trips are shown in Table's 49 (assumes a 25% reduction in affected trips) and 50 (assumes a 50% reduction in affected trips). In total, the combinations of measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 2 result in the lowest sales, income, and employment losses to the Northeast Region because this combination of alternatives is projected to affect the fewest total fishing trips. A 25 % reduction in fishing trips projected to be affected by this combination of alternatives results in a total loss of $5.735 million in sales, $2.202 million in income, and about 76 jobs in the coastal states of the Northeast Region (Table 49). The estimated losses are approximately twice as high if a 50% reduction in affected trips is assumed to occur (Table 50). For the private/rental and shore modes, however, the combinations of measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 3 would result in slightly lower losses than the aforementioned combination of alternatives. The greatest potential losses to the Northeast Region would be generated from the implementation of summer flounder Alternative 2, scup Alternative 3, and black sea bass Alternative 3.

If the measures proposed under the three options induce reductions in fishing effort (combination 1 in Table 49), approximately 70% of the total sales, 68% of the total income, and 64% of the employment losses are projected to be generated by anglers fishing from private/rental boats. Losses associated with reductions in total sales, income, and employment from party/charter boats are projected to comprise approximately 22%, 23%, and 29%, respectively. Losses associated with reductions in total sales, income, and employment for the shore mode are projected to comprise approximately 8% each. This is because the measures proposed under all combinations of alternatives are projected to affect substantially more private/rental boat trips than party/charter and shore trips.

Summary

The measures proposed under all combinations of alternatives will affect a portion of the recreational fishing trips that catch summer flounder, scup, and black sea bass. Unfortunately, although we can generally predict how many trips will be affected by the proposed measures, we do not know how anglers' trip taking behavior will change in response to the additional restrictions. If the measures result in an overall reduction in angler effort, expenditures associated with these trips will be foregone, and reductions in sales, income, and employment will occur for businesses that supply goods and services to saltwater fishermen. In addition, the sales, income, and employment of many businesses that supply the directly affected businesses could also decline. On the other hand, if the proposed measures do not induce a change in overall angler effort, total angler expenditures would remain unchanged, and there would be no effect on supporting businesses.

Given the uncertainty surrounding how anglers will respond to the proposed measures, total potential reductions in sales, income, and employment to businesses in the coastal states of the Northeast Region were estimated for two hypothetical scenarios: (1) a 25% reduction in the number of fishing trips that are predicted to be affected by implementation of the management measures; and (2) a 50% reduction in the number of fishing trips that are predicted to by affected. Losses were estimated for all 18 combinations of alternatives that could be analyzed. The measures proposed under summer flounder Alternative 1 could not analyzed in combination with the measures proposed for scup and black sea bass because this alternative would implement conservation equivalent measures that are yet to be determined

The projected economic losses shown in this assessment do not capture losses borne by individual anglers. The input-output approach followed in this analysis projects the change in goods and services produced by different businesses that are linked to purchases by marine anglers, but it does not provide estimates of angler welfare losses. These welfare losses are generally defined as the additional value above opportunity costs (usually taken to be expenditures of time and money) that anglers would be willing to pay in order to fish. Angler welfare values are intrinsically connected to many variables, including the potential size distribution of the catch and keep rates. However, given the marginal changes in management measures from 2003 to those proposed for 2004, and the fact that the proposed measures do not prohibit anglers from engaging in catch and release fishing, the demand for fishing trips should remain relatively unaffected.

Long-term Cumulative Effects

Long-term effects of each of these management alternatives are clear: stocks of summer flounder, scup, and black sea bass will rebuild as a result of the accumulated effects of these measures applied over time. Although the long-term effects of these alternatives are less clear or quantifiable from a social and economic perspective,

rebuilt stocks would presumably provide anglers with the ability to increase catch and possibly keep rates resulting in higher overall welfare benefits to anglers and the Nation as a whole.

Impacts Associated with Future Management Actions

While the measures to achieve rebuilding are expected to result in positive economic benefits to anglers and to businesses that support marine recreational activities in the long-term, some effects of short-term declines in revenues, jobs, and income may be irreversible, prohibiting economic growth during later years when the resources have been rebuilt. For instance, if party/charter boat anglers reduce their trip taking behavior as the industry is further restricted to meet rebuilding requirements, gentrification could begin to replace segments of the party/charter boat industry and the related land-based infrastructure. The process of gentrification transforms working harbors into upscale areas primed for recreation and tourism, replacing infrastructure that supports the party/charter industry and shore and private boat anglers (i.e, bait and tackle shops) with waterfront housing, entertainment, and dining establishments, or other facilities. Among the businesses and industry support structures that may be eliminated are party/charter operations, bait and tackle suppliers, provisioners or food, ice, fuel, boat rental businesses, etc. As shoreline property prices rise, the economic viability of these industries is becoming increasingly strained. If fishing regulations result in lower angler participation, the possibility exists that this infrastructure may be permanently replaced by new entities with alternative functions. Hall-Arber *et al.* (2001) noted that "if the facilities as well as the stocks are not protected, once the biophysical capital rebounds, communities dependent on [these] facilities...will not be able to take advantage of the improved stock conditions to generate fisheries capital for the region and nation." These structural changes to the economy and physical composition of fishing communities are accompanied by delocalization, or the loss of localized community character and culture (Hall-Arber *et al.* 2001). Long-standing traditions and close-knit alliances that unite fishing communities and families may cease to exist.

The management alternatives proposed for 2004 do not introduce measures that specifically seek to mitigate these problems of infrastructure loss and the changing culture of fishing communities. However, if the mortality targets established in the FMP continue to be achieved over the long-term, it is not expected that recreational fishing opportunities for summer flounder, black sea bass, and scup will be significantly impacted. Stocks of all three species have been estimated to be more abundant in recent years, and if recreational landings are estimated to exceed the annual targets, management measures are adjusted to reduce the harvest in the following year to the specified level. Thus, the annual specification process provides frequent checks and balances to maintain rebuilding goals which reduces the likelihood of wide-sweeping management changes and therein the loss of recreational fishing infrastructure.

Reasonably foreseeable federal actions include additional or revised fishing regulations, both for the summer flounder, scup, and black sea bass and for other species that

marine recreational fishermen target. For example, regulations proposed for Amendment 13 to the Northeast Multispecies FMP may induce party/charter boat operators to switch from targeting Atlantic cod and haddock on some of their trips to targeting summer flounder, scup, or black sea bass. This may have a negative effect on rebuilding goals and cause increased competition within party/charter fishing communities dependent on summer flounder, scup, and black sea bass. Additional Federal actions could also have indirect impacts on recreational fishing communities reliant on these species. Federal decisions on offshore petroleum access, and the placement of inshore/offshore windfarms, for example, could have either a positive or negative effect on landings and access to summer flounder, scup, and black sea bass stocks.

Historical Account of Overages

Although the measures proposed in this EA are only for the year 2004 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. On the other hand, in a given year the recreational harvest limit may not be achieved.

As previously indicated, 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. Projected recreational 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. Recreational harvest limits, total landings, and total overages for each of the three recreational fisheries have been as follows (weight in million lb):

Summer Flounder

	Harvest Limit	Landings	Overages (+)/ Underages (-)
1995	7.80	5.42	-2.38
1996	7.41	9.82	+2.41
1997	7.41	11.87	+4.46
1998	7.41	12.48	+5.07
1999	7.41	8.37	+0.96
2000	7.41	16.47	+9.06
2001	7.16	11.64	+4.48
2002	9.72	8.00	-1.72
2003[a]	9.28	11.56	+2.28

[a] Projected

Scup

	Harvest Limit	Landings	Overage (+)/ Underage (-)
1997	1.95	1.20	-0.75
1998	1.55	0.88	-0.67
1999	1.24	1.89	+0.65
2000	1.24	5.44	+4.22
2001	1.76	4.26	+2.50
2002	2.71	3.62	+0.91
2003[a]	4.01	9.59	+5.58

[a] Projected.

Black Sea Bass

	Harvest Limit	Landings	Overage (+)/ Underage (-)
1997	---	4.3	--

1998 - 3.15	1.2	-1.95
1999 - 3.15	1.7	-1.45
2000 - 3.15	4.0	+0.85
2001 - 3.15	3.4	+0.25
2002 - 3.43	4.3	+0.87
2003[a] - 3.43	4.0	+0.57

[a] Projected.

Even though the recreational overage cannot be deducted from the TAL, the total overage factors into the cumulative impact on the stocks. Recreational 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 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 recreational 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 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 2004 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 2004 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 New England Fishery Management Council 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 South Atlantic Fishery management Council 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 to the Summer Flounder, Scup, and Black Sea Bass FMP.

Summer flounder, scup, and black sea bass are demersal species that have associations with substrates, submerged aquatic vegetation, 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.

The principal gear used in the recreational fishery for summer flounder is rod and reel and handline. Although quantification of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse EFH impacts because the gear does not alter bottom structure.

The 2004 summer flounder and black sea bass commercial and recreational quotas are higher than those specified for 2003, the proposed 2004 scup commercial quota is status quo. However, a change in quota is not necessarily directly proportional to a change in fishing effort (MAFMC 2003). As discussed in the 2004 Summer Flounder, Scup, and Black Sea Bass Specifications Package (section 6.1.3), the overall quotas for

2004 were determined to produce minimal to no increased habitat impacts. The recreational measures in this document do not contain major changes to existing management measures. Changes in overall fishing effort as a result of changes in recreational measures (i.e., via a reduced possession limit, larger minimum fish size, or closed season) are unknown. Because the proposed alternatives in this document are not expected to cause large changes in fishing effort, it is concluded that they will not affect critical habitat in any manner not considered in prior consultations. Since the proposed recreational management measures 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

The summer flounder, scup and black sea bass specifications were submitted to the NMFS by the MAFMC. This specifications package was prepared by the following members of the MAFMC staff: Dr. Christopher M. Moore, Dr. José L. Montañez, and Kathy M. Collins. Scott Steinback (NEFSC) estimated the impacts of the proposed management measures on recreational effort and also collaborated in the preparation of this document. In order to ensure compliance with NMFS formatting requirements, the advice of NMFS Northeast Region personnel, including Sarah Thompson, Sarah McLaughlin, and Dave Tomey, was relied upon document preparation. For further information, contact Dr. Moore at (302) 674-2331.

9.0 Other Applicable Laws

Paper Work Reduction Act of 1995

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the federal paperwork burden for individuals, small business, state and local governments, and other persons as well as to maximize the usefulness of information collected by the federal government.

None of the evaluated management measures will affect the existing reporting requirements previously approved under OMB Control Nos. 0648-0202 (Vessel permits), 0648-0212 (Vessel logbooks), or 0648-0229 (Dealer reporting).

Impacts of the Plan Relative to Federalism

This amendment does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order 12612.

Coastal Zone Management Program Consistency

The Coastal Zone Management Act (CZMA) of 1972, as amended, provides measures for ensuring stability of productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. It is recognized that responsible management of both coastal zones and fish stocks must involve mutually supportive goals.

The Council must determine whether the FMP will affect a state's coastal zone. If it will, the FMP must be evaluated relative to the state's approved CZM program to determine whether it is consistent to the maximum extent practicable. The states have 60 days in which to agree or disagree with the Councils' evaluation. If a state fails to respond within 60 days, the state's agreement may be presumed. If a state disagrees, the issue may be resolved through negotiation or, if that fails, by the Secretary.

The FMP will be reviewed relative to CZM programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. Letters were sent to all of the states listed detailing the specifications. The letters to all of the states stated that the Council concluded that the 2004 Recreational Specifications would not affect the state's coastal zone and were consistent to the maximum extent practicable with the state's CZM program as understood by the Council.

Section 515 Information Quality Determination

Utility of Information Product

The proposed document includes: A description of the 2004 Recreational Specifications and the proposed changes to the implementing regulations of the FMP and a description of the alternatives considered and the reasons for selecting the proposed management measures. This proposed specifications document implements the FMP's conservation and management goals consistent with the Magnuson-Stevens Act as well as all other existing applicable laws.

This proposed specifications document was developed as a result of a multi-stage process that involved review of the source document (2004 Recreational Specifications package) by affected members of the public. The public had the opportunity to review and comment on management measures during the Summer Flounder, Scup, and Black Sea Bass Monitoring Committee Meetings held on July 22, 2003, and November 19, 2003, and during the Mid-Atlantic Fishery Management Council Meetings held August 4-7, 2003, in Baltimore, Maryland, and December 2-4, 2003, in Wilmington, Delaware.

The Federal Register notice that announces the proposed rule and the implementing regulations will be made available in printed publication and on the website for the Northeast Regional Office. The notice provides metric conversions for all measurements.

Integrity of Information Product

The information product meets the standards for integrity under the following types of documents:

Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

Objectivity of Information Product

The category of information product that applies for this product is “Natural Resource Plans.”

In preparing the Specifications document, the Council must comply with the requirements of the Magnuson-Stevens Act, the Regulatory Flexibility Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Data Quality Act, and Executive Orders 12612 (Federalism), 12866 (Regulatory Planning), and other applicable laws.

This specifications document has been developed to comply with all applicable National Standards, including National Standard 2. National Standard 2 states that the FMP's conservation and management measures shall be based upon the best scientific information available. Despite current data limitations, the conservation and management measures proposed to be implemented under this specifications document are based upon the best scientific information available. This information includes NMFS VTR and MRFSS data for various years which was used to characterize the fisheries and assess potential impacts of the management proposals. The specialists who worked with these data are familiar with the most recent analytical techniques and with the available data and information relevant to the summer flounder, scup, and black sea bass fisheries.

The policy choices (i.e., management measures) proposed to be implemented by this specifications document are supported by the available scientific information and, in cases where information was unavailable, proxy reference points are based on observed trends in survey data. The management measures contained in the specifications document are designed to meet the conservation goals and objectives of the FMP, and prevent overfishing and rebuild overfished resources, while maintaining sustainable levels of fishing effort to ensure a minimal impact on fishing communities.

The supporting materials and analyses used to develop the measures in the proposed rule are contained in the specifications document and to some degree on previous specifications and/or FMP as specified in this document.

The review process for this specifications package involves the Council, the NEFSC, the Northeast Regional Office, and NOAA Fisheries headquarters. The NEFSC's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the specifications document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the specifications document and clearance of the rule is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

10.0 Finding of No Significant Impact

NAO 216-6 (revised May 20, 1999) provides nine criteria for determining the significance of the impacts of a proposed fishery management action. The significance of this fishery management 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 specified in the FMP, this proposed action is intended reduce recreational landings to achieve the F = 0.26 target for summer flounder, a 21% target exploitation rate for scup, and a 25% target exploitation rate for black sea bass.

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 is not expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Act and identified in the FMP. The area affected by the proposed action in the summer flounder, scup, and black sea bass fisheries has been identified as EFH for species managed by the Northeast Multispecies; Atlantic Sea Scallop; Spiny Dogfish; Atlantic Mackerel, Squid, and Butterfish; Atlantic Surfclam and Ocean Quahog; Bluefish; Atlantic Billfish; Spiny Dogfish; Monkfish; Atlantic Tunas, Swordfish and Sharks; Calico Scallop; Wreckfish; King and Spanish Mackerel; Atlantic Coast Red Drum; Shrimp; Stone Crab; Snapper-Grouper of the South Atlantic; Coral and Coral Reefs of the Gulf of Mexico and the South Atlantic; and Coastal Migratory Pelagic Resources of the Gulf of Mexico and the South Atlantic FMPs. The primary gear utilized in the recreational harvest of summer flounder, scup, and black sea bass is rod and reel or handline. Although quantification

of specific gear types on various bottom habitats is poorly understood, rod and reel and handlines are generally not associated with adverse impacts because the gear does not alter bottom structure. Finally, because each of the alternatives does not contain major changes to existing management measures, it is concluded that the alternatives will not result in significant impacts to the environment.

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

The proposed action is not expected to have a substantial adverse impact on public health or safety. Each of the alternatives contains only changes to existing management measures (i.e., recreational minimum fish size, recreational possession limit and recreational seasons). Management alternatives will be selected to achieve the recreational harvest limits and to provide a reasonable balance between size limits, seasons and possession limits, so as not to compromise public health or safety.

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?

The proposed action is not reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat for these species. As stated in section 6.0 of the EA, the activities to be conducted under the proposed annual recreational specifications are within the scope of the FMP, and do not change the basis for the determinations made in previous consultations.

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 proposed action is not expected to result in cumulative adverse effects that could have a substantial effect on target or non-target species. All of the alternatives that are being considered are designed to achieve the recreational harvest limit specified through the FMP for the 2004 fishing year. The alternatives contain only changes to existing recreational management measures for summer flounder, scup, and black sea bass, including the minimum recreational fish size, recreational possession limit and recreational season for each of the species. Furthermore, bycatch of target and non-target species in the recreational fishery using rod and reel or handline is not expected to be substantial. Therefore, the proposed action is not expected to result in any cumulative adverse effects to 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. All of the alternatives that are being considered are designed to reduce recreational landings in order to achieve the recreational harvest limit specified through the FMP for the 2004 fishing year. The alternatives contain only changes to existing recreational management measures for summer flounder, scup, and black sea bass, including the minimum recreational fish size, recreational possession limit and recreational season for each of the species. Furthermore, bycatch of non-target species in the recreational fishery using rod and reel or handline is not expected to be substantial.

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. As specified in the FMP, this proposed action is intended reduce recreational landings to achieve the F = 0.26 target for summer flounder, a 21% target exploitation rate for scup, and a 25% target exploitation rate for black sea bass. The alternatives being considered contain only changes to existing recreational management measures for summer flounder, scup, and black sea bass, including the minimum recreational fish size, recreational possession limit and recreational season for each of the species. Furthermore, rod and reel and handlines are generally not associated with adverse benthic impacts. The proposed action will likely ensure biodiversity and ecosystem stability over the long term as the species continue to rebuild.

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

As discussed in section 6.0 of the EA, the proposed action is 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 the human environment expected to be highly controversial?

Measures contained in this EA are not expected to be controversial. The proposed action would implement measures for the upcoming fishing year to achieve the recreational harvest limits for summer flounder, scup, and black sea bass in 2004, as specified through the FMP.

FONSI Statement

For the reasons discussed above, it is hereby determined that the proposed action would not affect significantly the quality of the human environment, and that the preparation of an environmental impact statement for these specifications is not required by section 101 (2) (c) of the National Environmental Policy Act nor its implementing regulations.

