2006, 2007, and 2008 Summer Flounder and 2006 Scup and Black Sea Bass Specifications
Environmental Assessment
Regulatory Impact Review
Initial Regulatory Flexibility Analysis and
Essential Fish Habitat Assessment

October 2005

Mid-Atlantic Fishery Management Council

in cooperation with the

National Marine Fisheries Service

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1.0 EXECUTIVE SUMMARY

The purpose of this action is to implement 2006, 2007, and 2008 commercial management measures for the summer flounder fishery, and 2006 scup and black sea bass fisheries. These measures comply with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), including the national standards for fishery conservation and management, the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP), and the FMP amendments. Management measures include commercial quotas, recreational harvest limits, and other measures to ensure that the annual fishing targets specified in the FMP for these species are attained. The economic analyses presented for the various alternatives are principally for the commercial fisheries. While general statements regarding potential changes in the recreational fisheries due to changes in recreational harvest limits for summer flounder, scup, and black sea bass are made in this document, the effects of specific recreational management measures (i.e., bag limits, size limits, seasonal closures) will be analyzed when the Mid-Atlantic Fishery Management Council (Council) and Atlantic States Marine Fisheries Commission's (Commission) Summer Flounder, Scup and Black Sea Bass Board (Board) submit recommendations for 2006 recreational measures. The Council and the Board will meet in December 2005 to adopt 2006 recreational management measures, when more complete data regarding 2005 recreational landings are available. A comprehensive document for the recreational specifications for summer flounder, scup, and black sea bass will be prepared after the December Council meeting.

The management alternatives analyzed in this document include the total allowable landings (commercial quotas and recreational harvest limits), which are necessary to achieve the annual target exploitation rates established under the individual species' rebuilding schedules. In addition, the Council and Board recommended changes to the Winter II trip limits in the scup fishery and pot/trap vent requirements in the black sea bass fishery.

Under the current management system, the TALs for these species are specified every year and apply only to the following year. However, Framework Adjustment 5, which was approved by NMFS on October 28, 2004 (69 FR 62818), allows for the specification of TALs for summer flounder, scup, and/or black sea bass fisheries in any given year for up to three years. The ASMFC Board approved similar measures in August 2004. This modification to the FMP should relieve administrative demands on Council and NOAA Fisheries imposed by the annual specification process. Additionally, longer-term specifications should provide greater regulatory consistency and predictability to the commercial and recreational fishing sectors.

This specifications package details all management alternatives for summer flounder evaluated for a three year period (2006-2008), and all management measures for scup and black sea bass fisheries evaluated for a one year period (2006).

In the final deliberations, the Council considered all the alternatives and comments and chose the total allowable landing limits under the preferred alternative (alternative 1) for summer flounder, scup, and black sea bass.

It is important to mention that in the management program for summer flounder, scup, and black sea bass, the no action alternative is not equivalent to the status quo (which would include the current TACs and/or TALs). If the action that results in setting the proposed specifications for these fisheries are not taken, some current measures will remain in place, but the overall management program will not be identical to that of 2005. Therefore, for comparison purposes, the alternatives under this specifications package are compared against the status quo alternatives (base line).

Summer Flounder Alternatives

The preferred summer flounder alternative 1 recommends a total allowable landings limit of 26.00 million lb for 2006 (a 15.38 million lb adjusted commercial quota; a 10.26 million lb adjusted recreational harvest limit). In addition, it recommends a TAL of 26.00 million lb for 2007 and 26.00 million lb for 2008. The preliminary adjusted quotas and recreational harvest limits for all summer flounder, scup, and black sea bass TAL alternatives were calculated by deducting overages and/or research set-asides from the total allowable landings. Projections indicate that a constant harvest of 26 million lb for the years 2006 to 2009 would result in rebuilding to the biomass target (B_{msy}) of 204 million lb by January 1, 2010, the target end date for stock rebuilding. The 2006 TAL under this alternative will have about a 25 percent probability of achieving the F target in 2006, assuming the TAL and discard level in 2005 are not exceeded. However, it is expected to have a 60 and 90 percent probability of achieving the F target in 2007 and 2008, respectively. As such, over the three year time period, the average probability would be about 58%. Alternative 1 is expected to result in positive biological impacts. There are no habitat or protected resources impacts associated with this preferred alternative. Negative socioeconomic impacts will likely occur under this alternative due to the decrease in total landings (in 2006-2008). However, these negative impacts will be smaller than those expected under the most restrictive alternative (alternative 2). While short-term (2006-2008) negative socioeconomic impacts are expected, longer-term positive social and economic impacts will be realized once the stock is rebuilt.

Under summer flounder alternative 2 (most restrictive alternative), the total allowable landings limit is 23.59 million lb for 2006 only (a 13.94 million lb adjusted commercial quota; a 9.30 million lb adjusted recreational harvest limit). The 2006 TAL associated with alternative 2 has a 50 percent probability of achieving the F target in 2006. While these measures (commercial quota and recreational harvest limit) do have the greatest probability of achieving the fishing mortality targets, relative to alternatives 1 and 3, they are associated with reduced yields from the fishery. As such, this alternative is expected to result in positive biological impacts. No impacts on habitat or protected resources are expected as a result of this alternative. Negative socioeconomic impacts will likely occur under this alternative due to the decrease in total landings (in 2006). These negative impacts will be greater than those expected under the status quo alternative (alternative 3)

and the second most restrictive alternative (alternative 1). While short-term (2006) negative socioeconomic impacts are expected, longer-term positive social and economic impacts will be realized once the stock is rebuilt.

Under summer flounder alternative 3 (status quo/least restrictive alternative), the total allowable landings limit is 30.30 million lb for 2006 only (a 17.96 million lb adjusted commercial quota; a 11.98 million lb adjusted recreational harvest limit). This alternative would provide commercial and recreational fishermen with the largest fishing opportunities in 2006 compared to alternatives 1 and 2, and similar fishing opportunities as compared to 2005. The 2006 TAL associated with alternative 3 has the smallest probability (about 2 percent) of achieving the F target in 2006 compared to the other 2 alternatives. The direction of biological impacts could range from none if the target exploitation rate is met, to negative if the target exploitation rate is exceeded. The magnitude of the biological impacts is unknown. There are no habitat or protected resources impacts associated with this alternative relative to 2005 because changes in effort are not expected. No socioeconomic impacts are expected under this alternative due to the minimal difference in TAL; however, these measures most likely will not achieve the target exploitation rate.

In addition, the Council and Commission recommended that the minimum fish size, mesh size, and other gear regulations for summer flounder remain in place for 2006.

Scup Alternatives

The preferred scup alternative 1 recommends a total allowable landings limit of 16.27 million lb for 2006 (a 11.94 million lb adjusted commercial quota; a 4.14 million lb recreational harvest limit). The preferred scup TAL and associated allocations are expected to achieve the target exploitation rate for 2006. This alternative is expected to result in biological impacts that range from none to a slight positive impact. In addition, it will likely present no changes in impacts on habitat or protected resources. Due to the slight reduction in the TAL in 2006 compared to the status quo alternative, no impacts or slight negative impacts to the social and economic aspects of this fishery can be expected.

Under scup alternative 2 (most restrictive alternative), the total allowable landings limit is 10.77 million lb for 2006 (a 7.65 million lb adjusted commercial quota; a 2.93 million lb adjusted recreational harvest limit). The scup TAL under this alternative should have a positive impact on the scup stock in 2006, relative to the status quo scup measures (alternative 3). However, these measures are probably more conservative than needed to achieve the target exploitation rate for scup in 2006. There are no habitat or protected resources impacts associated with this alternative in 2006 compared to the status quo (alternative 3). However, negative socioeconomic impacts may occur as a result of the overall reduction in the TAL and thus expected ex-vessel revenues, relative to the existing scup measures (status quo).

Under scup alternative 3 (status quo/least restrictive), the total allowable landings limit is 16.50 million lb for 2006 (a 12.12 million lb adjusted commercial quota; a 4.20 million lb

adjusted recreational harvest limit). This alternative allows for the largest landings compared to the previous two alternatives. There are no biological impacts associated with this alternative relative to 2005 if the target exploitation rate for the fishery is met. However, if the fishery exceeds the target, stock rebuilding would be hindered resulting in negative impacts in 2006 relative to 2005. There are no habitat or protected resource impacts associated with this alternative in 2006 as compared to impacts in 2005. Given the slight decrease in landings associated with this alternative, no or slight negative socioeconomic impacts would likely occur in the short-term relative to the scup measures implemented in 2005, however, this alternative may not achieve the 21% target exploitation rate. As such, there is potential for negative impacts to the stock in the longer-term.