_____

Assistant Administrator for Fisheries, NOAA Date

Regulatory Impact Review/Initial Regulatory Flexibility Analysis

1.0 Introduction

The NMFS requires the preparation of an RIR for all regulatory actions that either implement a new 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 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 2004 recreational specifications for summer flounder, scup, and black sea bass.

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 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 2004 Summer Flounder, Scup, and Black Sea Bass Specifications. Additional characterization of these fisheries is presented in sections 4.3 and 5.0 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 sets of alternatives analyzed in this section is presented in

section 3.0 of the EA. A full description of the TAL derivation process is presented in sections 2.0 and 3.0 of the 2004 Summer Flounder, Scup, and Black Sea Bass Specifications. A brief description of each alternative is presented below for reference purposes.

2.5 RIR Impacts

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 measures considered in this regulatory action will not affect gross revenues or indirect and induced effects generated by the party/charter, private/rental, or other sectors offering goods and services to anglers engaged in the summer flounder, scup, and black sea bass fisheries to the extent that an annual $100 million economic impact will occur in any of these fisheries individually or combined.

Projected data from Marine Recreational Fisheries Statistics Survey (MRFSS) indicate that 34,663,731 fishing trips were taken in the Northeast Region (Maine-North Carolina) in 2003. It is estimated that the number of trips by fishing mode was 1,657,523 party/charter boat trips, 17,698,585 private/rental boat trips, and 15,307,623 shore trips (Table 34).

Assuming angler effort in 2004 will be the same as that estimated for 2003, fishing impacts were first examined by estimating the number of recreational fishing trips in 2003 that would have been "affected" by the proposed 2004 management measures. Section 6.4 of the EA (i.e., socioeconomic discussion) delineates the procedures and data bases used to determine the number of affected trips. Next, an input-output model was employed to address potential direct, indirect, and induced short-term economic losses in sales, income, and employment in the Northeast Region. If the proposed measures result in an overall reduction in angler effort, expenditures associated with these trips will be foregone, and reductions in sales, income, and employment will occur for businesses that supply goods and services to saltwater fishermen. In addition, the sales, income, and employment of many businesses that supply the directly affected businesses could also decline. All of the potential 18 combinations of alternatives that could be analyzed for summer flounder, scup, and black sea bass were included in the assessment.[1] Since no empirical information is available to determine how anglers' trip taking behavior will change upon implementation of the proposed regulations, economic losses were estimated under two hypothetical scenarios: (1) a 25% reduction in the

[1]However, since the management measures under fluke alternative 1 (i.e., conservation equivalency) have yet to be adopted the potential losses under this alternative could not be analyzed in conjunction with the alternatives proposed for scup and black sea bass. Since conservation equivalency allows each state to tailor specific recreational fishing measures to the needs of their state, while still achieving conservation goals, it is likely that the measures developed under fluke alternative 1 when considered in combination with the measures proposed for scup and black sea bass would have lower overall adverse effects than any of the combinations that could be analyzed.

number of fishing trips that are predicted to be affected by implementation of the management measures in the Northeast Region in 2004; and (2) a 50% reduction in the number of fishing trips that are predicted to be affected in the Northeast Region in 2004. These analyses are described in detail in section 6.4 of the EA (i.e., socioeconomic discussion).

The projected regional economic losses associated with the hypothetical reductions in affected marine recreational fishing trips are shown in Table's 49 (assumes a 25% reduction in affected trips) and 50 (assumes a 50% reduction in affected trips). In total, the combinations of measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 2 result in the lowest sales, income, and employment losses to the Northeast Region because this combination of alternatives is projected to affect the fewest total fishing trips. A 25 % reduction in fishing trips projected to be affected by this combination of alternatives results in a total loss of $5.735 million in sales, $2.202 million in income, and about 76 jobs in the coastal states of the Northeast Region (Table 49). The estimated losses are approximately twice as high if a 50% reduction in affected trips is assumed to occur (Table 50). For the private/rental and shore modes, however, the combinations of measures proposed under summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 3 would result in slightly lower losses than the aforementioned combination of alternatives. The greatest potential losses to the Northeast Region would be generated from the implementation of summer flounder Alternative 3, scup Alternative 3, and black sea bass Alternative 3.

If the measures proposed under the three options induce reductions in fishing effort (combination 1 in Table 49), approximately 70% of the total sales, 68% of the total income, and 64% of the employment losses are projected to be generated by anglers fishing from private/rental boats. Losses associated with reductions in total sales, income, and employment from party/charter boats are projected to comprise approximately 22%, 23%, and 29%, respectively. Losses associated with reductions in total sales, income, and employment for the shore mode are projected to comprise approximately 8% each. This is because the measures proposed under all combinations of alternatives are projected to affect substantially more private/rental boat trips than party/charter and shore trips.

Long-term biological effects of each of these management alternatives are clear: stocks of summer flounder, scup, and black sea bass will rebuild as a result of the accumulated effects of these measures applied over time. Although the long-term effects of these alternatives are less clear or quantifiable from a social and economic perspective, rebuilt stocks would presumably provide anglers with the ability to increase catch and possibly keep rates resulting in higher overall welfare benefits to anglers and the Nation as a whole. Therefore, this action should not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. Second, this action should 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. However, regulations proposed for Amendment 13 to the Northeast Multispecies FMP may induce party/charter boat operators to switch from targeting Atlantic cod and haddock on some of their trips to targeting summer flounder, scup, or black sea bass. Although this switching behavior is not predicted to be significant, this may have a negative effect on rebuilding goals and cause increased competition within party/charter fishing communities dependent on summer flounder, scup, and black sea bass. Third, this action will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of their participants. And, fourth, the proposed action does 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. Based on the results of the RIR, this action is not significant under E.O. 12866.

3.0 Paperwork Reduction Act of 1995

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the Federal paperwork burden for individuals, small business, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government.

The Council is not proposing measures under this regulatory action that require review under PRA. There are no changes to existing reporting requirements previously approved under OMB Control Nos. 0648-0202 (Vessel permits), 0648-0229 (Dealer reporting) and 0648-0212 (Vessel logbooks).

4.0 Initial Regulatory Flexibility Analysis

4.1 Impacts on Small Entities

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: (A) will not, if promulgated, have a significant economic impact on a substantial number of small entities; or (B) prepare an Initial Regulatory Flexibility Analysis. 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 $3.5 and $5.0 million, respectively.

Description of the Reasons Why Action by the Agency is being Considered

A complete description of the purpose and need and objectives of this proposed rule is found under section 1 of the EA. A statement of the problem for resolution is presented under section 1 of the EA.

The Objectives and legal basis of the Proposed Rule

A complete description of the 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.

Estimate of the Number of Small Entities

This rule would apply to the following small entities: summer flounder, scup or black sea bass party/charter permit holders, as well as those actively participating in the recreational fisheries in state waters. While permit holders represent the universe of entities whose normal activities might be directly affected by these regulations, not all permit holders choose to fish in a given year. Those who actively participate, i.e., land fish, would be the group of permit holders that are directly impacted by the regulations. Latent fishing power (in the form of unfished permits) represents a real and considerable force to alter the impacts on a fishery, but vessels actively participating in the fishery are dependent upon a particular species. It is impossible to predict how many - or who - will or will not participate in these fisheries in 2004.

Data from the Northeast permit application database indicates that in 2002 there were 775 vessels permitted to take part in the summer flounder, scup, and/or black sea bass fisheries in the EEZ. The Northeast landings database (VTR Data) indicates that a total of 327 party/charter vessels participated in the summer flounder, scup, and/or black sea bass fisheries in the Northeast in 2002 (Table 51).

Recordkeeping and Reporting

As stated in section 3.0 of the RIR/IRFA, this proposed action does not propose new reporting or recordkeeping measures. There are no changes to existing reporting requirements. Currently, all summer flounder, scup or black sea bass federally-permitted dealers must submit weekly reports of fish purchases. The owner or operator of any vessel issued a moratorium vessel permit for summer flounder, scup or black sea bass, must maintain on board the vessel, and submit, an accurate daily fishing log report for all fishing trips, regardless of species fished for or taken. The owner of any party or charter boat issued a summer flounder, scup or black sea bass permit other than a moratorium permit and carrying passengers for hire must submit an accurate daily fishing log report for each charter or party fishing trip that lands summer flounder, scup, or black sea bass, unless such a vessel is also issued another permit that requires regular reporting, in which case a fishing log report is required for each trip regardless of species retained.

Conflict with Other Federal Rules

This proposed action will not duplicate, overlap, or conflict with any other Federal rules.

4.2 Significant Alternatives to the Proposed Rule

There is no need to further mitigate economic impacts on small entities because the Council selected the alternative determined to result in the least severe impacts without compromising the biological health of the stocks.

The analysis conducted did not include the specific state measures under conservation equivalency for summer flounder because the states have not yet been adopted specific management measures. Nevertheless, it is expected that the since conservation equivalent recreational management measures would allow each state to develop specific summer flounder recreational measures that allow the fishery to operate in each state during critical fishing periods while still achieving conservation goals while mitigating potential adverse economic effects in specific states. Therefore, it is likely that the measures developed under summer flounder Alternative 1 when considered in combination with the measures proposed for scup and black sea bass would have lower overall adverse effects in 2004 than any of the other combinations that were analyzed. Specifications of recreational fish size limits, possession limits, and open fishing seasons is constrained by the conservation objectives of the FMP, and implemented at 50 CFR part 648 under the authority of the Magnuson-Stevens Act. The Council did not consider alternatives that would compromise the biological health of the stocks.

4.3 General Fishing Trends

A detailed description of the fishery for summer flounder, scup, and black sea bass is presented in section 5.0 of the EA. The information presented below is intended to further characterized recent fishing trends for the summer flounder, scup, and black sea bass fisheries.

Summer Flounder

Summer flounder recreational data indicate that for the 1993 to 2001 period recreational landings were less than the recreational harvest limits only two years (1994 and 1995). In 1994 and 1995, summer flounder landings were below the recreational harvest limit by approximately 20 percent for both years combined (Table 52). From 1996 to 2001, recreational landings have been above the recreational harvest limit ranging from 0.96 million lb (0.44 million kg) in 1999 to 9.06 million lb (4.11 million kg) in 2000. In 2002, recreational landings were 1.72 million lb (0.78 million kg) below the recreational harvest limit of 9.72 million lb (4.41 million kg). For 2003, recreational landings are projected to be 1.72 million lb (0.78 million kg) below the recreational harvest limit of 9.28 million lb (4.21 million kg). The total number of recreational trips from Maine through North Carolina have fluctuated throughout the 1993 to 2003 period from 4.2 million trips in 1999 to 6.1 million trips in 2001. Overall, fishing trips have remained relatively stable for the 1993 to 2003 period (Table 52).

The proposed recreational harvest limit for 2004 is 11.21 million lb (5.08 million kg).

This recreational harvest limit is approximately 17% higher than the recreational harvest limit implemented in 2003 (9.28 million lb or 4.21 million kg), but slightly below (3%) the the projected recreational landings for that year (Table 52). The proposed recreational management measures are necessary to prevent anglers from exceeding the recreational harvest limit in 2004.

Scup

Scup recreational landings have declined over 89% for the period 1991 through 1998 (Table 53). The number of fishing trips has also declined over 73% for the same time period. This decrease in the recreational fishery has occurred both with and without any recreational measures being in place, and 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 had 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.

Recreational harvest limits in the scup fishery were first implemented in 1997 (Table 53). Recreational landings in 1997 and 1998 were below the recreational harvest limit for those years. However, for the 1999-2003 period, recreational landings were above the recreational harvest limit for those years.

The recreational harvest limit for 2004 is 3.99 million lb (1.80 million kg). This recreational harvest limit is near identical to the recreational harvest limit implemented in 2002 (4.01 million lb or 1.82 million kg) and about 140% below the projected recreational landings in 2003 (Table 53). Since there is no mechanism to deduct overages directly from the recreational harvest limit, any overages to the recreational harvest limit must be addressed by the way of adjustments to the management measures (fish size, bag limit and/or season). The scup recreational management measures are necessary to prevent anglers from exceeding the recreational harvest limit in 2004.

Black Sea Bass

Black sea bass recreational fishing trips have shown a slight upward trend from the early to Mid-1990's (Table 54). 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 (1.82 million kg). In 2001 and 2002, recreational landings were 3.42 million lb (1.55 million kg) and 4.35 million lb (1.97 million kg), respectively. For 2003, recreational landings are projected to be 0.56 million lb (0.25 million kg) above the recreational harvest limit of 3.43 million lb (1.56 million kg).

The proposed recreational harvest limit for 2003 is about 15% higher than the limit established in 2003 and slightly above the projected recreational landings for 2003. The

proposed recreational management measures are necessary to prevent anglers from exceeding the recreational harvest limit in 2003.

Expenditures for Recreational Fishing

During 1998, social and economic data from marine recreational fishermen in the Northeast Region were gathered through an economic add-on to NMFS' Marine Recreational Statistics Survey (MRFSS; Steinback and Gentner 2001). As part of this survey, anglers were asked to delineate trip expenditures and purchases of durable equipment used primarily for saltwater recreational fishing. Results of the survey were used to project the potential losses associated with the proposed 2004 regulations.

Survey results indicate that the average trip expenditure in the Northeast Region in 1998 was $47.42 for anglers fishing from a private/rental boat, $32.48 for shore anglers, and $67.17 for anglers that fished from a party/charter boat (Table 48). Trip expenditures included the following consumable items: (1) travel; (2) food, drink, and refreshments; (3) lodging at motels, cabins, lodges, or campgrounds; (4) public transportation or car rental; (5) boat fuel; (6) guide or package fees; (7) access and/or boat launching fees; (8) equipment rental such as boat, fishing or camping equipment; (9) bait; and (10) ice. Expenditures on durable items such as rods, reels, tackle, special fishing clothing, etc., were also estimated in the Steinback and Gentner report but are not included in the subsequent analysis. Although expenditures on durable items may also be affected by the proposed regulations, the extent of the impact would be difficult to quantify since these items could be used for many trips.

5.0 Analysis of Impacts of Proposed Measures

This analysis will present information relative to the impacts of this proposed action on small entities. Specifically, assessments of potential changes in gross revenues for all 18 combinations of alternatives proposed in this action were conducted for federally permitted party/charter vessels in each state in the Northeast.[2] Estimates of the impacts upon profitability are not provided because data on costs and revenues for party/charter vessels are not available at this time. As such, potential changes in gross revenues for party/charter vessels participating in these fisheries were estimated by employing various assumptions which are described below. The effects of these actions were analyzed by employing quantitative approaches to the extent possible. Where quantitative data were not available, qualitative analyses were conducted. The

[2]The management measures proposed under summer flounder Alternative 1 (i.e., conservation equivalency) have yet to be adopted so the potential losses under this alternative could not be analyzed in conjunction with the alternatives proposed for scup and black sea bass. Since conservation equivalency allows each state to tailor specific recreational fishing measures to the needs of their state, while still achieving conservation goals, it is likely that the measures developed under summer flounder Alternative 1 when considered in combination with the measures proposed for scup and black sea bass would have lower overall adverse effects than any of the other combinations that were analyzed.

MAFMC invites public comment on this IRFA, and the qualitative and quantitative aspects of it in particular.

Impacts were examined by first estimating the number of angler trips aboard party/charter vessels in each state in 2003 that would have been affected by the proposed 2004 management measures. All 2003 party/charter fishing trips that would have been constrained by the proposed 2004 measures in each Northeast state were considered to be "affected" trips. To date, the first five waves of MRFSS effort data are available for 2003. Wave six effort estimates for 2002 (November - December) were used as a proxy for 2003 effort. Therefore, wave six effort estimates for 2003 were assumed to be the same as in 2002.

Unfortunately, no empirical information is available to determine how sensitive the "affected" anglers might be to the proposed management changes. If the proposed measures discourage trip-taking behavior among some of the affected anglers, economic losses may accrue to the party/charter boat industry in the form of reduced access fees. On the other hand, if the proposed measures do not have a negative impact on the value or satisfaction the affected anglers derive from their fishing trips then party/charter revenues would remain unaffected by this action. In an attempt to bound the potential changes in gross revenues to the party/charter boat industry in each state, economic losses were estimated under two hypothetical scenarios: (1) a 25% reduction in the number of fishing trips that are predicted to be affected by implementation of the management measures in the Northeast Region in 2004; and (2) a 50% reduction in the number of fishing trips that are predicted to be affected in the Northeast Region in 2004.

Total economic losses to party/charter vessels were then estimated by multiplying the number of potentially affected trips in each state in 2004, under the two hypothetical scenarios, by the estimated average access fee paid by party/charter anglers in the Northeast region in 2003 ($37.70).[3] The recreational fishing expenditure data used in this analysis was presented in detail in section 6.4 of the EA (i.e., socioeconomic discussion). Finally, total economic losses were divided by the number of federally permitted party/charter vessels that participated in the summer flounder, scup, and/or, black sea bass fisheries in 2002 in each state (according to homeport state in the Northeast logbook database) to obtain an estimate of the average projected gross revenue loss per party/charter vessel in 2004.

Results

All 18 potential combinations of management alternatives proposed for summer flounder, scup, and black sea bass are predicted to affect party/charter boat revenues to

[3]The 1998 party/charter average expenditure estimate ($33.22; Table 50) was adjusted to its 2003 equivalent using the Bureau of Labor's Consumer Price Index.

some extent in 9 of the 11 Northeast coastal states (Tables 55 through 72). Angler effort aboard party/charter boats in 2004 in Maine and New Hampshire is not predicted to be constrained (i.e, affected) by the proposed measures, thus party/charter revenues for vessels operating in these states are not estimated to be impacted. In addition, although potential losses were estimated for party/charter vessels operating out of Delaware these results are suppressed for confidentiality purposes. Average party/charter losses for federally permitted vessels operating in the remaining states are estimated to vary considerably across the 18 combinations of alternatives. For instance, in Connecticut, average losses are predicted to range from only $13 per boat under the combined effects of summer flounder Alternative 2, scup Alternative 1, and black sea bass Alternative 1 (Table 64; assuming a 25% reduction in affected effort), to $6,456 for the combination of alternatives proposed for summer flounder Alternative 2, scup Alternative 3, and black sea bass Alternative 1 (Table 70). Average gross revenue losses in Massachusetts, New York, and New Jersey are generally predicted to be higher across the 18 combinations of alternatives than in the remaining Northeast coastal states. However, average party/charter losses in Rhode Island, Connecticut, Delaware, Maryland, Virginia, and North Carolina vary considerably and exceed those estimated for New York and New Jersey vessels across some of the alternatives.