The Council and Commission recommended changes to the current Winter II possession limits in the scup fishery from a 1,500 lb possession limit (alternative 4.1a, no action/status quo) to a possession limit of 2,000 lb (alternative 4.2a, preferred alternative). In addition, if transfer of quota occurs from Winter I to Winter II, the possession limit should increase at 1,500 lb intervals for every 500,000 lb of scup transferred (alternative 4.2a, preferred alternative), as opposed to 500 lb intervals for every 500,000 lb transferred under the no action/status quo (alternative 4.1a). Maintaining the current, 2006 Winter II possession limit and adjustment to that limit when transfer occurs are not expected to change the biological, habitat, protected resources, economic, or social impacts in 2006 as compared to impacts in 2005. Alternative 4.2a is expected to result in positive biological impacts to the stock and other non-target species relative to the status quo alternative. There are no habitat or protected resources impacts associated with this alternative in 2006 compared to the status quo. Positive social and economic impacts are expected under alternative 4.2a compared to the current measures because scup that would be typically discarded can now be landed, allowing for greater efficiency of the scup commercial fishery while still constrained to the 2006 quota.

In addition, the Council and Commission recommended that the minimum fish size, gear restricted area regulations (Appendix B), gear regulations, and fish size regulations for scup remain in place for 2006.

Black Sea Bass Alternatives

The preferred black sea bass alternative 1 establishes a total allowable landings limit of 8.00 million lb for 2006 (a 3.83 million lb adjusted commercial quota; a 3.99 million lb recreational harvest limit). The preferred black sea bass TAL and the associated allocations are expected to achieve the target exploitation rate for 2006. The implementation of this alternative is not expected to change the biological, habitat, or protected resources impacts in 2006 compared to the status quo (alternative 3). However, negative socioeconomic impacts may occur under this alternative due to lower expected ex-vessel revenues compared to the status quo.

Under black sea bass alternative 2 (most restrictive alternative), the total allowable landings limit is 7.50 million lb for 2006 (a 3.59 million lb adjusted commercial quota; a 3.73 million lb adjusted recreational harvest limit). This alternative is expected to result in no or small positive biological, habitat, and protected resource impacts relative to the status quo (alternative 3). It is expected that this alternative will result in negative social and economic impacts in 2006 relative to the status quo and may be more conservative than needed to achieve the target exploitation rate.

Under black sea bass alternative 3 (status quo/least restrictive alternative), the total allowable landings limit is 8.20 million lb for 2006 (a 3.93 million lb adjusted commercial quota; a 4.09 million lb adjusted recreational harvest limit). The status quo black sea bass TAL and the associated allocations are expected to achieve the target exploitation rate for 2006, although the probability would likely be less than that under alternatives 1 and 2. If the target exploitation rate is met, no biological impacts would be expected. However, if these rates are not met, negative biological impacts in the longer-term would be expected as this would hinder progress to rebuild the stock. No changes to habitat or protected resources impacts in 2006 as compared to impacts in 2005 are expected under this alternative. Finally, no positive or negative socioeconomic impacts, compared to 2005, are expected.

The Council and Commission recommended changes to the current vent size requirements for black sea bass pots/traps. Current black sea bass pot/trap regulations include requirements of 1 vent in the parlor portion of the pot/trap which measures 1 $^{3}/_{8}$" x 5 $^{3}/_{4}$" for rectangular vents, 2 $^{3}/_{8}$" in diameter for circular vents, and 2" for square vents (alternative 4.1b, no action/status quo). The preferred alternative (alternative 4.2b) would increase the circle vent size to 2 $^{1}/_{2}$" and require two vents in the parlor portion of the pot/trap, effective as of January 1, 2007 (therefore, fishermen would convert their gear over time throughout 2006); requirements of 1 $^{3}/_{8}$" x 5 $^{3}/_{4}$" for rectangular vents and 2" for square vents would remain unchanged. Maintaining the current, 2006 black sea bass vent requirements is not expected to change the biological, habitat, protected resources, economic, or social impacts in 2006 as compared to impacts in 2005. Alternative 4.2b is expected to result in positive biological impacts to the stock and other non-target species relative to the status quo alternative. There are no habitat or protected resources impacts associated with this alternative in 2006 compared to the status quo. Positive social and economic impacts are expected under alternative 4.2b compared to the current status because potential reduction in sub-legal mortality will increase yields and numbers of mature fish present in the stock.

In addition, the Council and Commission recommended that the minimum mesh size, fish size, and other gear regulations for black sea bass remain in place for 2006.

Research Set-aside-Alternatives

Alternative 1 (no action) does not implement a research set-aside for summer flounder, scup, or black sea bass. Alternative 2 (preferred alternative and status quo) implements research set-aside for these species. Alternative 1 poses no biological, habitat, or

protected resources impacts compared to 2005. However, under this alternative the collaborative efforts between the public, research institutions, and government in broadening the scientific base upon which management decisions are made will cease. The Nation would not receive the benefit derived when data or other information about these fisheries are obtained for management or stock assessment purposes. Alternative 2 specifies a maximum summer flounder, scup, and black sea bass research set-aside of 355,762 lb, 184,690 lb, and 178,956 lb for 2006, respectively. No changes to biological, habitat, protected resources, or socioeconomic impacts compared to 2005 are expected under alternative 2.

A detailed description and discussion of the expected environmental impacts resulting from the alternatives considered in this specifications document are given in section 7.0. Boxes ES-1 through ES-4 present a qualitative summary of the impact of the various alternatives. The environmental impacts of the proposed measures were analyzed and the anticipated level of significance of these impacts was discussed in accordance with the NEPA and NAO 216-6 formatting requirements for an EA. None of the preferred action alternatives are associated with significant impacts to the biological, social or economic, or physical environment; therefore, a "Finding of No Significant Impact" is determined.

Box ES-1. Overall qualitative summary of the expected impacts of various summer flounder alternatives considered in this document (2006). A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, and a zero is used for null impact. Also note "S" is short-term and "L" is long-term.

Summer Flounder	Environmental Dimensions				
	Biological	**EFH**	**Protected Resources**	**Economic**	**Social**
Alternative 1 (Preferred)	+	0	0	-(S)/+(L)	-(S)/+(L)
Alternative 2 (Most Restrictive)	+	0	0	-(S)/+(L)	-(S)/+(L)
Alternative 3 (Least Restrictive / Status Quo)	0/-(?)	0	0	0	0

Box ES-2. Overall qualitative summary of the expected impacts of various scup alternatives considered in this document (2006). A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, and a zero is used for null impact. Also note "S" is short-term and "L" is long-term.

Scup	Environmental Dimensions				
	Biological	**EFH**	**Protected Resources**	**Economic**	**Social**
Alternative 1 (Preferred)	0/+(?)	0	0	0/- (?)	0/- (?)
Alternative 2 (Most Restrictive)	+	0	0	-	-
Alternative 3 (Least Restrictive / Status Quo)	0/-(?)	0	0	0/-(?)	0/-(?)
Alternative 4.1 (Status Quo/No Action Win. II Landings Limit)	0	0	0	0	0
Alternative 4.2 (Modify Win. II Landings Limit)	+	0	0	+	+

Box ES-3. Overall qualitative summary of the expected impacts of various black sea bass alternatives considered in this document (2006). A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, and a zero is used for null impact. Also note "S" is short-term and "L" is long-term.

Black Sea Bass	Environmental Dimensions				
	Biological	EFH	Protected Resources	Economic	Social
Alternative 1 (Preferred)	0	0	0	0/- (?)	0/- (?)
Alternative 2 (Most Restrictive)	+	0	0	-	-
Alternative 3 (Status Quo / Least Restrictive)	0/- (?)	0	0	0	0
Alternative 4.1 (Status Quo / No Action Trap Escape Vent Requirements)	0	0	0	0	0
Alternative 4.2 (Modify Trap Escape Vent Requirements)	+	0	0	+(L)	+(L)

Box ES-4. Overall qualitative summary of the expected impacts of summer flounder, scup, and black sea bass research set-aside measures considered in this document (2006). A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, and a zero is used for null impact.