Actual losses will likely be even lower than described above for several reasons. First, since the management measures proposed under summer flounder Alternative 1 (i.e., conservation equivalency) have yet to be adopted, the potential losses under this alternative could not be analyzed in conjunction with the alternatives proposed for scup and black sea bass. Since conservation equivalency allows each state to tailor specific recreational fishing measures to the needs of their state, while still achieving conservation goals, it is likely that the measures developed under summer flounder Alternative 1 when considered in combination with the measures proposed for scup and black sea bass would have lower overall adverse effects in 2004 than any of the other combinations that were analyzed.

Secondly, the universe of party/charter vessels that participates in the summer flounder, scup, and black sea bass fisheries is likely to be even larger than presented in this analysis. Party/charter vessels that do not possess a Federal summer flounder, scup, or black sea bass permit because they only fish in state waters are not represented in this assessment. Considering that over 90% of the landings of summer flounder and scup in 2002 were caught in state waters it is probable that some party/charter vessels fish only in state waters and, thus, do not hold Federal permits for these species. Therefore, the party/charter losses shown in this assessment would be spread over a greater number of vessels resulting in lower estimated losses per vessel.

Lastly, economic losses were estimated under two hypothetical scenarios: (1) a 25% reduction in the number of fishing trips that are predicted to be affected by implementation of the management measures in the Northeast Region in 2004; and (2) a 50% reduction in the number of fishing trips that are predicted to be affected in the Northeast Region in 2004. Reductions in fishing effort of this magnitude in 2004 may

not occur given the marginal changes in management measures from 2003 to those proposed for 2004, and the fact that the proposed measures do not prohibit anglers from engaging in catch and release fishing. While keeping fish is moderately important to anglers in the Mid-Atlantic, over 42% of anglers in New England in 1994, indicated catching fish to eat was not an important reason for marine fishing (Steinback and ONeil 1998). Although these anglers are not likely to be the ones constrained by the regulations, findings of this study generally concur with previous studies that found non-catch reasons for participating in marine recreational fishing were rated much higher than keeping fish for food. In combination with alternative target species available to anglers, the findings of the Steinback and ONeil (1998) study suggest that at least some of the potentially affected anglers would not reduce their effort when faced with the proposed landings restrictions.

References

Atlantic States Marine Fisheries Commission. 2002. Addendum VII to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. Washington, DC. 7 p.

Barlow, J., and P.J. Clapham. 1997. A new birth-interval approach to estimating demographic parameters of humpback whales. Ecology, 78: 535-546.

Baum, E. 1997. Maine Atlantic Salmon, A National Treasure. Atlantic Salmon Unlimited, Hermon, Maine. 224 pp.

Blaylock, R.A., J.W. Hain, L.J. Hansen, D.L. Palka, and G.T. Waring. 1995. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments. NOAA Tech. Memo. NMFS-SEFSC-363. U.S. Department of Commerce, Washington, D.C. 211 pp.

Carr, A.F. 1963. Panspecific convergence in *Lepidochelys kempii*. Ergebn. Biol., 26: 298-303.

CeTAP (Cetacean and Turtle Assessment Program). 1982. Final report or the cetacean and turtle assessment program, University of Rhode Island, to Bureau of Land Management, U.S. Department of the Interior. Ref. No. AA551-CT8-48. 568 pp.

Crouse, D.T., L.B. Crowder, and H. Caswell. 1987. A stage based population model for loggerhead sea turtles and implications for conservation. Ecology 68(5):1412-1423.

Dadswell, M.J. 1979. Biology and population characteristics of the shortnose sturgeon, *Acipenser brevirostrum*, LeSueur 1818 (*Osteichthyes: Acipenseridae)*, in the Saint John River Estuary, New Brunswick, Canada. Can. J. Zool. 57:2186-2210.

Eckert, S.A., D.W. Nellis, K.L. Eckert, and G.L. Kooyman. 1996. Diving patterns of two leatherback sea turtles, (*Demochelys coriacea*) during interesting intervals at Sandy Point, St. Croix, U.S. Virgin Islands. Herpetologica. Sep. 42(3):381-388.

Goff, G.P. and J. Lien. 1988. Atlantic leatherback turtle, *Dermochelys coriacea*, in cold water off Newfoundland and Labrador. Can. Field Nat.102(1):1-5.

Hain, J. H. W. 1975. The international regulation of whaling. Marine Affairs J. 3: 28-48.

Hain, J.H.W., M.J. Ratnaswamy, R.D. Kenney, and H.E. Winn. 1992. The fin whale, *Balaenoptera physalus*, in waters of the northeastern United States continental shelf. Rep. Int. Whal. Comm. 42: 653-669.

Hall-Arber, M., C. Dyer, J. Poggie, J. McNally, and R. Gagne. 2001. Fishing communities and fishing dependency in the Northeast region of the United States. MARFIN Project Report to NMFS, Grant #NA87FF0547. 429 pp.

IWC (International Whaling Commission). 1992. Report of the comprehensive assessment special meeting on North Atlantic fin whales. Rep. Int. Whal. Comm 42:595-644.

Katona, S.K., and J.A. Beard. 1990. Population size, migrations, and feeding aggregations of the humpback whale (*Megaptera novaeangliae*) in the Western North Atlantic Ocean. Rep. Int. Whal. Comm., Special Issue 12: 295-306.

Klumov, S.K. 1962. The right whale in the Pacific Ocean. In P.I. Usachev (Editor), Biological marine studies. Trud. Inst. Okeanogr. 58: 202-297.

Lallemand, P. J.M. Gates, J. Dirlam, and J-H. Cho. 1998. The costs of small trawlers in the Northeast. Department of Environmental Natural Resource Economics and The University of Rhode Island, Kingston, Cooperative Marine Education and Research Program (CMER).

Leary, T.R. 1957. A schooling of leatherback turtles, *Dermochelys coriacea*, on the Texas coast. Copeia 1957:232.

Leatherwood, S., and R.R. Reeves. 1983. The Sierra Club handbook of whales and dolphins. Sierra Club Books, San Francisco, California. 302 pp.

Lutcavage, M. and J.A. Musick. 1985. Aspects of the biology of sea turtles in Virginia. Copeia 1985(2):449-456.

Mid-Atlantic Fishery Management Council (MAFMC). 1992. Amendment 2 to the Summer Flounder Fishery Management Plan. Dover, DE. 164 p. + append.

MAFMC. 1996. Amendment 8 to the Summer Flounder, Scup and Black Sea Bass Fishery Management Plan: Fishery Management Plan and Draft Environmental Impact Statement for the Scup Fishery. Dover, DE.

MAFMC. 1996. Amendment 9 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. Dover, DE. 152 p. + append.

MAFMC. 1998. Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. Dover, DE. 398 p. + append.

MAFMC. 2002. Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan and Draft Environmental Impact Statement. Submitted to NMFS for Secretarial approval on August 20, 2002. Dover, DE. 552 p. + append.

MAFMC. 2003. 2004 Summer Flounder, Scup, and Black Sea Bass Specifications**:** Environmental Assessment, Regulatory Impact Review and Initial Regulatory Flexibility Analysis, and Essential Fish Habitat Assessment. Dover, DE. 159 p + append.

Mitchell E. and D.G. Chapman. 1977. Preliminary assessment of North Atlantic sei whales (*Balaenoptera borealis*). Rep. Intl. Whaling Comm. Special Issue 1:117-120.

Minnesota IMPLAN Group, Inc., 1997. IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082. www.implan.com

NEFSC (Northeast Fisheries Science Center). 1998. 27th Northeast Regional Stock Assessment Workshop (27st SAW). Stock Assessment Review Committee (SARC) Consensus Summary of Assessments. US DOC, NOAA, NMFS. Woods Hole, Massachusetts. NEFSC Ref. Doc. 98-15. 350 p.

NEFSC. 2000. 31st Northeast Regional Stock Assessment Workshop (31st SAW). Stock Assessment Review Committee (SARC) Consensus Summary of Assessments. US DOC, NOAA, NMFS. Woods Hole, Massachusetts. NEFSC Ref. Doc. 00-15. 400 p.

NEFSC. 2002. 35st Northeast Regional Stock Assessment Workshop (35st SAW). Stock Assessment Review Committee (SARC) Consensus Summary of Assessments. US DOC, NOAA, NMFS. Woods Hole, Massachusetts. NEFSC Ref. Doc. 02-14. 270 p.

NMFS (National Marine Fisheries Service). 1998. Endangered Species Act Section 7 consultation, biological opinion and conference. Consultation in accordance with Section 7(a) of the Endangered Species Act Regarding the Federal Monkfish Fishery. National Marine Fisheries Service, Northeast Regional Office, Gloucester, MA. December 21, 1998.

NMFS. 1998a. Draft recovery plans for the fin whale (*Balaenoptera physalus*) and sei whale (*Balaenoptera borealis*). Prepared by R.R. Reeves, G.K. Silber, and P.M. Payne for the National Marine Fisheries Service, Silver Spring, Maryland. July 1998.

NMFS. 1998b. Recovery plan for the blue whale (*Balaenoptera musculus*). Prepared by Reeves, R.R., P.J. Clapham, and R.L. Brownell, Jr. for the National Marine Fisheries Service, Silver Spring, Maryland.

NMFS. 1991. Final recovery plan for the North Atlantic right whale (*Eubalaena glacialis*). Prepared by the Right Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland. 86 pp.

NMFS and USFWS (United States Fish and Wildlife Service). 1992. Recovery plan for leatherback turtles in the U.S. Caribbean, Atlantic, and Gulf of Mexico. National Marine Fisheries Service, Washington, D.C. 65 pp.

NMFS and USFWS. 1995. Status reviews for sea turtles listed under the Endangered

Species Act of 1973. National Marine Fisheries Service, Silver Spring, Maryland. 139 pp.

O'Hara K.J., S. Iudicello, and R. Bierce. 1988. A citizens guide to plastic in the ocean: more than a litter problem. Center for Environmental Education, Washington, D.C. 131 p.

Packer, D. and S. Griesbach. 1999. Life History and Habitat Requirements of Summer Flounder, *Paralichthys dentatus*. USDC, NMFS, Highlands, NJ.

Perry, S.L., D.P. DeMaster, and G.K. Silber. 1999. The Sperm Whale In: The great whales: History and status of six species listed as endangered under the U.S. Endangered Species Act of 1973. Mar. Fish. Rev. Special Edition. 61(1): 59-74.

Prescott, R.L. 1988. Leatherbacks in Cape Cod Bay, Massachusetts, 1977-1987, p 83-84 In: B.A. Schroeder (comp.), Proceedings of the Eighth Annual Workshop on Sea Turtle Conservation and Biology. NOAA Technical Memorandum NMFS-SEFC- 214.

Pritchard, P.C.H. 1982. Nesting of the leatherback turtle, *Dermochelys coriacea*, in Pacific, Mexico, with a new estimate of the world population status. Copeia 1982:741-747.

Rebel, T.P. 1974. Sea turtles and the turtle industry of the West Indies, Florida and the Gulf of Mexico. Univ. Miami Press, Coral Gables, Florida.

Reeves, R.R., Breiwick, J.M., and Mitchell, E. 1992. Pre-exploitation abundance of right whales off the eastern United States. Pp. 5-7 in J. Hain (ed.), The right whale in the western North Atlantic: a science and management workshop, 14-15 April 1992, Silver Spring, Maryland. National Marine Fisheries Service, NEFSC Ref. Doc. 92-05.

Robbins, J. and D.K. Mattila. 2001. Monitoring entanglements of humpback whales (*Megaptera novaeangliae*) in the Gulf of Maine on the basis of caudal peduncle scarring. Paper SC/53/NAH25 presented tot he IWC Scientific Committee.

Ross, J.P. 1979. Green turtle, Chelonia mydas, Background paper, summary of the status of sea turtles. Report to WWF/IUCN. 4 pp.

Shepherd, G. Personal Communication. Northeast Fisheries Science Center. Woods Hole, Massachusetts.

Shoop, C.R. and R.D. Kenney. 1992. Seasonal distributions and abundance of loggerhead and leatherback sea turtles in waters of the northeastern United States. Herpetol. Monogr. 6: 43-67.

Sminkey, T. Personal Communication. National Marine Fisheries Service . Silver

Spring, Maryland.

Spotila, J.R., A.E. Dunham, A.J. Leslie, A.C. Steyermark, P.T. Plotkin, and F.V. Paladino. 1996. Worldwide Population Decline of *Demochelys coriacea*: Are Leatherback Turtles Going Extinct? Chelonian Conservation and Biology 2(2): 209-222.

Steimle, F., C. Zetlin, P. Berrien, D. Johnson, S. Chang, and the EFH Information Team. 1999a. FMP EFH Source Document: Scup, *Stenotomus chrysops* (Linnaeus 1766), Life History and Habitat Use in the Mid-Atlantic Bight. USDC, NMFS, Highlands, NJ.

Steimle, F., C. Zetlin, P. Berrien, D. Johnson, S. Chang, and the EFH Information Team. 1999b. FMP EFH Source Document: Black Sea Bass, *Centropristis striata* (Linnaeus), Life History and Habitat Use in the Mid-Atlantic Bight. USDC, NMFS, Highlands, NJ.

Steinback, S., and B. Gentner. 2001. Marine angler expenditures in the Northeast Region, 1998. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-F/SPO-47.

Steinback, S., E. Thunberg, J. O'Neil, A. Gautam, M. Osborn. 1999. Volume I: Summary Report of Methods and Descriptive Statistics for the 1994 Northeast Region Marine Economics Survey. NOAA Technical Memorandum, NMFS-F/SPO-37, August 1999. USDC, NOAA, NMFS, 124 p.

Turtle Expert Working Group (TEWG). 1998. An assessment of the Kemp's ridley (*Lepicochelys kempii*) and loggerhead (*Caretta caretta*) sea turtle populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-409. 96 pp.

TEWG. 2000. Assessment update for the Kemp's ridley and loggerhead sea turtle populations in the western North Atlantic. U.S. Dep. Commer. NOAA Tech. Mem. NMFS-SEFSC-444, 115 pp.

Vladakov, V.D. and R. Greeley. 1963. Order *Aciperseroidei*: In Fishes of the North Atlantic. Part III. Mem. Sears Found. Mar. Res. 1, p, 24-60.

Wade, P. R., and R. P. Angliss. 1997. Guidelines for assessing marine mammal stocks: Report of the GAMMS Workshop, April 3-5, 1996, Seattle, Washington. NOAA Tech Memo NMFS-OPR-12. US DOC, Washington, DC. 93 pp.

Waring, G.T., C.P. Fairfield, C.M. Ruhsam, and M. Sano. 1993. Sperm whales associated with Gulf Stream features off the northeastern USA shelf. Fish. Oceanogr. 2(2):101-105.

Waring, G.T., J.M. Quintal, C.P. Fairfield (eds). 2002 . U.S. Atlantic and Gulf of Mexico marine mammal stock assessments - 2002. NOAA Technical Memorandum NMFS-NE-169.

Wynne, K. and M. Schwartz. 1999. Guide to marine mammals and turtles of the U.S. Atlantic and Gulf of Mexico. Rhode Island Sea Grant, Narragansett. 115 pp.

Zug, G. R. and J.F. Parham. 1996. Age and growth in leatherback turtles, Dermochelys coriacea: a skeletochronological analysis. Chelonian Conservation and Biology. 2(2): 244-249.

List of Acronyms

ASMFC	Atlantic States Marine Fisheries Commission
B	Biomass
CEQ	Council on Environmental Quality
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
E.O.	Executive Order
ESA	Endangered Species Act of 1973
F	Fishing Mortality Rate
FR	Federal Register
FRFA	Final Regulatory Flexibility Analysis
FMP	Fishery Management Plan
GRA	Gear Restricted Area
HPTRP	Harbor Porpoise Take Reduction Plan
IRFA	Initial Regulatory Flexibility Analysis
LTPC	Long-term Potential Catch
LWTRP	Large Whale Take Reduction Plan
M	Natural Mortality Rate
MA	Mid-Atlantic
MAFMC	Mid-Atlantic Fishery Management Council
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistical Survey
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
mt	metric tons
NAO	National Oceanic and Atmospheric Administration Order
NE	New England
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	Optimal Yield
PRA	Paperwork Reduction Act
PREE	Preliminary Regulatory Economic Evaluation
RIR	Regulatory Impact Review
RFA	Regulatory Flexibility Analysis
RSA	Research Set-Aside
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop

SSB	Spawning Stock Biomass
SFA	Sustainable Fisheries Act
TAL	Total Allowable Landings
TEDs	Turtle Excluder Devices
TL	Total Length
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis
VTR	Vessel Trip Report

Glossary

Amendment. A formal change to a fishery management plan (FMP). The Council prepares amendments and submits them to the Secretary of Commerce for review and approval. The Council may also change FMPs through a "framework adjustment framework adjustment " (see below).

B. Biomass, measured in terms of total weight, spawning capacity, or other appropriate units of production.

B_{MSY}. Long term average exploitable biomass that would be achieved if fishing at a constant rate equal to F_{MSY}. For most stocks, B_{MSY} is about ½ of the carrying capacity. Overfishing definition control rules usually call for action when biomass is below ¼ or ½ B_{MSY}, depending on the species.

B_{target}. A desirable biomass to maintain fishery stocks. This is usually synonymous with B_{MSY} or its proxy.

$B_{threshold}$. 1) A limit reference point for biomass that defines an unacceptably low biomass i.e., puts a stock at high risk (recruitment failure, depensation, collapse, reduced long term yields, etc). 2) A biomass threshold that the SFA requires for defining when a stock is overfished. A stock is overfished if its biomass is below $B_{threshold}$. A determination of overfished triggers the SFA requirement for a rebuilding plan to achieve B_{target} as soon as possible, usually not to exceed 10 years except certain requirements are met. $B_{threshold}$ is also known as $B_{minimum}$, or B_{min}.

Bycatch. Fish that are harvested in a fishery, but which are not sold or kept for personal use. This includes economic discards and regulatory discards. The fish that are being targeted may be bycatch if they are not retained.

Commission. Atlantic States Marine Fisheries Commission.

Committee. The Monitoring Committee, made up of staff representatives of the Mid-Atlantic, New England, and South Atlantic Fishery Management Councils, the Commission, the Northeast Regional Office of NMFS, the Northeast Fisheries Center, and the Southeast Fisheries Center. The MAFMC Executive Director or his designee chairs the Committee.

Conservation equivalency. The approach under which states are required to develop, and submit to the Commission for approval, state-specific management measures (i.e., possession limits, size limits, and seasons) designed to achieve state-specific harvest limits.

Control rule. A pre-determined method for determining rates based on the relationship of current stock biomass to a biomass target. The biomass threshold ($B_{threshold}$ or B_{min}) defines a minimum biomass below which a stock is considered .

Council. The Mid-Atlantic Fishery Management Council.

Environmental Impact Statement. An analysis of the expected impacts of a fishery management plan (or some other proposed Federal action) on the environment and on people, initially prepared as a "Draft" (DEIS) for public comment. After an initial EIS is prepared for a plan, subsequent analyses are called "Supplemental." The Final EIS is referred to as the Final Supplemental Environmental Impact Statement (FSEIS).

Exclusive Economic Zone. For the purposes of the Magnuson-Stevens Fishery Conservation and Management Act, the area from the seaward boundary of each of the coastal states to 200 nautical miles from the baseline.

Fishing for summer flounder, scup, or black sea bass. Any activity, other than scientific research vessel activity, which involves: (a) the catching, taking, or harvesting of summer flounder, scup, or black sea bass; (b) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of summer flounder, scup, or black sea bass; or ©) any operations at sea in support of, or in preparation for, any activity described in paragraphs (a) or (b) of this definition.

Fishing effort. The amount of time and fishing power used to harvest fish. Fishing power is a function of gear size, boat size, and horsepower.

Fishing mortality rate. The part of the total mortality rate (which also includes natural mortality) applying to a fish population that is caused by man's harvesting. Fishing mortality is usually expressed as an instantaneous rate (F), and can range from 0 for no fishing to very high values such as 1.5 or 2.0. The corresponding annual fishing mortality rate (A) is easily computed but not frequently used. Values of A that would correspond to the F values of 1.5 and 2.0 would be 78% and 86%, meaning that there would be only 22% and 14% of the fish alive (without any natural mortality) at the end of the year that were alive at the beginning of the year. Fishing mortality rates are estimated using a variety of techniques, depending on the available data for a species or stock.

F_{max}. A calculated instantaneous fishing mortality rate that is defined as "the rate of fishing mortality for a given method of fishing that maximizes the harvest in weight taken from a single year class of fish over its entire life span".

F_{MSY}. A fishing mortality rate that would produce MSY when the stock biomass is sufficient for producing MSY on a continuing basis.

Framework adjustments. Adjustments within a range of measures previously specified in a fishery management plan (FMP). A change usually can be made more quickly and easily by a framework adjustment than through an amendment. For plans developed by the Mid-Atlantic Council, the procedure requires at least two Council meetings including at least one public hearing and an evaluation of environmental impacts not already analyzed as part of the FMP.

F_{target}. The target fishing mortality rate, equal to the annual F determined from the selected rebuilding schedule for overfished resources (i.e., summer flounder) and Council selected fishing mortality level for non-overfished resources (i.e., surfclams).

Overfishing occurs when the overfishing target is exceeded.

$F_{threshold.}$ 1) The maximum fishing mortality rate allowed on a stock and used to define overfishing for status determination. 2) The maximum fishing mortality rate allowed for a given biomass as defined by a control rule.

Landings. The portion of the catch that is harvested for personal use or sold.

Metric ton. A unit of weight equal to 1,000 kilograms (1 kg = 2.2 lb.). A metric ton is equivalent to 2,205 lb. A thousand metric tons is equivalent to 2.2 million lb.

MSY. Maximum sustainable yield. The largest long-term average yield (catch) that can be taken from a stock under prevailing ecological and environmental conditions.

Overfished. An overfished stock is one whose size is sufficiently small that a change in management practices is required in order to achieve an appropriate level and rate of rebuilding.

Overfishing. Overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis.

Party/Charter boat. Any vessel which carries passengers for hire to engage in fishing.

Recruitment. The addition of fish to the fishable population due to migration or to growth. Recruits are usually fish from one year class that have just grown large enough to be retained by the fishing gear.

Spawning Stock Biomass. The total weight of all sexually mature fish in the population. This quantity depends on year class abundance, the exploitation pattern, the rate of growth, fishing and natural mortality rates, the onset of sexual maturity and environmental conditions.

Status Determination. A determination of stock status relative to $B_{threshold}$ (defines overfished) and $F_{threshold}$ (defines overfishing). A determination of either overfished or overfishing triggers a SFA requirement for rebuilding plan (overfished), ending overfishing (overfishing) or both.

Stock. A grouping of a species usually based on genetic relationship, geographic distribution and movement patterns. A region may have more than one stock of a species (for example, Gulf of Maine cod and Georges Bank cod).

TAL. Total allowable landings; the total regulated landings from a stock in a given time period, usually one year.

Total length. The straight-line distance from the tip of the snout to the end of the tail while the fish is lying on its side.

Year-class. The fish spawned or hatched in a given year.

Yield per recruit. The theoretical yield that would be obtained from a group of fish of one age if they were harvested according to a certain exploitation pattern over the life span of the fish. From this type of analysis, certain critical fishing mortality rates are

estimated that are used as biological reference points for management, such as F_{max} and $F_{0.1}$.

Table 1. Summer flounder landings (number) by state for 1998 and the 2004 target (in number) and the 2003 projected landings (based on waves 1-5). The percent reduction necessary to achieve the 2004 recreational harvest limit relative to 2003 landings is also presented.

State	1998	2004 Target[1]	2003[2]	% Reduction
MA	383	244	180	0
RI	395	251	202	0
CT	261	166	163	0
NY	1,230	783	1,521	48.5
NJ	2,728	1,736	1,758	1.3
DE	219	139	104	0
MD	206	131	40	0
VA	1,165	741	444	0
NC	391	249	85	0

[1] Based on a 36.4% reduction in 1998 landings.

[2] Projected.

Table 2. Procedure for establishing summer flounder recreational management measures.

August

Council/Board recommend recreational harvest limit.

October

MRFSS data available for current year through wave 4.

November

Monitoring Committee meeting to develop recommendations to Council:

Overall % reduction required.

Use of coastwide measures or state conservation equivalency.

**Precautionary default measures.

**Coastwide measures.

December

Council/Board meeting to make recommendation to NMFS

State Conservation Equivalency

or

Coastwide measures.

State Conservation Equivalency Measures

Late December

Commission staff summarizes and distributes equivalency guideline to states.

Early January

Council staff submits recreational measure package to NMFS. Package includes:

Overall % reduction required.

- Recommendation to implement conservation equivalency and precautionary default measures (Preferred Alternative).

-Coastwide measures (Non-preferred Alternative).

States submit conservation equivalency proposals to ASMFC.

January 15

ASMFC distributes state conservation equivalency proposals to Technical Committee.

Late January

ASMFC Technical Committee meeting:

-Evaluation of proposals.

-ASMFC staff summarizes Technical Committee recommendations and distributes to Board.

February

Board meeting to approve/disapprove proposals and submits to NMFS within two weeks, but no later than end of February.

March 1 (on or around)

NMFS publishes proposed rule for recreational measures announcing the overall % reduction required, state conservation equivalency measures and precautionary default measures (as the preferred alternative), and coastwide measures as the non-preferred alternative.

March 15

During comment period, Board submits comment to inform whether conservation equivalency proposals are approved.

April

NMFS publishes final rule announcing overall % reduction required and one of the following scenarios:

-State specific conservation equivalency measures with precautionary default measures, or

-Coastwide measures.

Coastwide Measures

Early January

Council staff submits recreational measure package to NMFS. Package includes:

-Overall % reduction required.

-Coastwide measures.

February 15

NMFS publishes proposed rule for recreational measures announcing the overall % reduction required and Coastwide measures.

April

NMFS publishes final rule announcing overall % reduction required and Coastwide measures.

**Precautionary default measures - measures to achieve at least the % required reduction in each state, e.g., one fish possession limit and 15.5 inch bag limit would have achieved at least a 41% reduction in landings for each state in 1999.

**Coastwide measures - measure to achieve % reduction coastwide.

Table 3. The effect of various size and possession limits on 2003 summer flounder recreational landings. The table contains the proportional reduction in number of summer flounder landed adjusting for the effectiveness of 2003 regulations.

	Size (TL ")						
Bag	-	15.5	16	17	18	19	20
1	0.376	0.379	0.380	0.416	0.556	0.704	0.806
2	0.141	0.144	0.146	0.215	0.426	0.634	0.769
3	0.061	0.065	0.066	0.142	0.384	0.611	0.754
4	0.028	0.031	0.033	0.113	0.366	0.598	0.746
5	0.013	0.017	0.018	0.100	0.356	0.591	0.742
6	0.008	0.011	0.013	0.095	0.352	0.588	0.740
7	0.004	0.007	0.009	0.092	0.349	0.587	0.739
8	0.003	0.006	0.008	0.091	0.349	0.586	0.738

Table 4. The effect of various size and possession limits on 2001 summer flounder recreational landings by state. The tables contain the proportional reduction in number of summer flounder landed and are adjusted for the effectiveness of regulations in each state.

Coast

Size (TL")

Bag	0	15.0	15.5	16.0	16.5	17.0	17.5	18.0
1	0.409	0.413	0.413	0.435	0.488	0.543	0.592	0.652
2	0.164	0.170	0.170	0.216	0.306	0.393	0.462	0.552
3	0.081	0.089	0.090	0.146	0.249	0.344	0.419	0.521
4	0.040	0.049	0.050	0.113	0.222	0.320	0.400	0.507
5	0.024	0.034	0.035	0.098	0.209	0.308	0.391	0.500
6	0.016	0.026	0.027	0.091	0.202	0.303	0.387	0.496
7	0.012	0.022	0.023	0.087	0.198	0.300	0.385	0.494
8	0.009	0.019	0.020	0.084	0.196	0.299	0.384	0.493

Massachusetts

Size (TL")

Bag	0	15.0	15.5	16.0	16.5	17.0	17.5	18.0
1	0.238	0.238	0.238	0.238	0.238	0.286	0.524	0.571
2	0.000	0.000	0.000	0.000	0.000	0.190	0.429	0.476
3	0.000	0.000	0.000	0.000	0.000	0.190	0.429	0.476
4	0.000	0.000	0.000	0.000	0.000	0.190	0.429	0.476
5	0.000	0.000	0.000	0.000	0.000	0.190	0.429	0.476
6	0.000	0.000	0.000	0.000	0.000	0.190	0.429	0.476
7	0.000	0.000	0.000	0.000	0.000	0.190	0.429	0.476
8	0.000	0.000	0.000	0.000	0.000	0.190	0.429	0.476

Rhode Island

Size (TL")

Bag	0	15.0	15.5	16.0	16.5	17.0	17.5	18.0
1	0.417	0.417	0.417	0.417	0.417	0.417	0.417	0.462
2	0.167	0.167	0.167	0.167	0.167	0.167	0.167	0.295
3	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.250
4	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.235
5	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.227
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220
7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220

Table 4 (continued). The effect of various size and possession limits on 2001 summer flounder recreational landings by state. The tables contain the proportional reduction in number of summer flounder landed and are adjusted for the effectiveness of regulations in each state.

Connecticut

	Size (TL")						
Bag	**0**	**15.0**	**15.5**	**16.0**	**16.5**	**17.0**	**17.5**	**18.0**
1	0.414	0.414	0.414	0.414	0.414	0.414	0.414	0.477
2	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.270
3	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.207
4	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.189
5	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.171
6	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.153
7	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.144
8	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.135

New York

	Size (TL")						
Bag	**0**	**15.0**	**15.5**	**16.0**	**16.5**	**17.0**	**17.5**	**18.0**
1	0.345	0.345	0.345	0.345	0.345	0.345	0.400	0.468
2	0.123	0.123	0.123	0.123	0.123	0.123	0.217	0.319
3	0.047	0.047	0.047	0.047	0.047	0.047	0.149	0.255
4	0.021	0.021	0.021	0.021	0.021	0.021	0.128	0.238
5	0.009	0.009	0.009	0.009	0.009	0.009	0.115	0.226
6	0.004	0.004	0.004	0.004	0.004	0.004	0.111	0.221
7	0.000	0.000	0.000	0.000	0.000	0.000	0.106	0.217
8	0.000	0.000	0.000	0.000	0.000	0.000	0.106	0.217

New Jersey

	Size (TL")						
Bag	**0**	**15.0**	**15.5**	**16.0**	**16.5**	**17.0**	**17.5**	**18.0**
1	0.379	0.379	0.379	0.379	0.479	0.567	0.644	0.712
2	0.154	0.154	0.154	0.154	0.318	0.465	0.572	0.655
3	0.080	0.080	0.080	0.080	0.268	0.430	0.548	0.636
4	0.042	0.042	0.042	0.042	0.243	0.411	0.532	0.622
5	0.028	0.028	0.028	0.028	0.235	0.403	0.526	0.617
6	0.024	0.024	0.024	0.024	0.231	0.399	0.524	0.614
7	0.021	0.021	0.021	0.021	0.230	0.398	0.524	0.614
8	0.019	0.019	0.019	0.019	0.229	0.397	0.524	0.614

Table 4 (continued). The effect of various size and possession limits on 2001 summer flounder recreational landings by state. The tables contain the proportional reduction in number of summer flounder landed and are adjusted for the effectiveness of regulations in each state.

Delaware

	Size (TL″)							
Bag	**0**	**15.0**	**15.5**	**16.0**	**16.5**	**17.0**	**17.5**	**18.0**
1	0.308	0.308	0.308	0.308	0.308	0.308	0.308	0.408
2	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.258
3	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.217
4	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.201
5	0.037	0.037	0.037	0.037	0.037	0.037	0.037	0.194
6	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.187
7	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.181
8	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.174

Maryland

	Size (TL″)							
Bag	**0**	**15.0**	**15.5**	**16.0**	**16.5**	**17.0**	**17.5**	**18.0**
1	0.370	0.370	0.370	0.370	0.370	0.370	0.410	0.450
2	0.020	0.020	0.020	0.020	0.020	0.020	0.120	0.290
3	0.010	0.010	0.010	0.010	0.010	0.010	0.110	0.280
4	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.280
5	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.280
6	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.280
7	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.280
8	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.280

Virginia

	Size (TL″)							
Bag	**0**	**15.0**	**15.5**	**16.0**	**16.5**	**17.0**	**17.5**	**18.0**
1	0.513	0.513	0.513	0.563	0.613	0.686	0.723	0.758
2	0.225	0.225	0.225	0.348	0.439	0.539	0.596	0.656
3	0.116	0.116	0.116	0.270	0.374	0.487	0.547	0.620
4	0.055	0.055	0.055	0.229	0.335	0.452	0.522	0.602
5	0.028	0.028	0.028	0.203	0.310	0.429	0.508	0.594
6	0.013	0.013	0.013	0.189	0.298	0.423	0.504	0.591
7	0.005	0.005	0.005	0.181	0.292	0.421	0.502	0.588
8	0.001	0.001	0.001	0.178	0.289	0.421	0.502	0.588

Table 4 (continued). The effect of various size and possession limits on 2001 summer flounder recreational landings by state. The tables contain the proportional reduction in number of summer flounder landed and are adjusted for the effectiveness of regulations in each state.

North Carolina

	Size (TL″)							
Bag	**0**	**15.0**	**15.5**	**16.0**	**16.5**	**17.0**	**17.5**	**18.0**
1	0.329	0.329	0.329	0.474	0.599	0.691	0.783	0.882
2	0.099	0.099	0.099	0.289	0.493	0.645	0.743	0.868
3	0.026	0.026	0.026	0.243	0.474	0.632	0.743	0.868
4	0.000	0.000	0.000	0.230	0.474	0.632	0.743	0.868
5	0.000	0.000	0.000	0.230	0.474	0.632	0.743	0.868
6	0.000	0.000	0.000	0.230	0.474	0.632	0.743	0.868
7	0.000	0.000	0.000	0.230	0.474	0.632	0.743	0.868
8	0.000	0.000	0.000	0.230	0.474	0.632	0.743	0.868

Table 5. The effect of various size and possession limits on 2003 scup recreational landings. The table contains the proportional reduction in number of scup landed adjusting for the effectiveness of the 2003 management measures.

	Size (TL")			
bag	9	10	11	12
1	0.908	0.908	0.919	0.939
2	0.830	0.830	0.854	0.894
3	0.763	0.763	0.799	0.859
4	0.705	0.706	0.752	0.829
5	0.657	0.659	0.713	0.805
6	0.613	0.616	0.678	0.784
7	0.571	0.575	0.647	0.766
8	0.532	0.537	0.619	0.752
9	0.497	0.505	0.595	0.741
10	0.466	0.477	0.575	0.731
15	0.345	0.372	0.508	0.703
20	0.266	0.303	0.475	0.684
25	0.204	0.253	0.452	0.674
30	0.161	0.215	0.434	0.666
35	0.126	0.190	0.423	0.659
40	0.097	0.170	0.415	0.655
45	0.073	0.154	0.409	0.652
50	0.050	0.142	0.403	0.651

Table 6a. Average percent of scup landed (in number) by wave, based on 1996-2000 MRFSS landings data.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.0	0.0	37.4	31.5	31.1	0.0
RI	0.0	0.0	4.9	48.1	45.7	1.3
CT	0.0	0.0	8.2	49.6	42.2	0.0
NY	0.0	0.0	22.0	27.7	48.8	1.5
NJ	0.0	0.3	0.0	3.0	78.6	18.1
DE	0.0	0.0	0.0	9.0	89.9	1.1
MD	0.0	0.0	0.0	46.2	0.0	53.8
VA	0.0	0.0	0.0	0.0	87.8	12.2
NC	0.0	3.3	40.9	31.3	24.5	0.0
Coast	0.0	0.4	12.6	27.4	49.8	9.8

Table 6b. Projected reduction in scup landings (in number) associated with closing one day per wave, based on 1996-2000 MRFSS landings data.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	-	-	0.61	0.51	0.51	-
RI	-	-	0.08	0.78	0.75	0.02
CT	-	-	0.13	0.80	0.69	0.00
NY	-	-	0.36	0.45	0.80	0.02
NJ	-	0.01	-	0.05	1.29	0.30
DE	-	-	-	0.15	1.47	0.02
MD	-	-	-	0.74	-	0.88
VA	-	-	-	-	1.44	0.20
NC	-	0.05	0.67	0.50	0.40	-
Coast	-	0.01	0.21	0.44	0.82	0.16

Table 7a. Average percent of black sea bass landed (in number) by wave, 1996-2000, based on 1996-2000 MRFSS landings data.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.0000	0.0000	23.4694	24.6675	51.6401	0.2230
RI	0.0000	0.0029	1.8545	20.2479	64.9094	12.9853
CT	0.0000	0.0000	6.5206	62.5768	30.9027	0.0000
NY	0.0000	0.0000	9.6851	38.9277	47.8741	3.5131
NJ	0.0000	1.7127	26.9043	15.4321	52.4008	3.5500
DE	0.0000	0.7649	36.8219	29.6058	24.1154	8.6920
MD	0.0000	3.3434	34.1283	13.5413	16.8959	32.0911
VA	0.0000	3.5027	29.7212	17.9100	25.5224	23.3438
NC	0.0000	8.5527	26.8782	30.8952	15.9682	17.7056
Coast	0.0000	2.1402	27.0501	17.6799	42.1276	11.0022

Table 7b. Projected reduction in black sea bass landings (in number) associated with closing one day per wave, based on 1996-2000 MRFSS landings data.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.0000	0.0000	0.3847	0.3979	0.8466	0.0037
RI	0.0000	0.0000	0.0304	0.3266	1.0641	0.2129
CT	0.0000	0.0000	0.1069	1.0093	0.5066	0.0000
NY	0.0000	0.0000	0.1588	0.6279	0.7848	0.0576
NJ	0.0000	0.0281	0.4411	0.2489	0.8590	0.0582
DE	0.0000	0.0125	0.6036	0.4775	0.3953	0.1425
MD	0.0000	0.0548	0.5595	0.2184	0.2770	0.5261
VA	0.0000	0.0574	0.4872	0.2889	0.4184	0.3827
NC	0.0000	0.1402	0.4406	0.4983	0.2618	0.2903
Coast	0.0000	0.0351	0.4434	0.2852	0.6906	0.1804

Table 8. The effect of various size and possession limits on 2003 black sea bass recreational landings. The table contains the proportional reduction in number of black sea bass landed adjusting for the effectiveness of 2003 management measures.