	Environmental Dimensions				
	Biological	EFH	Protected Resources	Economic	Social
Alternative 1 (No Action / No Research Set-Aside)	0	0	0	0	0
Alternative 2 (Preferred / Status Quo)	+	0	0	0	+

2.0 LIST OF ACRONYMS

ADAPT	Shorthand for ADAPTive Framework
ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ASMFC	Atlantic States Marine Fisheries Commission or Commission
AO	Administrative Order
B	Biomass
CEQ	Council on Environmental Quality
CPUE	Catch Per Unit Effort
CZMA	Coastal Zone Management Act
DPS	Distinct Population Segment
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act of 1973
F	Fishing Mortality Rate
FR	Federal Register
FMP	Fishery Management Plan
GRA	Gear Restricted Area
HPTRP	Harbor Porpoise Take Reduction Plan
IRFA	Initial Regulatory Flexibility Analysis
LOF	List of Fisheries
LTPC	Long-term Potential Catch
ALWTRP	Atlantic Large Whale Take Reduction Plan
M	Natural Mortality Rate
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
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	Optimal Yield
PBR	Potential Biological Removal
PRA	Paperwork Reduction Act
PREE	Preliminary Regulatory Economic Evaluation
RIR	Regulatory Impact Review
RSA	Research Set-Aside

TSB	Total Stock Biomass
SAFMC	South Atlantic Fishery Management Council
SARC	Stock Assessment Review Committee
SAV	Submerged Aquatic Vegetation
SAW	Stock Assessment Workshop
SMA	Small Business Administration
SSB	Spawning Stock Biomass
SFA	Sustainable Fisheries Act
TAL	Total Allowable Landings
TL	Total Length
VECs	Valuable Environmental Components
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis
VTR	Vessel Trip Report

3.0 TABLE OF CONTENTS

ENVIRONMENTAL ASSESSMENT

4.0 INTRODUCTION AND BACKGROUND OF SPECIFICATION PROCESS

4.1 PURPOSE AND NEED OF THE ACTION

The purpose of this action is to implement 2006 commercial management measures for the summer flounder, scup, and black sea bass fisheries. These measures comply with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), including the national standards for fishery conservation and management, the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP), and the FMP amendments. Management measures include commercial quotas, recreational harvest limits, and other measures to ensure that the annual fishing targets specified in the FMP for these species are attained.

The management regime is detailed in the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP) and subsequent Amendments to the FMP. A summary of the management actions taken in the FMP, Amendments and Frameworks was given in Box 4.0.

Box. 4.0 Summary of the history of the Summer Flounder, Scup, and Black Sea Bass FMP.

Year	Document	Plan Species	Management Action
1988	Original FMP	summer flounder	- Established management plan for summer flounder
1991	Amendment 1	summer flounder	- Established an overfishing definition for summer flounder
1993	Amendment 2	summer flounder	- Established rebuilding schedule, commercial quotas, recreational harvest limits, size limits, gear restrictions, permit and reporting requirements for summer flounder - Created the Summer Flounder Monitoring Committee
1993	Amendment 3	summer flounder	- Revised exempted fishery line - Increased large mesh net threshold - Otter trawl retentions requirements for large mesh use
1993	Amendment 4	summer flounder	- Revised state-specific shares for summer flounder quota allocation
1993	Amendment 5	summer flounder	- Allowed states to combine or transfer summer flounder quota
1994	Amendment 6	summer flounder	- Set criteria for allowance of multiple nets on board commercial vessels for summer flounder - Established deadline for publishing catch limits, commercial mgmt. measures for summer flounder

Box. 4.0 Cont. Summary of the history of the Summer Flounder, Scup, and Black Sea Bass FMP.