	Size (TL ")				
BAG	12	12.5	13	13.5	14
1	0.750	0.767	0.789	0.808	0.827
2	0.594	0.629	0.666	0.705	0.735
3	0.478	0.530	0.588	0.639	0.686
4	0.397	0.468	0.536	0.598	0.656
5	0.337	0.415	0.493	0.562	0.632
6	0.286	0.367	0.456	0.533	0.613
7	0.242	0.327	0.429	0.513	0.597
8	0.206	0.295	0.408	0.497	0.584
9	0.176	0.267	0.390	0.485	0.573
10	0.148	0.243	0.377	0.475	0.564
11	0.125	0.224	0.364	0.467	0.556
12	0.105	0.208	0.353	0.459	0.549
13	0.088	0.195	0.344	0.453	0.543
14	0.073	0.185	0.336	0.447	0.537
15	0.062	0.176	0.330	0.442	0.534
20	0.027	0.149	0.304	0.418	0.520
25	0.000	0.136	0.292	0.407	0.519

Table 9. The number of summer flounder landed by mode, Maine through North Carolina, 1981-2002.

	TOTAL		
	SHORE	P/C	P/R
1981	3,145,682	1,362,254	5,058,638
1982	1,120,521	5,936,006	8,416,174
1983	3,963,674	3,574,229	13,458,397
1984	1,355,595	2,495,735	13,623,841
1985	786,184	1,152,248	9,127,759
1986	1,237,032	1,608,909	8,774,922
1987	406,095	1,150,096	6,308,571
1988	945,864	1,134,353	7,879,445
1989	180,270	141,320	1,395,175
1990	261,898	413,242	3,118,445
1991	565,403	597,608	4,904,636
1992	275,473	375,245	4,351,388
1993	342,226	1,013,464	5,138,355
1994	447,183	836,363	5,419,145
1995	241,904	267,349	2,816,463
1996	206,929	659,878	6,130,180
1997	255,066	930,636	5,981,121
1998	316,315	360,776	6,302,005
1999	213,446	300,808	3,592,740
2000	569,613	648,756	6,582,708
2001	226,995	329,703	4,736,910
2002	154,957	261,451	2,845,647
% of total	10	14	76

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division.

Table 10. The number of scup landed by mode, Maine through North Carolina, 1991-2002.

	TOTAL		
	SHORE	P/C	P/R
1981	772,163	1,054,555	7,256,990
1982	833,430	1,393,724	4,226,957
1983	2,227,111	2,996,661	3,612,789
1984	1,299,566	227,735	4,530,010
1985	1,121,593	325,847	9,362,606
1986	1,898,860	3,228,151	19,696,034
1987	522,310	583,976	8,809,699
1988	698,339	1,137,624	4,226,347
1989	882,604	1,033,319	7,260,511
1990	434,741	1,302,788	6,305,464
1991	1,625,128	2,250,042	9,403,917
1992	1,003,650	1,017,369	5,743,164
1993	284,525	1,762,458	3,616,037
1994	229,923	918,216	3,122,102
1995	222,397	837,390	1,359,241
1996	120,595	451,614	2,399,998
1997	141,367	453,066	1,321,999
1998	117,057	164,932	929,148
1999	197,877	821,996	2,230,778
2000	550,951	1,140,133	5,552,865
2001	766,084	768,894	3,563,842
2002	505,080	1,309,168	1,832,594
% of total	10	15	74

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division.

Table 11. The number of black sea bass landed by mode for recreational fishermen, Maine through North Carolina, 1991-2002.

	TOTAL		
	SHORE	P/C	P/R
1981	452,102	1,440,172	841,479
1982	81,445	8,104,206	2,063,333
1983	222,010	4,005,707	1,403,510
1984	98,228	1,128,295	1,264,893
1985	163,445	2,393,046	1,659,701
1986	1,021,523	16,695,386	4,187,086
1987	71,956	1,157,244	2,238,164
1988	140,755	1,691,299	2,227,900
1989	237,967	1,991,670	2,419,648
1990	289,380	2,268,913	1,710,456
1991	250,678	2,586,148	2,621,275
1992	45,368	2,043,188	1,780,225
1993	54,676	4,579,664	1,562,229
1994	243,346	2,005,888	1,321,626
1995	275,980	5,197,229	1,413,574
1996	70,522	2,631,734	1,062,026
1997	8,337	3,950,335	908,840
1998	7,073	777,874	474,072
1999	19,230	621,353	771,258
2000	177,489	1,797,698	1,780,238
2001	14,034	1,826,851	1,164,978
2002	16,619	2,066,234	1,338,448
% of total	4	64	33

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division.

Table 12. The percentage contribution by state to the total summer flounder, scup, and black sea bass recreational landings (MRFSS Type A+B1 in number of fish), from Maine through North Carolina, 2002.

State	Percent Summer Flounder Landings	Percent Scup Landings	Percent Black Sea Bass Landings
RI	5.85	16.54	2.28
MA	4.76	26.73	5.37
CT	2.86	24.18	0.52
NY	21.35	29.91	6.46
NJ	30.31	2.58	51.44
DE	3.28	0.02	17.75
MD	2.11	0.01	9.84
VA	23.67	0.04	3.87
NC	5.81	0.00	2.47
TOTAL	100.00	100.00	100.00

Table 13. The percentage (%) contribution of summer flounder to the total catch by party/charter vessels by state and month, 1996 - 2001.

STATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CT	0.00%	0.00%	0.00%	0.00%	2.15%	3.61%	3.51%	1.62%	0.41%	0.00%	0.00%	0.00%	1.44%
DE	-	-	-	0.02%	7.61%	12.64%	4.86%	11.71%	6.62%	1.47%	0.55%	0.26%	6.67%
ME	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%	0.01%
MD	0.00%	0.00%	0.00%	0.01%	0.11%	0.30%	0.20%	0.18%	0.28%	0.05%	0.02%	0.00%	0.16%
MA	0.00%	0.00%	0.00%	0.00%	0.03%	0.41%	1.78%	0.53%	0.16%	0.03%	0.00%	0.00%	0.49%
NH	-	-	0.00%	0.00%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NJ	0.00%	0.00%	0.00%	0.10%	7.16%	15.50%	23.21%	24.17%	12.52%	3.51%	0.23%	0.04%	11.86%
NY	0.00%	0.00%	0.12%	1.13%	49.88%	54.86%	50.51%	34.67%	11.33%	1.91%	0.29%	0.00%	27.09%
NC	0.00%	0.00%	0.00%	0.00%	1.65%	1.33%	1.12%	0.92%	0.19%	0.11%	0.00%	0.00%	0.94%
RI	0.00%	0.00%	0.00%	0.00%	6.09%	24.33%	25.12%	2.14%	1.11%	0.08%	0.20%	0.02%	4.95%
VA	0.00%	0.00%	0.00%	10.96%	5.34%	4.25%	1.31%	0.63%	1.41%	0.74%	3.32%	0.31%	2.14%
All	0.00%	0.00%	0.01%	0.34%	12.99%	18.82%	21.59%	15.60%	9.16%	2.42%	0.36%	0.03%	11.64%

Source: Unpublished NMFS Vessel Trip Report data.

Table 14. The percentage (%) contribution of scup to the total catch by party/charter vessels by state and month, 1996 - 2001.

STATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CT	0.00%	0.00%	0.00%	0.00%	0.01%	1.39%	2.37%	4.92%	8.08%	12.94%	2.13%	0.26%	5.86%
DE	-	-	-	0.00%	0.00%	0.00%	0.00%	1.03%	0.06%	0.43%	0.00%	0.00%	0.22%
ME	0.00%	0.00%	0.00%	0.05%	0.01%	0.02%	0.01%	0.01%	0.00%	3.76%	0.00%	0.00%	0.32%
MD	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.23%	2.63%	0.39%	0.27%	0.49%
MA	0.00%	0.00%	0.00%	0.02%	23.35%	37.94%	22.14%	13.49%	24.99%	16.56%	0.07%	0.00%	19.79%
NH	-	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NJ	1.76%	0.95%	0.62%	0.00%	0.02%	0.02%	0.29%	2.71%	6.85%	21.78%	22.45%	3.64%	6.50%
NY	0.00%	0.00%	0.00%	0.00%	0.21%	0.77%	14.20%	21.67%	46.34%	54.36%	33.88%	1.81%	24.99%
NC	0.00%	0.00%	0.00%	0.00%	0.00%	0.58%	1.44%	1.87%	0.88%	0.43%	0.00%	0.00%	1.05%
RI	0.00%	0.00%	0.00%	0.00%	1.38%	0.55%	11.57%	3.07%	12.97%	44.21%	32.68%	11.28%	9.14%
VA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.22%	0.00%	0.38%	0.10%	0.00%	0.00%	0.08%
All	1.14%	0.63%	0.27%	0.00%	4.89%	5.97%	5.88%	7.40%	18.98%	28.20%	22.36%	2.68%	11.08%

Source: Unpublished NMFS Vessel Trip Report data.

Table 15. The percentage (%) contribution of black sea bass to the total catch by party/charter vessels by state and month, 1996 - 2001.

STATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
CT	0.13%	0.00%	0.00%	0.00%	0.04%	0.10%	0.05%	0.19%	0.96%	0.55%	0.32%	0.00%	0.39%
DE		-	-	0.14%	69.05%	41.59%	10.56%	11.07%	34.01%	40.64%	0.00%	0.00%	17.36%
ME	0.00%	0.00%	0.00%	0.00%	0.02%	0.04%	0.00%	0.00%	0.00%	0.26%	0.00%	0.00%	0.03%
MD	0.00%	0.00%	0.04%	20.09%	96.73%	92.91%	46.07%	18.37%	44.95%	91.93%	97.32%	86.64%	60.60%
MA	0.00%	0.00%	0.00%	0.00%	2.36%	2.53%	3.59%	2.66%	4.60%	2.18%	0.35%	0.00%	2.51%
NH	-	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%
NJ	13.05%	17.48%	16.11%	3.43%	37.38%	31.19%	17.61%	19.12%	45.36%	58.85%	53.12%	18.52%	32.44%
NY	0.10%	0.02%	0.05%	0.47%	7.51%	15.63%	12.60%	21.59%	25.20%	25.66%	33.72%	7.81%	19.06%
NC	0.00%	1.78%	6.93%	17.45%	29.90%	37.40%	43.38%	38.24%	50.82%	28.97%	5.99%	0.00%	37.88%
RI	4.84%	0.00%	0.00%	0.08%	0.08%	1.15%	3.51%	0.57%	52.34%	8.32%	23.27%	17.40%	8.79%
VA	89.91%	68.51%	0.16%	50.01%	63.33%	18.03%	8.26%	5.25%	57.01%	90.68%	94.18%	94.03%	34.42%
All	10.09%	14.43%	7.04%	3.05%	24.40%	22.42%	13.65%	12.70%	33.89%	46.52%	50.75%	17.16%	23.84%

Source: Unpublished NMFS Vessel Trip Report data.

Table 16. Summary of federal management measures for the summer flounder recreational fishery, 1993-2003.

Measure	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Harvest Limit (m lb)	8.38	10.67	7.76	7.41	7.41	7.41	7.41	7.41	7.16	9.72	9.28
Landings (m lb)	8.83	9.33	5.42	9.82	11.87	12.48	8.37	16.47	11.64	8.00	11.56[b]
Possession Limit	6	8	6/8	10	8	8	8	8	3	[b]	[b]
Size Limit (in TL)	14	14	14	14	14.5	15	15	15.5	15.5	[b]	[b]
Open Season	5/15-9/30	4/15-10/15	-	-	-	-	5/29-9/11	5/10-10/2	5/25-9/4	[b]	[b]

[a] Projected.

[b]State specific conservation equivalency measures.

Table 17. Summer flounder recreational management measures by state, 2001.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16.5	7	May 26 - Sept. 5
Rhode Island	17.5	6	May 26 - Sept. 2
Connecticut	17.5	6	All year
New York	17.0	7	May 2 - Oct. 31
New Jersey	16.0	8	May 12 - Sept. 11
Delaware	17.5	8	May 5 - Dec. 31
Maryland	17.0	8	Apr. 25 - July 24 Aug. 7 - Dec. 31
Potomac River Fisheries Commission	16.0	8	July 13 - Dec. 31
Virginia	15.5	8	Mar. 29 - Jul. 24 Aug. 8 - Dec. 31
North Carolina	15.5	8	All year except May 1 - May 14

Table 18. Summer flounder recreational management measures by state, 2002.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16.5	7	All year
Rhode Island	18.0	5	May 25 - Sept. 20
Connecticut	17.0	6	All year
New York	17.0	7	May 2 - Oct. 31
New Jersey	16.5	8	May 18 - Sept. 24
Delaware	17.5	4	May 16 - Dec. 31
Maryland	17.0	8	Jan. 1 - July 24
			Aug. 12 - Dec. 31
Potomac River	17.0	8	Jan. 1 - July 24
Fisheries Commission			Aug. 12 - Dec. 31
Virginia	17.5	8	Mar. 29 - Jul. 23
			Aug. 8 - Dec. 31
North Carolina	15.5	8	July 4-Nov. 19

Table 19. Summer flounder recreational management measures by state, 2003.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16.5	7	All Year
Rhode Island	17.5	5	May 1 - Sept. 20
Connecticut	17	6	All year
New York	17	7	All Year
New Jersey	16.5	8	May 18 - Sept. 24
Delaware	17.5	4	All Year
Maryland	17	8	All Year
Potomac River Fisheries Commission	17	8	All Year
Virginia	17.5	8	Mar. 29 - Jul. 23 Aug. 8 - Dec. 31
North Carolina			
Ocean	15	8	Jan. 1 - Dec. 31
Inside	14	unlimited	Jan. 1 - Dec. 31

Table 20. Projected recreational summer flounder landings (in number of fish) relative to targets, for 2003, by state.

State	2003 Target	2003 Landings*	Difference (%)
MA	226,000	179,856	20
RI	233,000	201,933	13
CT	154,000	162,733	-6
NY	726,000	1,521,494	-110
NJ	1,612,000	1,757,566	-9
DE	129,000	104,005	19
MD	122,000	40,241	67
VA	689,000	444,497	35
NC	231,000	84,825	63

*Projected based on 2003 MRFSS data for waves 1-5 (January through October).

Table 21. Summary of management measures for the scup recreational fishery, 1996-2003.

Measure	1996	1997	1998	1999	2000	2001	2002[c]	2003[c]
Harvest Limit (m lb)	-	1.947	1.553	1.238	1.238	1.76	2.71	4.01
Landings (m lb)	2.156	1.198	0.875	1.886	5.443	4.262	3.624	9.598[a]
Possession Limit	-	-	-	-	-	50	20	50
Size Limit (in TL)[b]	7	7	7	7	-	9	10	10
Open Season	-	-	-	-	-	8/15-10/31	1/1-2/28 7/1-10/2	1/1-2/28 7/1-11/30

[a]Projected.

[b]Coastwide minimum size limit, some states have larger minimum size limits.

[c]The Board developed a conservation equivalency program for scup in 2002 and 2003.

Table 22. Scup recreational management measures by state, 2001.

State	Minimum Size	Possession Limit	Open Season
Massachusetts	9"	50 fish	Jan. 1-Oct. 6
Rhode Island	10"	50 fish	May 26-Sept. 2
Connecticut	9"	25 fish	June 3-Oct. 23
New York	9"	50 fish	July 1-Nov. 17
New Jersey	9"	50 fish	July 4-Dec. 31
Delaware	8"	50 fish	All year
Maryland	7"	50 fish	All year
Virginia	8"	50 fish	All year
North Carolina	8"	50 fish	All year (with the exception of May 1-May 14)

Table 23. Scup recreational management measures by state, 2002.

State	Minimum Size	Possession Limit	Open Season
Massachusetts	9"	100 fish for anglers on party charter boats 50 fish for all other anglers	May 10 - December 31
Rhode Island	10"	Period 1: 8 fish Period 2: 50 fish	Period 1: July 1 - August 23 Period 2: August 24 - December 31
Connecticut	10"	50 fish	July 13 - September 25
New York	10"	50 fish	Party/Charter Boats: June 25 - November 30 All other anglers: October 1 - November 30
New Jersey	10"	50 fish	July 1 - Dec. 31
Delaware	8"	50 fish	All year
Maryland	8"	50 fish	All year
Virginia	8"	50 fish	All year
North Carolina	8"	50 fish	All year

Table 24. Scup recreational management measures by state, 2003.

State	Minimum Size	Possession Limit	Open Season
Massachusetts	9"	100 fish for anglers on party/charter boats 50 fish for all other anglers	Jan. 1-May 10
Rhode Island	10"	50 fish	All year
Connecticut	10"	50 fish	May 24-Oct. 30
New York	10"	50 fish	All year
New Jersey	10"	50 fish	July 1-Dec. 31
Delaware	8"	50 fish	All year
Maryland	8"	50 fish	All year
Virginia	8"	50 fish	All year
North Carolina	8"	50 fish	All year

Table 25. Summary of management measures for the black sea bass recreational fishery, 1996-2003.