Year	Document	Plan Species	Management Action
1995	Amendment 7	summer flounder	- Revised the F reduction schedule for summer flounder
1996	Amendment 8	summer flounder and scup	- Incorporated Scup FMP into Summer Flounder FMP and established scup measures including commercial quotas, recreational harvest limits, size limits, gear restrictions, permits, and reporting requirements
1996	Amendment 9	summer flounder and black sea bass	- Incorporated Black Sea Bass FMP into Summer Flounder FMP and established black sea bass measures including commercial quotas, recreational harvest limits, size limits, gear restrictions, permits, and reporting requirements
1997	Amendment 10	summer flounder, scup, and black sea bass	- Modified commercial minimum mesh requirements, continued commercial vessel moratorium, prohibited transfer of fish at sea, established special permit for party/charter sector for summer flounder
1998	Amendment 11	summer flounder, scup, and black sea bass	- Modified certain provisions related to vessel replacement and upgrading, permit history transfer, splitting, and permit renewal regulations
1999	Amendment 12	summer flounder, scup, and black sea bass	- Revised FMP to comply with the SFA and established framework adjustment process
2001	Framework 1	summer flounder, scup, and black sea bass	-Established quota set-aside for research for all three species
2001	Framework 2	summer flounder	- Established state-specific conservation equivalency measures for summer flounder
2003	Framework 3	scup	- Allowed the rollover of scup quota - Revised start date for summer quota period for scup fishery
2003	Framework 4	scup	- Established system to transfer scup at sea
2003	Amendment 13	summer flounder, scup, and black sea bass	- Addressed disapproved sections of Amendment 12 and included new EIS
2004	Framework 5	summer flounder, scup, and black sea bass	- Established multi-year specification setting of quota for all three species

Comprehensive measures enacted by Amendment 2 and modified in Amendments 3 through 7 and 10 were designed to rebuild the severely depleted summer flounder stock. Amendments 8

and 9 to the Summer Flounder, Scup and Black Sea Bass FMP implemented recovery strategies to rebuild the scup and black sea bass stocks, respectively. The FMP specifies for summer flounder a target F for 2006 of F_{MAX} (the level of fishing that produces maximum yield per recruit). Best available data indicate that F_{MAX} is currently equal to 0.276. The target is attained by specification of the total allowable landings (TAL) allocated to the commercial (60 percent) and the recreational (40 percent) sectors. The commercial sector's quota is allocated to the coastal states based on percentage shares specified in the FMP.

The FMP established a target exploitation rate for scup based on F_{MAX} beginning in 2002. Based on the current estimate of F_{MAX}, that rate is 21 percent. The total allowable catch (TAC) associated with that rate allocates 78 percent to the commercial sector and 22 percent to the recreational sector. Discard estimates are deducted from both TACs to establish total allowable landings for both sectors. The commercial TAC, discards, and TAL are allocated to three different periods.

The FMP specifies a target exploitation rate of 25 percent for black sea bass in 2006. This target is to be attained through specification of a TAL level that is allocated to the commercial (49 percent) and recreational (51 percent) fisheries. Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP, which became effective March 31, 2003, establishes an annual (calendar year) coastwide quota to complement a state-by-state quota system adopted by the Atlantic States Marine Fisheries Commission (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 FMP established Monitoring Committees which meet annually to review the best available scientific data and make recommendations regarding the TALs and other management measures in the plan. The Committee's recommendations are designed to achieve the target fishing mortality or exploitation rates established in the amendments to reduce overfishing. The Committee bases its recommendations on the following information: (1) commercial and recreational catch data; (2) current estimates of fishing mortality; (3) stock status; (4) recent estimates of recruitment; (5) virtual population analysis (VPA); (6) target mortality levels; (7) levels of regulatory noncompliance by fishers or individual states; (8) impact of fish size and net mesh regulations; (9) sea sampling data; (10) impact of gear other than otter trawls on the mortality of each species; and (11) other relevant information.

Based on the recommendations of the Monitoring Committee, the Mid-Atlantic Fishery Management Council's Demersal Species Committee makes a recommendation to the Council which in turn makes a recommendation to the Regional Administrator. The Regional Administrator reviews the recommendation and may revise it if necessary to achieve FMP objectives. In addition, because the FMP is a joint plan with the Commission, the Commission's Summer Flounder, Scup, and Black Sea Bass Board (Board) adopts complementary measures. The Council met jointly with the Board and adopted recommended measures at the August 2005 meeting.