Measure	1996	1997	1998	1999	2000	2001	2002	2003
Harvest Limit (m lb)	-	-	3.15	3.15	3.15	3.15	3.43	3.43
Landings (m lb)	4.0	4.3	1.2	1.7	4.0	3.4	4.30	3.99[a]
Possession Limit	-	-	-[1]	-[1]	-[1]	25	25	25
Size Limit (TL in)	9	9	10	10	10	11	11.5	12
Open Season	-	-	1/1-7/30 8/16-12/31	-	-	1/1-2/28 5/10-12/31	-	1/1-9/1 9/16-11/30

[1]There was no federal possession limit but some states implemented a 20 fish possession limit in these years.

[2]Projected.

Table 26. Black sea bass recreational management measures by state, 2001.

State	Minimum Size	Possession Limit	Open Season
Massachusetts	12"	20	5/10-12/31
Rhode Island	11"	25	1/1-2/28 5/10-12/31
Connecticut	11"	25	5/10-12/31
New York	11"	25	1/1-2/28 5/10-12/31
New Jersey	11"	25	1/1-2/28 5/10-12/31
Delaware	11"	25	1/1-2/28 5/10-12/31
Maryland	11"	25	1/1-2/28 5/10-12/31
PRFC	11"	25	1/1-2/28 5/10-12/31
Virginia	11"	25	4/1-7/14 8/15-12/31
North Carolina	10"	25 fish-N. of Cape Hatteras	1/1-2/28 5/10-12/31- N. of Cape Hatteras

Table 27. Black sea bass recreational management measures by state, 2002.

State	Minimum Size	Possession Limit	Open Season
Massachusetts	12"	20	All year
Rhode Island	11.5"	25	All year
Connecticut	11.5"	25	All year
New York	11.5"	25	All year
New Jersey	11.5"	25	All year
Delaware	11.5"	25	5/10-12/31
Maryland	11.5"	25	1/1-2/28 5/10-12/31
PRFC	11.5"	25	All year
Virginia	11.5"	25	All year
North Carolina	11.5"	25 fish-N. of Cape Hatteras	All year

Table 28. Black sea bass recreational management measures by state, 2003.

State	Minimum Size	Possession Limit	Open Season
Massachusetts	12"	20	5/10-12/31
Rhode Island	12"	25	1/1-9/1 9/16-11/30
Connecticut	12"	25	1/1-9/1 9/16-11/30
New York	12"	25	1/1-9/1 9/16-11/30
New Jersey	12"	25	1/1-9/1 9/16-11/30
Delaware	12"	25	1/1-9/1 9/16-11/30
Maryland	12"	25	1/1-9/1 9/16-11/30
PRFC	12"	25	1/1-9/1 9/16-11/30
Virginia	12"	25	1/1-9/1 9/16-11/30
North Carolina	12"	25	All Year

Table 29. Recreational anglers' ratings (mean) of reasons for marine fishing, by subregion.

	New England			Mid-Atlantic		
Statement	Not Important	Somewhat Important	Very Important	Not Important	Somewhat Important	Very Important
To Spend Quality Time with Friends and Family	4.4%	14.3%	81.3%	3.0%	12.0%	85.0%
To Enjoy Nature and the Outdoors	1.4%	10.1%	88.5%	1.1%	11.6%	87.3%
To Catch Fish to Eat	42.2%	37.4%	20.4%	29.3%	40.1%	30.6%
To Experience the Excitement or Challenge of Sport Fishing	6.2%	24.9%	68.8%	8.4%	26.0%	65.6%
To be Alone	55.0%	27.9%	17.1%	57.7%	25.8%	16.4%
To Relax and Escape from my Daily Routine	3.4%	13.3%	83.3%	2.6%	11.9%	85.5%
To Fish in a Tournament or when Citations are Available	78.6%	14.0%	7.4%	73.4%	17.1%	9.5%

Source: Steinback *et al.*, 1999.

Table 30. Recreational anglers' ratings (mean) of fishing regulation methods, by subregion.

	New England		Mid-Atlantic	
Type of Regulation	Support	Oppose	Support	Oppose
Limits on the Minimum Size of Fish You Can Keep	92.5%	7.5%	93.2%	6.8%
Limits on the Number of Fish You Can Keep	91.1%	8.9%	88.3%	11.7%
Limits on the Times of the Year When You Can Keep the Fish You Catch	78.8%	21.2%	77.1%	22.9%
Limits on the Areas You Can Fish	67.9%	32.1%	66.0%	34.0%

Source: Steinback *et al.*, 1999.

Table 31. Recreational anglers' ratings (mean) of fishing regulation methods, by mode.

	Party/Charter		Private/Rental		Shore	
Type of Regulation	Support	Oppose	Support	Oppose	Support	Oppose
Limits on the Minimum Size of Fish You Can Keep	92.1%	7.9%	94.4%	5.6%	90.1%	9.9%
Limits on the Number of Fish You Can Keep	87.9%	12.1%	90.0%	10.0%	87.7%	12.3%
Limits on the Times of the Year When You Can Keep the Fish You Catch	79.2%	20.8%	78.3%	21.7%	75.0%	25.0%
Limits on the Areas You Can Fish	74.4%	25.6%	65.9%	34.1%	63.6%	36.4%

Source: Steinback *et al.*, 1999.

Table 32. Party/charter boats catch disposition (number of fish) from VTR data for all species, summer flounder, scup, and black sea bass, ME-NC, 1996-2001.

	All species		Summer flounder		Scup		Black sea bass	
	Landings (# of fish)	Discards (# of fish)	Landings (# of fish)	Discards (# of fish)	Landings (# of fish)	Discards (# of fish)	Landings (# of fish)	Discards (# of fish)
1996	3,385,534	1,281,615	346,648	384,972	318,946	47,831	1,197,819	199,731
1997	3,836,547	1,306,266	369,334	304,634	252,359	46,530	871,321	140,667
1998	3,590,045	2,058,840	324,681	334,433	398,024	101,558	471,049	278,223
1999	3,772,959	1,957,156	200,632	529,749	418,735	69,778	672,475	405,757
2000	3,893,901	1,901,499	250,380	381,379	669,089	130,275	1,080,271	737,392
2001	3,961,027	1,977,552	137,250	268,107	953,974	239,410	995,870	799,760

Source: Unpublished NMFS Vessel Trip Report data.

Table 33. Summer flounder, scup, and black sea bass recreational landings (MRFSS Type A+B1 in number of fish) by year and area, Maine through North Carolina.

	Summer Flounder		Scup		Black Sea Bass	
Year	State < 3 mi	EEZ > 3 mi	State < 3 mi	EEZ > 3 mi	State < 3 mi	EEZ > 3 mi
1995	95.94%	4.06%	67.22%	32.78%	19.71%	80.29%
1996	94.26%	5.74%	93.29%	6.71%	23.95%	76.05%
1997	90.83%	9.17%	91.18%	8.82%	14.07%	85.93%
1998	93.87%	6.13%	89.12%	10.88%	16.13%	83.87%
1999	88.30%	11.70%	91.70%	8.30%	27.36%	72.64%
2000	88.76%	11.24%	91.66%	8.34%	33.86%	66.14%
2001	92.33%	7.67%	93.51%	6.49%	19.44%	80.56%
Average	91.88%	8.12%	88.56%	11.44%	21.60%	78.40%

Source: MRFSS.

Table 34. MRFSS projected total estimated angler effort (fishing trips) in 2003, by state.

State	Party/Charter	Private/Rental	Shore
ME	14,030	403,080	487,629
NH	34,794	226,250	148,132
MA	143,393	2,301,275	1,644,316
RI	59,704	569,056	966,733
CT	62,524	868,619	625,285
NY	406,869	3,076,179	1,994,131
NJ	457,086	3,544,400	2,699,132
DE	36,772	528,718	477,730
MD	183,688	1,972,625	1,109,602
VA	87,687	1,964,496	950,247
NC	170,976	2,243,887	4,204,686
Total	1,657,523	17,698,585	15,307,623

Table 35. The percent of successful anglers landing 1 to 22 summer flounder (MRFSS Type A fish) per trip, waves 1-4, 2003.

C_PER_T	Frequency	Percent	Frequency	Percent
1	1438	59.64	1438	59.64
2	592	24.55	2030	84.20
3	183	7.59	2213	91.79
4	93	3.86	2306	95.64
5	65	2.70	2371	98.34
6	18	0.75	2389	99.09
7	8	0.33	2397	99.42
8	9	0.37	2406	99.79
9	2	0.08	2408	99.88
11	1	0.04	2409	99.92
14	1	0.04	2410	99.96
22	1	0.04	2411	100.00

Table 36. The percent of successful anglers landing 1 to 30 summer flounder (MRFSS Type A fish) per trip, 1992.

C_PER_T	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1622	51.9	1622	51.9
2	652	20.9	2274	72.8
3	395	12.6	2669	85.4
4	186	6.0	2855	91.4
5	120	3.8	2975	95.2
6	57	1.8	3032	97.0
7	20	0.6	3052	97.7
8	28	0.9	3080	98.6
9	3	0.1	3083	98.7
10	17	0.5	3100	99.2
11	1	0.0	3101	99.2
12	10	0.3	3111	99.6
13	3	0.1	3114	99.6
14	1	0.0	3115	99.7
15	7	0.2	3122	99.9
16	1	0.0	3123	99.9
21	1	0.0	3124	100.0
30	1	0.0	3125	100.0

Table 37. The percent of measured summer flounder (MRFSS Type A fish) less than 15" TL (1999), 15.5" TL (2000), and state specific size limits (2001 through 2003). The number in parentheses is sample size.

State	1999		2000		2001			2002			2003		
	% Below Size Limit	Number Measured	% Below Size Limit	Number Measured	% Below Size Limit	Number Measured	Size Limit	% Below Size Limit	Number Measured	Size Limit	% Below Size Limit	Number Measured	Size Limit
ME		-	-	-	-	-	-	-	-	-	-	-	-
NH		-	0	(1)	-	-	-	-	-	-	-	-	-
MA	25	(24)	23.3	(43)	3.9	(26)	16.5	20.8	(53)	16.5	15.6	(45)	16.5
RI	11.9	(160)	18.1	(282)	14.8	(196)	17.5	11.8	(228)	18.0	8.4	(250)	17.5
CT	15.5	(258)	2.9	(379)	3.1	(129)	17.5	5.8	(69)	17.0	7.8	(179)	17.0
NY	5.9	(272)	5.5	(325)	5.8	(274)	17.0	6.9	(246)	17.0	6.2	(482)	17.0
NJ	4.1	(635)	9.8	(705)	14.7	(1169)	16.0	6.1	(540)	16.5	6.4	(934)	16.5
DE	19	(216)	5.2	(249)	9.2	(325)	17.5	7.5	(267)	17.5	10.9	(266)	17.5
MD	3.8	(263)	9.1	(243)	4.0	(101)	17.0	5.2	(77)	17.0	5.0	(20)	17.0
VA	0.5	(183)	4.4	(386)	3.9	(1094)	15.5	24.6	(884)	17.5	14.6	(513)	17.5
NC	59.4	(544)	56.0	(703)	66.6	(915)	15.5	75.7	(474)	15.5	57.5	(73)	15.0
CST	18.9	(2555)	17.1	(3316)	17.2	(4229)	15.5	-	(2838)	-	13.2	(2763)	17.0

Table 38. Percent of summer flounder landings for each wave, 1994-1998.

	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
NH	0%	0%	0%	0%	100%	0%
MA	0%	0%	25%	71%	4%	0%
RI	0%	0%	26%	70%	3%	0%
CT	0%	0%	17%	76%	7%	0%
NY	0%	0%	28%	59%	13%	0%
NJ	0%	0%	25%	47%	28%	0%
DE	0%	0%	25%	64%	10%	0%
MD	0%	3%	27%	61%	9%	0%
VA	0%	3%	41%	38%	16%	0%
NC	0%	6%	26%	32%	30%	7%
Coast	0%	0.9%	28%	51%	19%	0%

Table 39. Effort effects of individual management measures in isolation, by mode (2003 catch and effort estimates were used to project 2004 effects).

	Party/Charter			Private/Rental			Shore		
	Affected Trips	Total Trips	% of Total Trips	Affected Trips	Total Trips	% of Total Trips	Affected Trips	Total Trips	% of Total Trips
Fluke Alternative 1	?	1,657,523	?	?	17,698,585	?	?	15,307,623	?
Fluke precautionary default measures	97,954	1,657,523	5.91%	936,621	17,698,585	5.29%	29,617	15,307,623	0.19%
Fluke Alternative 2	18,787	1,657,523	1.13%	199,620	17,698,585	1.13%	950	15,307,623	0.01%
Scup Alternative 1	39,438	1,657,523	2.38%	278,687	17,698,585	1.57%	72,604	15,307,623	0.47%
Scup Alternative 2	19,925	1,657,523	1.20%	100,008	17,698,585	0.57%	16,023	15,307,623	0.10%
Scup Alternative 3	52,486	1,657,523	3.17%	397,385	17,698,585	2.25%	110,580	15,307,623	0.72%
BSB Alternative 1	14,052	1,657,523	0.85%	16,555	17,698,585	0.09%	1,956	15,307,623	0.01%
BSB Alternative 2	10,891	1,657,523	0.66%	12,350	17,698,585	0.07%	1,187	15,307,623	0.01%
BSB Alternative 3	23,487	1,657,523	1.42%	4,169	17,698,585	0.02%	6	15,307,623	<0.01%

Table 40. The percent of measured scup(MRFSS Type A fish) less than 7, 8, 9, and 10" TL by state, 2000 through 2003. The number in parentheses is sample size.

2000

State	7"	8"	9"	10"	
ME	-	-	-	-	(0)
NH	-	-	-	-	(0)
MA	35.7	42.9	42.9	42.9	(28)
RI	0	0	0.7	9.3	(151)
CT	0	2.3	21	57.4	(176)
NY	0.6	19.6	31.9	46.6	(163)
NJ	25	25	100	100	(4)
DE	0	0	60	100	(10)
MD	-	-	-	-	(0)
VA	0	0	0	0	(1)
NC	0	0	0	0	(2)
Total	2.2	9.2	20.9	40.6	(535)

2001

State	7"	8"	9"	10"	
ME	-	-	-	-	(0)
NH	-	-	-	-	(0)
MA	0	0	2.7	15.1	(73)
RI	0	2.1	9.2	27.7	(523)
CT	0	0.3	0.9	7.3	(328)
NY	0	0	8.2	22.5	(49)
NJ	0	0	1.8	26.8	(56)
DE	0	0	40	60	(5)
MD	-	-	-	-	(0)
VA	-	-	-	-	(0)
NC	0	0	0	0	(3)
Total	0	1.2	5.8	20.2	(1037)

2002

State	7"	8"	9"	10"	
ME	-	-	-	-	(0)
NH	-	-	-	-	(0)
MA	0	0	0.4	3.7	(243)
RI	0	0	0.7	10.8	(297)
CT	0	0	0	7.5	(93)
NY	0	0	1.4	21.4	(70)
NJ	0	0	0	5.3	(19)
DE	0	0	0	0	(1)
MD	0	0	0	0	(1)
VA	-	-	-	-	(0)
NC	-	-	-	-	(0)
Total	0	0	0.6	8.8	(724)

Table 40 (continued). The percent of measured scup(MRFSS Type A fish) less than 7, 8, 9, and 10" TL by state, 2000 through 2003. The number in parentheses is sample size.

	2003[1]				
State	7"	8"	9"	10"	
ME	-	-	-	-	(0)
NH	-	-	-	-	(0)
MA	0	0	2.5	21.4	(646)
RI	0	0.4	2.1	3.7	(243)
CT	0	0	0	6.0	(185)
NY	0	0	0	0.8	(477)
NJ	0	0	0	0	(10)
DE	0	0	100	100	(3)
MD	-	-	-	-	(0)
VA	-	-	-	-	(0)
NC	-	-	-	-	(0)
Total	0	0.1	1.5	10.6	(1564)

[1] Waves 1-4

Table 41. The effect of various size and possession limits on 2003 scup recreational landings. The table contains the proportional reduction in number of scup landed adjusting for the effectiveness of the 2003 management measures.

	Size (TL")			
bag	9	10	11	12
1	0.908	0.908	0.919	0.939
2	0.830	0.830	0.854	0.894
3	0.763	0.763	0.799	0.859
4	0.705	0.706	0.752	0.829
5	0.657	0.659	0.713	0.805
6	0.613	0.616	0.678	0.784
7	0.571	0.575	0.647	0.766
8	0.532	0.537	0.619	0.752
9	0.497	0.505	0.595	0.741
10	0.466	0.477	0.575	0.731
15	0.345	0.372	0.508	0.703
20	0.266	0.303	0.475	0.684
25	0.204	0.253	0.452	0.674
30	0.161	0.215	0.434	0.666
35	0.126	0.190	0.423	0.659
40	0.097	0.170	0.415	0.655
45	0.073	0.154	0.409	0.652
50	0.050	0.142	0.403	0.651

Table 42. The percent of successful anglers landing 1 to 105 scup (MRFSS Type A fish) per trip, waves 1-4, 2003.

C_PER_T	Frequency	Percent	Frequency	Percent
1	123	21.77	123	21.77
2	53	9.38	176	31.15
3	77	13.63	253	44.78
4	51	9.03	304	53.81
5	37	6.55	341	60.35
6	22	3.89	363	64.25
7	18	3.19	381	67.43
8	17	3.01	398	70.44
9	14	2.48	412	72.92
10	21	3.72	433	76.64
11	12	2.12	445	78.76
12	9	1.59	454	80.35
13	15	2.65	469	83.01
14	14	2.48	483	85.49
15	13	2.30	496	87.79
16	6	1.06	502	88.85
17	2	0.35	504	89.20
18	4	0.71	508	89.91
20	4	0.71	512	90.62
21	6	1.06	518	91.68
24	4	0.71	522	92.39
25	2	0.35	524	92.74
26	2	0.35	526	93.10
27	1	0.18	527	93.27
28	3	0.53	530	93.81
29	1	0.18	531	93.98
30	1	0.18	532	94.16
31	1	0.18	533	94.34
33	3	0.53	536	94.87
35	2	0.35	538	95.22
36	1	0.18	539	95.40
38	1	0.18	540	95.58
39	1	0.18	541	95.75
41	2	0.35	543	96.11
43	1	0.18	544	96.28
44	2	0.35	546	96.64
45	2	0.35	548	96.99
47	1	0.18	549	97.17
56	2	0.35	551	97.52
60	7	1.24	558	98.76
62	1	0.18	559	98.94
63	1	0.18	560	99.12
73	1	0.18	561	99.29
75	1	0.18	562	99.47
78	1	0.18	563	99.65
79	1	0.18	564	99.82
105	1	0.18	565	100.00

Table 43. The percent of successful anglers landing 1 to 25 scup (MRFSS Type A fish) per trip, waves 1-4, 2002.

C_PER_T	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	89	29.77	89	29.77
2	41	13.71	130	43.48
3	48	16.05	178	59.53
4	35	11.71	213	71.24
5	14	4.68	227	75.92
6	20	6.69	247	82.61
7	3	1.00	250	83.61
8	23	7.69	273	91.30
10	4	1.34	277	92.64
12	1	0.33	278	92.98
13	2	0.67	280	93.65
14	2	0.67	282	94.31
15	1	0.33	283	94.65
19	5	1.67	288	96.32
21	3	1.00	291	97.32
25	8	2.68	299	100.00

Table 44. The percent of successful anglers landing 1 to 34 black sea bass (MRFSS Type A fish) per trip, waves 1-4, 2003.

C_PER_T	Frequency	Percent	Frequency	Percent
1	477	42.03	477	42.03
2	178	15.68	655	57.71
3	118	10.40	773	68.11
4	85	7.49	858	75.59
5	57	5.02	915	80.62
6	31	2.73	946	83.35
7	31	2.73	977	86.08
8	31	2.73	1008	88.81
9	18	1.59	1026	90.40
10	4	0.35	1030	90.75
11	20	1.76	1050	92.51
12	20	1.76	1070	94.27
13	5	0.44	1075	94.71
14	5	0.44	1080	95.15
15	18	1.59	1098	96.74
16	1	0.09	1099	96.83
17	4	0.35	1103	97.18
18	6	0.53	1109	97.71
19	2	0.18	1111	97.89
21	6	0.53	1117	98.41
23	3	0.26	1120	98.68
24	4	0.35	1124	99.03
25	6	0.53	1130	99.56
34	5	0.44	1135	100.00

Table 45. The percent of successful anglers landing 1 to 30 black sea bass (MRFSS Type A fish) per trip, 2002.

C_PER_T	Frequency	Percent	Frequency	Percent
1	285	31.22	285	31.22
2	148	16.21	433	47.43
3	124	13.58	557	61.01
4	72	7.89	629	68.89
5	53	5.81	682	74.70
6	31	3.40	713	78.09
7	23	2.52	736	80.61
8	44	4.82	780	85.43
9	16	1.75	796	87.19
10	12	1.31	808	88.50
11	12	1.31	820	89.81
12	19	2.08	839	91.89
13	16	1.75	855	93.65
14	3	0.33	858	93.98
15	16	1.75	874	95.73
16	4	0.44	878	96.17
17	5	0.55	883	96.71
18	7	0.77	890	97.48
20	5	0.55	895	98.03
22	2	0.22	897	98.25
23	2	0.22	899	98.47
25	1	0.11	900	98.58
26	1	0.11	901	98.69
27	2	0.22	903	98.90
28	9	0.99	912	99.89
30	1	0.11	913	100.00

Table 46. Measured black sea bass (MRFSS Type A fish) less than 10" TL (1992-1999) , 11" (2000-2001), 11.5" (2002), and 12" (2003) by state and year.

	Year											
State	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003*
ME												
NH									0	7.1	0	0
MA	14.3	0	0	0	0	0	0	-	44.4	0	0	5.4
RI	23.1	2.3	5.3	32.2	10.0	28.6	15.6	2.9	17.4	2.7	0	0
CT	50.0	55.6	-	44.4	0	0	0	0	0	0	0	0
NY	54.7	45.5	70.3	60.9	25.0	55.2	0	37.9	42.2	4.4	10.0	12.3
NJ	39.4	38.1	35.0	60.2	37.0	36.2	8.4	3.1	47.0	2.5	3.2	4.4
DE	52.1	51.1	56.5	55.4	36.7	24.0	8.5	4.8	26.1	9.8	11.9	8.4
MD	35.0	21.2	29.2	34.7	0	15.0	10.0	3.0	37.2	6.4	2.6	2.3
VA	31.5	42.6	47.8	50.5	52.7	20.1	18.9	15.3	9.3	6.3	8.4	6.5
NC	30.6	37.1	29.8	39.9	26.5	26.3	33.5	17.4	31.7	22.5	17.8	50.0
TOTAL	38.4	40.7	44.3	48.6	42.3	26.5	18.4	13.1	25.6	8.2	9.0	9.5

*waves 1-4

Table 47. Effort Effects of Combined Management Measures, by Mode (2003 catch and effort estimates were used to project 2004 effects).

	Party/Charter			Private/Rental			Shore		
	Affected Trips	Total Trips	% of Total	Affected Trips	Total Trips	% of Total	Affected Trips	Total Trips	% of Total
Fluke precautionary default measures, Scup Alt 1, BSB Alt 1[a]	151,445	1,657,523	9.14	1,231,863	17,698,585	6.96	104,178	15,307,623	0.68
Fluke precautionary default measures, Scup Alt1, BSB Alt 2[b]	148,284	1,657,523	8.95	1,227,657	17,698,585	6.94	103,409	15,307,623	0.68
Fluke precautionary default measures, Scup Alt1, BSB Alt 3[c]	160,880	1,657,523	9.71	1,219,476	17,698,585	6.89	102,228	15,307,623	0.67
Fluke precautionary default measures, Scup Alt2, BSB Alt 1[d]	131,932	1,657,523	7.96	1,053,184	17,698,585	5.95	47,596	15,307,623	0.31
Fluke precautionary default measures, Scup Alt2, BSB Alt 2[e]	128,771	1,657,523	7.77	1,048,979	17,698,585	5.93	46,827	15,307,623	0.31
Fluke precautionary default measures, Scup Alt2, BSB Alt 3[f]	141,367	1,657,523	8.53	1,040,797	17,698,585	5.88	45,646	15,307,623	0.30
Fluke precautionary default measures, Scup Alt3, BSB Alt 1[g]	164,492	1,657,523	9.92	1,350,561	17,698,585	7.63	142,154	15,307,623	0.93
Fluke precautionary default measures, Scup Alt3, BSB Alt 2[h]	161,331	1,657,523	9.73	1,346,356	17,698,585	7.61	141,385	15,307,623	0.92
Fluke precautionary default measures, Scup Alt3, BSB Alt 3[i]	173,927	1,657,523	10.49	1,338,174	17,698,585	7.56	140,204	15,307,623	0.92
Fluke Alt2, Scup Alt1, BSB Alt1[j]	72,277	1,657,523	4.36	494,863	17,698,585	2.80	75,511	15,307,623	0.49
Fluke Alt2, Scup Alt1, BSB Alt2[k]	69,116	1,657,523	4.17	490,657	17,698,585	2.77	74,742	15,307,623	0.49
Fluke Alt2, Scup Alt1, BSB Alt3[l]	81,712	1,657,523	4.93	482,476	17,698,585	2.73	73,561	15,307,623	0.48
Fluke Alt2, Scup Alt2, BSB Alt1[m]	52,764	1,657,523	3.18	316,184	17,698,585	1.79	75,511	15,307,623	0.49
Fluke Alt2, Scup Alt2, BSB Alt2[n]	49,603	1,657,523	2.99	311,978	17,698,585	1.76	18,160	15,307,623	0.12
Fluke Alt2, Scup Alt2, BSB Alt3[o]	62,199	1,657,523	3.75	303,797	17,698,585	1.72	16,979	15,307,623	0.11
Fluke Alt2, Scup Alt3, BSB Alt1[p]	85,325	1,657,523	5.15	613,561	17,698,585	3.47	113,487	15,307,623	0.74
Fluke Alt2, Scup Alt3, BSB Alt2[q]	82,163	1,657,523	4.96	609,355	17,698,585	3.44	112,718	15,307,623	0.74
Fluke Alt2, Scup Alt3, BSB Alt3[r]	94,759	1,657,523	5.72	601,174	17,698,585	3.40	111,537	15,307,623	0.73

[a]Fluke precautionary default measures, Scup Preferred, BSB Preferred

[b]Fluke precautionary default measures, Scup Preferred, BSB Non-Preferred Status Quo

[c]Fluke precautionary default measures, Scup Preferred, BSB Non-Preferred Monitoring Committee

[d]Fluke precautionary default measures, Scup Non-Preferred Status Quo, BSB Preferred

[e]Fluke precautionary default measures, Scup Non-Preferred Status Quo, BSB Non-Preferred Status Quo

[f]Fluke precautionary default measures, Scup Non-Preferred Status Quo, BSB Non-Preferred Monitoring Committee

[g]Fluke precautionary default measures, Scup Non-Preferred Monitoring Committee, BSB Preferred

[h]Fluke precautionary default measures, Scup Non-Preferred Monitoring Committee, BSB Non-Preferred Status Quo

[i]Fluke precautionary default measures, Scup Non-Preferred Monitoring Committee, BSB Non-Preferred Monitoring Committee

[j]Fluke Non-Preferred Coastwide, Scup Preferred, BSB Preferred

[k]Fluke Non-Preferred Coastwide, Scup Preferred, BSB Non-Preferred Status Quo

[l]Fluke Non-Preferred Coastwide, Scup Preferred, BSB Non-Preferred Monitoring Committee

[m]Fluke Non-Preferred Coastwide, Scup Non-Preferred Status Quo, BSB Preferred

[n]Fluke Non-Preferred Coastwide, Scup Non-Preferred Status Quo, BSB Non-Preferred Status Quo

[o]Fluke Non-Preferred Coastwide, Scup Non-Preferred Status Quo, BSB Non-Preferred Monitoring Committee

[p]Fluke Non-Preferred Coastwide, Scup Non-Preferred Monitoring Committee, BSB Preferred

[q]Fluke Non-Preferred Coastwide, Scup Non-Preferred Monitoring Committee, BSB Non-Preferred Status Quo

[r]Fluke Non-Preferred Coastwide, Scup Non-Preferred Monitoring Committee, BSB Non-Preferred Monitoring Committee

Table 48. Average daily trip expenditures by recreational fishermen in the Northeast region by mode, in 1998.

Expenditures	Party/Charter	Private/Rental	Shore
	$		
Travel	4.77	5.27	5.39
Food, drink, refreshments	16.06	13.18	13.37
Lodging at motels, cabins, lodges, campgrounds	5.53	1.51	5.28
Public transportation or car rental	1.46	0.48	0.87
Boat fuel	0	13.40	0
Guide or package fees	33.22	0	0
Access and/or boat launching fees	0.86	3.72	0.41
Equipment	1.66	0.42	0.21
Bait	2.18	6.95	5.15
Ice	1.39	2.48	1.79
Total	67.12	47.42	32.48

Table 49. Regional Economic Impacts of Combined Management Measures Assuming a 25% Reduction in the Number of Affected Trips.

	Party/Charter			Private/Rental			Shore			Total		
	Sales	Income	Jobs	Sales	Income	Jobs	Sales	Income	Jobs	Sales	Income	Jobs
	(thousand dollars)			(thousand dollars)			(thousand dollars)			(thousand dollars)		
Combination 1[a]	4,307	1,694	74	16,321	6,179	195	1,074	443	20	21,702	8,316	289
Combination 2[b]	4,217	1,660	73	16,265	6,154	194	1,066	439	19	21,548	8,253	286
Combination 3[c]	4,575	1,793	79	16,157	6,111	193	1,054	434	18	21,786	8,338	290
Combination 4[d]	3,752	1,470	65	13,954	5,278	167	491	202	8	18,197	6,950	240
Combination 5[e]	3,662	1,441	64	13,898	5,257	166	483	198	7	18,043	6,896	237
Combination 6[f]	4,020	1,585	70	13,790	5,245	165	471	194	7	18,281	7,024	242
Combination 7[g]	4,678	1,839	81	17,894	6,803	214	1,467	603	22	24,039	9,245	317
Combination 8[h]	4,588	1,802	79	17,838	6,776	213	1,459	596	21	23,885	9,174	313
Combination 9[i]	4,946	1,946	85	17,809	6,721	209	1,447	590	21	24,202	9,257	315
Combination 10[a]	2,048	812	35	6,578	2,473	78	779	300	9	9,405	3,585	122
Combination 11[b]	1,958	776	34	6,522	2,452	77	771	297	9	9,251	3,525	120
Combination 12[c]	2,315	917	40	6,392	2,403	75	759	292	9	9,466	3,612	124
Combination 13[d]	1,505	596	26	4,189	1,586	50	779	300	9	6,473	2,482	85
Combination 14[e]	1,415	560	24	4,133	1,570	49	187	72	3	5,735	2,202	76
Combination 15[f]	1,774	700	30	4,025	1,523	48	175	68	3	5,974	2,291	81
Combination 16[g]	2,434	959	41	8,129	3,076	97	1,170	455	20	11,733	4,490	158
Combination 17[h]	2,337	921	40	8,073	3,045	96	1,162	450	20	11,572	4,416	156
Combination 18[i]	2,695	1,059	46	7,965	3,014	95	1,150	446	20	11,810	4,519	161

[a]Fluke precautionary default measures, Scup Alternative 1, BSB Alternative 1
[b]Fluke precautionary default measures, Scup Alternative 1, BSB Alternative 2
[c]Fluke precautionary default measures, Scup Alternative 1, BSB Alternative 3
[d]Fluke precautionary default measures, Scup Alternative 2, BSB Alternative 1
[e]Fluke precautionary default measures, Scup Alternative 2, BSB Alternative 2
[f]Fluke precautionary default measures, Scup Alternative 2, BSB Alternative 3
[g]Fluke precautionary default measures, Scup Alternative 3, BSB Alternative 1
[h]Fluke precautionary default measures, Scup Alternative 3, BSB Alternative 2
[i]Fluke precautionary default measures, Scup Alternative 3, BSB Alternative 3
[j]Fluke Alternative 2, Scup Alternative 1, BSB Alternative 1
[k]Fluke Alternative 2, Scup Alternative 1, BSB Alternative 2
[l]Fluke Alternative 2, Scup Alternative 1, BSB Alternative 3
[m]Fluke Alternative 2, Scup Alternative 2, BSB Alternative 1
[n]Fluke Alternative 2, Scup Alternative 2, BSB Alternative 2
[o]Fluke Alternative 2, Scup Alternative 2, BSB Alternative 3
[p]Fluke Alternative 2, Scup Alternative 3, BSB Alternative 1
[q]Fluke Alternative 2, Scup Alternative 3, BSB Alternative 2
[r]Fluke Alternative 2, Scup Alternative 3, BSB Alternative 3

Table 50. Regional Economic Impacts of Combined Management Measures Assuming a 50% Reduction in the Number of Affected Trips.

	Party/Charter			Private/Rental			Shore			Total		
	Sales	Income	Jobs	Sales	Income	Jobs	Sales	Income	Jobs	Sales	Income	Jobs
	(thousand dollars)			(thousand dollars)			(thousand dollars)			(thousand dollars)		
Combination 1[a]	8,614	3,388	148	32,642	12,358	390	2,148	886	40	43,404	16,632	578
Combination 2[b]	8,434	3,320	146	32,530	12,308	388	2,132	878	38	43,096	16,506	572
Combination 3[c]	9,150	3,586	158	32,314	12,222	386	2,108	868	36	43,572	16,676	580
Combination 4[d]	7,504	2,940	130	27,908	10,556	334	982	404	16	36,394	13,900	480
Combination 5[e]	7,324	2,882	128	27,796	10,514	332	966	396	14	36,086	13,792	474
Combination 6[f]	8,040	3,170	140	27,580	10,490	330	942	388	14	36,562	14,048	484
Combination 7[g]	9,356	3,678	162	35,788	13,606	428	2,934	1,206	44	48,078	18,490	634
Combination 8[h]	9,176	3,604	158	35,676	13,552	426	2,918	1,192	42	47,770	18,348	626
Combination 9[i]	9,892	3,892	170	35,618	13,442	418	2,894	1,180	42	48,404	18,514	630
Combination 10[j]	4,096	1,624	70	13,156	4,946	156	1,558	600	18	18,810	7,170	244
Combination 11[k]	3,916	1,552	68	13,044	4,904	154	1,542	594	18	18,502	7,050	240
Combination 12[l]	4,630	1,834	80	12,784	4,806	150	1,518	584	18	18,932	7,224	248
Combination 13[m]	3,010	1,192	52	8,378	3,172	100	1,558	600	18	12,946	4,964	170
Combination 14[n]	2,830	1,120	48	8,266	3,140	98	374	144	6	11,470	4,404	152
Combination 15[o]	3,548	1,400	60	8,050	3,046	96	350	136	6	11,948	4,582	162
Combination 16[p]	4,868	1,918	82	16,258	6,152	194	2,340	910	40	23,466	8,980	316
Combination 17[q]	4,674	1,842	80	16,146	6,090	192	2,324	900	40	23,144	8,832	312
Combination 18[r]	5,390	2,118	92	15,930	6,028	190	2,300	892	40	23,620	9,038	322

[a]Fluke precautionary default measures, Scup Alternative 1, BSB Alternative 1
[b]Fluke precautionary default measures, Scup Alternative 1, BSB Alternative 2
[c]Fluke precautionary default measures, Scup Alternative 1, BSB Alternative 3
[d]Fluke precautionary default measures, Scup Alternative 2, BSB Alternative 1
[e]Fluke precautionary default measures, Scup Alternative 2, BSB Alternative 2
[f]Fluke precautionary default measures, Scup Alternative 2, BSB Alternative 3
[g]Fluke precautionary default measures, Scup Alternative 3, BSB Alternative 1
[h]Fluke precautionary default measures, Scup Alternative 3, BSB Alternative 2
[i]Fluke precautionary default measures, Scup Alternative 3, BSB Alternative 3
[j]Fluke Alternative 2, Scup Alternative 1, BSB Alternative 1
[k]Fluke Alternative 2, Scup Alternative 1, BSB Alternative 2
[l]Fluke Alternative 2, Scup Alternative 1, BSB Alternative 3
[m]Fluke Alternative 2, Scup Alternative 2, BSB Alternative 1
[n]Fluke Alternative 2, Scup Alternative 2, BSB Alternative 2
[o]Fluke Alternative 2, Scup Alternative 2, BSB Alternative 3
[p]Fluke Alternative 2, Scup Alternative 3, BSB Alternative 1
[q]Fluke Alternative 2, Scup Alternative 3, BSB Alternative 2
[r]Fluke Alternative 2, Scup Alternative 3, BSB Alternative 3

Table 51. Summary of Landings Combinations by Vessels Reporting Party/Charter Trips (Calendar year 2002 VTR Data).