The management measures contained in the Summer Flounder, Scup, and Black Sea Bass FMP are intended to address the overfished condition and/or avoid overfishing relative to the biological reference points detailed in Amendment 12 for these species. The summer flounder measures are based on a management plan originally drafted by the State/Federal Summer Flounder Management Program pursuant to a contract between the New Jersey Division of Fish, Game, and Wildlife, and the National Marine Fisheries Service (NMFS). The State/Federal draft was adopted by the Commission in 1982. The Council adopted the FMP in April 1988, and NMFS approved it in September 1988. The FMP has been amended several times since its initial implementation. Amendment 2 enacted management measures for the summer flounder fishery through final regulations implemented on December 4, 1992 (57 FR 57358). Amendment 8 enacted management measures for the scup fishery north of Cape Hatteras Light through final regulations implemented on September 23, 1996 (61 FR 43420). Amendment 9 enacted management measures for the black sea bass fishery north of Cape Hatteras Light through final regulations implemented on December 16, 1996 (61 FR 58461). Each of these amendments enacted comprehensive management measures to attain annual fishing targets and address overfishing. Each amendment was adopted jointly by the Council and the Commission, so state regulatory actions complement federal management actions. Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP, implemented on March 31, 2003 (68 FR 10181), establishes an annual (calendar year) coastwide quota to complement a state-by-state black sea bass quota system adopted by the Commission. This system replaced the black sea bass quarterly quota allocation system previously in place (i.e., implemented in Amendment 9); removed permit restrictions for fishermen that have both a Northeast Region Black Sea Bass (NER BSB) permit and a Southeast Region Snapper/Grouper (SER S/G) permit and fish for black sea bass north and south of Cape Hatteras, North Carolina; and brought the FMP into compliance with the Essential Fish Habitat (EFH) provisions of the Sustainable Fisheries Act(SFA)[section 303(a)(7)].

Framework 1 to the Summer Flounder, Scup, and Black Sea Bass FMP, which was approved by NMFS on August 10, 2001 (66 FR 42156), establishes a procedure through which research set-aside amounts up to 3-percent are set annually as part of the Council's quota-setting process. The intent of the program is to support the collection of new information that benefits both the commercial and recreational fisheries for these species. Collaborative efforts among the public, research institutions, and the government are subsidized by a percentage set-aside from the total allowable landings (TAL) of selected species, including summer flounder, scup, and black sea bass, under management by the Mid-Atlantic Council.

On February 14, 2002 (67 FR 6877), NMFS implemented new quota counting procedures for summer flounder, scup, and black sea bass. During November of a given year, all available landings data for January 1 - October 31 of that year are compiled and compared to that year's quota. Any overages are determined and deducted appropriately from the upcoming fishing year's quota, e.g., by state for summer flounder, period for scup, or coastwide for black sea bass. If any overage deductions are necessary as a result of landings made during November -

December, or as a result of late data submitted for January 1 - October 31, those overages will be applied to the quota allocations for the next fishing year. Because the black sea bass commercial quota is now allocated on a coastwide basis, a counting procedure similar to that developed for the summer flounder fishery was used to assess overages for the black sea bass fishery in this document.

Prior to the implementation of Framework Adjustment 5, the TAL for each species was specified every year and applied only for the following year. Framework Adjustment 5, which was approved by NMFS on October 28, 2004 (69 FR 62818), allowed for the specification of TALs for summer flounder, scup, and/or black sea bass fisheries in any given year for up to three years. The ASMFC Board approved similar measures in August 2004. This modification to the FMP should relieve administrative demands on Council and NOAA Fisheries imposed by the annual specification process. Additionally, longer-term specifications should provide greater regulatory consistency and predictability to the commercial and recreational fishing sectors.

In this specifications package, all management alternatives for scup and black sea bass were analyzed for 2006.

Since the Council adopted multi-year specifications for summer flounder alternative 1 (preferred), i.e., a TAL of 26.00 million lb for 2006-2008, this package considers those for 2007 and 2008 as well. However, because the TALs are the same for all three years and the comparison is to the base year of 2005, impacts are expected to be the same for all years (2006-2008) when compared to the base year (2005). Alternatives 2 and 3 only consider single year specifications (2006).

These specifications are needed to prevent overfishing and to achieve optimum yield. The purpose of the specifications is to establish annual quotas and other measures that will meet this need. Optimum yield is defined as the amount of fish which will provide the greatest overall benefit to the Nation in terms of food production and recreational opportunities and is based on the maximum sustainable yield for each managed species. Failure to specify annual quotas and other management measures could result in overfishing and failure to achieve optimum yield.