State	Landed Fluke, BSB, and Scup	Landed BSB Only	Landed BSB and Scup	Landed BSB and Fluke	Landed Scup Only	Landed Fluke Only	Landed Fluke and Scup	Total
ME	0	1	0	0	0	2	0	3
NH	0	0	0	1	0	0	0	1
MA	12	2	1	2	2	10	0	29
RI	16	1	0	3	1	5	2	28
CT	8	0	0	1	1	2	4	16
NY	63	2	3	21	1	13	2	105
NJ	40	6	2	44	1	16	0	109
DE	1	0	0	1	0	0	0	2
MD	1	2	0	1	0	1	0	5
VA	3	7	0	7	0	8	0	25
NC	2	1	0	1	0	0	0	4
Total	146	22	6	82	6	57	8	327

Table 52. Number of summer flounder recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2004.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of Summer Flounder (million lb)[b]
1991	4,536,651	None	7.96
1992	3,820,071	None	7.15
1993	4,671,638	8.38	8.83
1994	5,769,037	10.67	9.33
1995	4,683,754	7.76	5.42
1996	4,885,179	7.41	9.82
1997	5,595,636	7.41	11.87
1998	5,268,926	7.41	12.48
1999	4,219,909	7.41	8.37
2000	5,802,215	7.41	16.47
2001	6,130,383	7.16	11.64
2002	4,564,011	9.72	8.00
2003	5,543,212	9.28	11.56[c]
2004	-	11.21[d]	-

[a] Estimated number of recreational fishing trips (expanded) where the primary target species was summer flounder, Maine through North Carolina. Source: Scott Steinback, NMFS/NER/NEFSC.

[b] From Maine through North Carolina. Source: MRFSS.

[c] Projected landings based on 2002 data.

[d] Adjusted for research set-aside.

Table 53. Number of scup recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2004.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of Scup (million lb)[b]
1991	793,593	None	8.09
1992	499,780	None	4.41
1993	499,703	None	3.20
1994	435,625	None	2.63
1995	242,956	None	1.34
1996	241,322	None	2.16
1997	198,754	1.95	1.20
1998	213,842	1.55	0.88
1999	231,596	1.24	1.89
2000	485,039	1.24	5.43
2001	484,604	1.76	4.26
2002	481,716	2.71[d]	3.62
2003	845,959	4.01[d]	9.59[c]
2004	-	3.99[d]	-

[a]Estimated number of recreational fishing trips where the primary target species was scup, Maine through North Carolina. Source: Scott Steinback, NMFS/NEFSC.

[b]From Maine to North Carolina. Source MRFSS.

[c]Projected landings based on 2002 data.

[d]Adjusted for research set-aside.

Table 54. Number of black sea bass recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2004.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of BSB (million lb)[b]
1991	288,691	None	4.19
1992	263,957	None	2.71
1993	299,404	None	4.84
1994	253,888	None	2.95
1995	313,537	None	6.21
1996	231,090	None	4.00
1997	310,898	None	4.27
1998	137,734	3.15	1.15
1999	136,452	3.15	1.70
2000	255,789	3.15	4.01
2001	293,191	3.15	3.42
2002	283,537	3.43[d]	4.35
2003	276,712	3.43[d]	3.99[c]
2004	-	4.01[d]	-

[a]Estimated number of recreational fishing trips (expanded) where the primary target species was black sea bass, Maine through North Carolina. Source: Scott Steinback, NMFS/NEFSC.

[b]From Maine to Cape Hatteras, North Carolina. Source MRFSS.

[c]Projected landings based on 2002 data.

[d]Adjusted for research set-aside.

Table 55. Combined effects of summer flounder precautionary default measures, scup Alternative 1, and black sea bass Alternative 1 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	14.2%	20,415	29	$6,635	$13,270
RI	59,704	15.6%	9,299	28	$3,130	$6,260
CT	62,524	0.58%	363	16	$214	$428
NY	406,869	19.0%	77,241	105	$6,933	$13,866
NJ	457,086	8.3%	37,983	109	$3,284	$
DE	36,772	5.0%	1,830	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	4.4%	3,822	25	$1,441	$2,882
NC	170,976	0.23%	395	4	$931	$1,861

- Less than 4 observations

Table 56. Combined effects of summer flounder precautionary default measures, scup Alternative 1, and black sea bass Alternative 2 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	14.4%	20,594	29	$6,693	$13,386
RI	59,704	15.4%	9,205	28	$3,098	$6,197
CT	62,524	0.58%	363	16	$214	$428
NY	406,869	18.5%	75,127	105	$6,744	$13,487
NJ	457,086	8.1%	37,122	109	$3,210	$6,420
DE	36,772	4.2%	1,559	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	4.4%	3,822	25	$1,441	$2,882
NC	170,976	0.23%	395	4	$931	$1,861

- Less than 4 observations

Table 57. Combined effects of summer flounder precautionary default measures, scup Alternative 1, and black sea bass Alternative 3 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	14.1%	20,236	29	$6,577	$13,153
RI	59,704	15.2%	9,067	28	$3,052	$6,104
CT	62,524	0.58%	363	16	$214	$428
NY	406,869	18.5%	75,127	105	$6,744	$13,487
NJ	457,086	10.3%	47,282	109	$4,088	$8,177
DE	36,772	7.9%	2,920	-	-	-
MD	183,688	0.78%	1,429	5	$2,694	$5,387
VA	87,687	5.0%	4,390	25	$1,655	$3,310
NC	170,976	0.04%	65	4	$153	$306

- Less than 4 observations

Table 58. Combined effects of summer flounder precautionary default measures, scup Alternative 2, and black sea bass Alternative 1 management measures - affected party/charter effort and the estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	9.4%	13,539	29	$4,400	$8,800
RI	59,704	14.8%	8,848	28	$2,978	$5,957
CT	62,524	0.58%	363	16	$214	$428
NY	406,869	16.3%	66,501	105	$5,969	$11,939
NJ	457,086	8.0%	36,578	109	$3,163	$6,326
DE	36,772	5.0%	1,830	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	4.4%	3,822	25	$1,441	$2,882
NC	170,976	0.21%	355	4	$836	$1,673

- Less than 4 observations

Table 59. Combined effects of summer flounder precautionary default measures, scup Alternative 2, and black sea bass Alternative 2 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	9.6%	13,718	29	$4,458	$8,917
RI	59,704	14.7%	8,753	28	$2,946	$5,893
CT	62,524	0.58%	363	16	$214	$428
NY	406,869	15.8%	64,387	105	$5,779	$11,559
NJ	457,086	7.8%	35,717	109	$3,088	$6,177
DE	36,772	4.2%	1,559	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	4.4%	3,822	25	$1,441	$2,882
NC	170,976	0.21%	355	4	$836	$1,673

- Less than 4 observations

Table 60. Combined effects of summer flounder precautionary default measures, scup Alternative 2, and black sea bass Alternative 3 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	9.3%	13,360	29	$4,342	$8,684
RI	59,704	14.4%	8,615	28	$2,900	$5,800
CT	62,524	0.58%	363	16	$214	$428
NY	406,869	15.8%	64,387	105	$5,779	$11,559
NJ	457,086	10.0%	45,878	109	$3,967	$7,934
DE	36,772	7.9%	2,920	-	-	-
MD	183,688	0.78%	1,429	5	$2,694	$5,387
VA	87,687	5.0%	4,390	25	$1,655	$3,310
NC	170,976	0.01%	24	4	$57	$113

- Less than 4 observations

Table 61. Combined effects of summer flounder precautionary default measures, scup Alternative 3, and black sea bass Alternative 1 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	16.5%	23,591	29	$7,667	$15,334
RI	59,704	19.9%	11,927	28	$4,015	$8,029
CT	62,524	1.6%	1,027	16	$605	$1,210
NY	406,869	20.6%	83,804	105	$200	$400
NJ	457,086	8.3%	37,983	109	$3,284	$6,569
DE	36,772	5.0%	1,848	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	4.4%	3,822	25	$1,441	$2,882
NC	170,976	0.23%	395	4	$931	$1,861

- Less than 4 observations

Table 62. Combined effects of summer flounder precautionary default measures, scup Alternative 3, and black sea bass Alternative 2 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	16.6%	23,771	29	$7,726	$15,451
RI	59,704	19.8%	11,832	28	$3,983	$7,965
CT	62,524	1.6%	1,027	16	$605	$1,210
NY	406,869	20.1%	81,690	105	$7,333	$14,665
NJ	457,086	8.1%	37,122	109	$3,210	$6,420
DE	36,772	4.3%	1,577	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	4.4%	3,822	25	$1,441	$2,882
NC	170,976	0.23%	395	4	$931	$1,861

- Less than 4 observations

Table 63. Combined effects of summer flounder precautionary default measures, scup Alternative 3, and black sea bass Alternative 3 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	16.3%	23,412	29	$7,609	$15,218
RI	59,704	19.6%	11,694	28	$3,936	$7,873
CT	62,524	1.6%	1,027	16	$605	$1,210
NY	406,869	20.0%	81,690	105	$7,333	$14,665
NJ	457,086	10.3%	47,282	109	$4,088	$8,177
DE	36,772	8.0%	2,938	-	-	-
MD	183,688	0.78%	1,429	5	$2,694	$5,387
VA	87,687	5.0%	4,390	25	$1,655	$3,310
NC	170,976	0.04%	65	4	$153	$306

- Less than 4 observations

Table 64. Combined effects of summer flounder Alternative 2, scup Alternative 1, and black sea bass Alternative 1 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	3	$0	$0
NH	34,794	0.0%	0	1	$0	$0
MA	143,393	14.1%	20,189	29	$6,561	$13,123
RI	59,704	4.0%	2,390	28	$804	$1,608
CT	62,524	0.04%	22	16	$13	$26
NY	406,869	8.0%	32,713	105	$2,936	$5,872
NJ	457,086	2.8%	12,797	109	$1,107	$2,214
DE	36,772	1.5%	534	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	3.6%	3,142	25	$1,185	$2,370
NC	170,976	0.24%	395	4	$931	$1,862

- Less than 4 observations

Table 65. Combined effects of summer flounder Alternative 2, scup Alternative 1, and black sea bass Alternative 2 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	14.2%	20,368	29	$6,620	$13,239
RI	59,704	3.8%	2,295	28	$773	$1,545
CT	62,524	0.04%	22	16	$13	$26
NY	406,869	7.5%	30,599	105	$2,747	$5,493
NJ	457,086	2.6%	11,936	109	$1,032	$2,064
DE	36,772	0.71%	262	-	-	-
MD	183,688	0.05%	96	5	$452	$904
VA	87,687	3.6%	3,142	25	$1,185	$2,369
NC	170,976	0.23%	395	4	$931	$1,861

- Less than 4 observations

Table 66. Combined effects of summer flounder Alternative 2, scup Alternative 1, and black sea bass Alternative 3 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	14.0%	20,010	29	$6,503	$13,006
RI	59,704	3.6%	2,157	28	$726	$1,452
CT	62,524	0.04%	22	16	$13	$26
NY	406,869	7.5%	30,599	105	$2,747	$5,493
NJ	457,086	4.8%	30,599	109	$2,646	$5,292
DE	36,772	4.4%	1,624	-	-	-
MD	183,688	0.78%	1,428	5	$2,692	$5,384
VA	87,687	4.2%	3,710	25	$1,399	$2,797
NC	170,976	0.04%	65	4	$153	$306

- Less than 4 observations

Table 67. Combined effects of summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 1 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	9.3%	13,313	29	$4,327	$8,653
RI	59,704	3.2%	1,938	28	$652	$1,304
CT	62,524	0.04%	22	16	$13	$26
NY	406,869	5.4%	21,973	105	$1,972	$3,945
NJ	457,086	2.5%	11,392	109	$985	$1,970
DE	36,772	1.5%	534	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	3.6%	3,142	25	$1,185	$2,369
NC	170,976	0.21%	355	4	$836	$1,673

- Less than 4 observations

Table 68. Combined effects of summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 2 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	9.4%	13,492	29	$4,385	$8,770
RI	59,704	3.1%	1,844	28	$621	$1,241
CT	62,524	0.04%	22	16	$13	$26
NY	406,869	4.9%	19,859	105	$1,783	$3,565
NJ	457,086	2.3%	10,531	109	$911	$1,821
DE	36,772	0.71%	262	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	3.6%	3,142	25	$1,185	$2,369
NC	170,976	0.21%	355	4	$836	$1,673

- Less than 4

Table 69. Combined effects of summer flounder Alternative 2, scup Alternative 2, and black sea bass Alternative 3 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	9.2%	13,134	29	$4,269	$8,537
RI	59,704	2.9%	1,706	28	$574	$1,149
CT	62,524	0.04%	22	16	$13	$26
NY	406,869	4.9%	19,859	105	$1,783	$3,565
NJ	457,086	4.5%	20,692	109	$1,789	$3,578
DE	36,772	4.4%	1,624	-	-	-
MD	183,688	0.78%	1,428	5	$2,692	$5,384
VA	87,687	4.2%	3,710	25	$1,399	$2,797
NC	170,976	0.01%	24	4	$57	$113

- Less than 4 observations

Table 70. Combined effects of summer flounder Alternative 2, scup Alternative 3, and black sea bass Alternative 1 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	16.3%	23,365	29	$7,594	$15,188
RI	59,704	8.4%	5,017	28	$1,689	$3,378
CT	62,524	1.1%	685	16	$6,456	$12,912
NY	406,869	9.7%	39,276	105	$3,524	$7,051
NJ	457,086	2.8%	12,797	109	$1,107	$2,213
DE	36,772	1.5%	552	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	3.6%	3,142	25	$1,185	$2,369
NC	170,976	0.23%	395	4	$931	$1,861

- Less than 4 observations

Table 71. Combined effects of summer flounder Alternative 2, scup Alternative 3, and black sea bass Alternative 2 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	16.4%	23,545	29	$7,652	$15,304
RI	59,704	8.2%	4,923	28	$1,657	$3,314
CT	62,524	1.1%	685	16	$404	$808
NY	406,869	9.1%	37,162	105	$3,336	$6,671
NJ	457,086	2.6%	11,936	109	$1,032	$2,064
DE	36,772	0.76%	280	-	-	-
MD	183,688	0.05%	96	5	$181	$362
VA	87,687	3.6%	3,142	25	$1,185	$2,369
NC	170,976	0.23%	395	4	$931	$1,861

- Less than 4 observations

Table 72. Combined effects of summer flounder Alternative 2, scup Alternative 3, and black sea bass Alternative 3 management measures - affected party/charter effort and the average estimated gross revenue loss per party/charter vessel (federally permitted) in each state in the Northeast Region (ME-NC).

State	MRFSS Projected Total Estimated Angler Effort in 2004 Aboard Party/Charter Boats	Estimated Percent of Angler Party/Charter Effort Subject to Measures	Estimated Angler Trips Aboard Party/Charter Boats Subject to Measures	Number of Participating Federally Permitted Party/Charter Vessels (VTR 2002)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 25% Reduction in Affected Effort ($'s)	Average Estimated Gross Revenue Loss per Party/Charter Vessel in 2004 Assuming a 50% Reduction in Affected Effort ($'s)
ME	14,030	0.0%	0	13	$0	$0
NH	34,794	0.0%	0	20	$0	$0
MA	143,393	16.2%	23,186	29	$7,535	$15,071
RI	59,704	8.0%	4,785	28	$1,611	$3,221
CT	62,524	1.1%	685	16	$404	$808
NY	406,869	9.1%	37,162	105	$3,336	$6,671
NJ	457,086	4.8%	22,096	109	$1,910	$3,821
DE	36,772	4.5%	1,642	-	-	-
MD	183,688	0.78%	1,428	5	$2,692	$5,384
VA	87,687	4.2%	3,710	25	$1,399	$2,797
NC	170,976	0.04%	65	4	$153	$306

- Less than 4 observations

Appendix A
Mid-Atlantic Research Set-Aside (RSA) Program
Conditionally Approved Projects
2004 Fishing Year

03-RSA-001 – Charles Borden, "Fishery Independent Scup Survey of Selected Areas in Southern New England Waters." Principal Investigator – Laura Skrobe, University of Rhode Island.

Project Description: To develop a fishery independent scup survey that utilizes unvented fish traps fished on hard bottom areas in southern New England waters to characterize the size composition of the population. Survey activities will be conducted during May – November at six rocky bottom study sites that are located offshore, where there is a minimal scup pot fishery and no active trawl fishery. Study results will expand the current understanding of the scup resource.

RSA Amount: 12,292 lbs of black sea bass, 40,000 lbs of scup

Project Period: May 1 - December 31, 2004 Award Status: Pending

Gear to be Used: Fish Traps.

03-RSA-003 - National Fisheries Institute, Inc., "Development of a Supplemental Finfish Survey Targeting Mid-Atlantic Migratory Species." Principal Investigator – Eric N. Powell

Project Description: To obtain second year support for the development/refinement of a commercial-vessel based survey program in the Mid-Atlantic region that tracks the migratory behavior of selected recreationally and commercially important species. Information gathered would supplement the NMFS finfish survey databases and will include development of ways to better evaluate how seasonal migration of fish in the Mid-Atlantic influences stock abundance estimates.

RSA Amount: 174,750 lbs of summer flounder, 120,000 lbs of scup, 281,250 lbs of Loligo, 51,000 lbs of black sea bass, 104,816 lbs of bluefish

Project Period: January 1 - December 31, 2004 Award Status: Pending

Gear to be Used: Otter Trawl.

03-RSA-005 – Cornell Cooperative Extension of Suffolk County, "Evaluation of the Effect of Vent Size and Shape on Black Sea Bass Behavior and Escapement from Pot Gear." Principal Investigator – Emerson Hasbrouck

Project Description: This project will implement several tasks to improve and enhance fishery information relative to the black sea bass pot fishery in the Mid-Atlantic. With the use of experimental pots and underwater video, various escape vent configurations will be investigated to help evaluate gear escapement and fish behavior. The project will also explore black sea bass mortality in pots left fishing during closed quota periods. Additionally, the project will develop a sea sampling and dockside sampling program for black sea bass and supplement the NMFS black sea bass tagging program.

RSA Amount: 71,500 lbs of black sea bass

Project Period: April 1 – December 31, 2004 Award Status: Pending

Gear to be Used: Fish Pots