4.2 MANAGEMENT OBJECTIVE 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; and
6) minimize regulations to achieve the management objectives stated above.

To attain these management objectives, the FMP states that the following measures may be specified annually:

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

4.3 METHODS OF ANALYSIS

The basic approach adopted in this analysis is an assessment of the impact of the various management measures on the environment. In order to conduct a more complete analysis, a preliminary adjusted quota was calculated by deducting the research set-aside from the TAL. Preliminary commercial quota overages for the 2005 fishing year are also deducted from the initial quota alternatives when necessary (Box 4.1). The current quota overages were calculated according to the quota counting procedures outlined in section 4.1, using the best available data. The preliminary adjusted commercial quota impacts were examined for three alternatives. These recommendations and their impacts relative to 2004 landings are shown in Box 4.2. Three TAL alternatives were examined for each species. These alternatives included a preferred alternative and a status quo alternative. In all cases, the preferred alternative examines the measures adopted by the Council for 2006 for summer flounder, scup, and black sea bass. Finally, the set of individual alternatives evaluated under each species also examines the impacts of the lowest (most restrictive) and highest (least restrictive) quotas considered in this specifications package. In all cases the non-preferred, least restrictive measures are also the status quo measures.

In assessing the multi-year TALs for the summer flounder fishery, various assumptions were taken. Specifically, it was assumed that the research set-asides for years 2007 and 2008 were equal to the highest research set-aside since the program was first implemented. Therefore, a value of 355,762 lb (2006 RSA value) was also assumed for 2007 and 2008. The summer flounder quotas presented in Box 4.2 account for preliminary overages of 0.05 million lb (0.02 million kg) in Delaware as of September 1, 2005. Lastly, there were no overages in the scup and black sea bass fisheries as of September 1, 2005. Therefore, it was not necessary to adjust the scup or black sea bass commercial quotas in 2006. In addition, when analyzing summer flounder alternatives for 2007 and 2008, it was assumed that the 2006 overage will continue for 2007 and 2008 and that no additional overages would occur in 2006 and 2007.

In this specifications package, all management alternatives for scup and black sea bass were analyzed for 2006. Since the Council adopted multi-year specifications for summer flounder

alternative 1 (preferred), i.e., a TAL of 26.00 million lb for 2006-2008, this package considers those for 2007 and 2008 as well. However, because the TALs are the same for all three years and the comparison is to the base year of 2005, impacts are expected to be the same for all years (2006-2008) when compared to the base year (2005). Alternatives 2 and 3 only consider single year specifications (2006).

A full description of these alternatives, including a discussion of a no action alternative, is given in section 5.0.

Box 4.1. Comparison (in million lb) of the summer flounder, scup, and black sea bass alternatives of quota combinations reviewed (2006).

		Initial TAL	Research Set-Aside	Commercial Quota Overage	Preliminary Adjusted Commercial Quota*	Preliminary Recreational Harvest Limit
Summer Flounder	**Alternative 1 (Preferred)**	26.00	0.36	0.05	15.38	10.26
	Alternative 2 (Most Restrictive)	23.59	0.36	0.05	13.94	9.30
	Alternative 3 (Least Restrictive / Status Quo)	30.30	0.36	0.05	17.96	11.98
Scup	**Alternative 1 (Preferred)**	16.27	0.185	0	11.94	4.14
	Alternative 2 (Most Restrictive)	10.77	0.185	0	7.65	2.93
	Alternative 3 Least Restrictive / Status Quo)	16.50	0.185	0	12.12	4.20
Black Sea Bass	**Alternative 1 (Preferred)**	8.00	0.179	0	3.83	3.99
	Alternative 2 (Most Restrictive)	7.50	0.179	0	3.59	3.73
	Alternative 3 (Least Restrictive / Status Quo)	8.20	0.179	0	3.93	4.09

*Note that preliminary quotas are provisional and may change to account for overages according to the quota counting procedures outlined in section 4.1.

Box 4.2. Comparison (in million lb) of the summer flounder, scup, and black sea bass alternatives of quota combinations reviewed (2006).

		Preliminary Adjusted Commercial Quota*	Percent of 2004 Landings	Percent Change
Summer Flounder	**Alternative 1 (Preferred)**	15.38	89.09	-10.91
	Alternative 2 (Most Restrictive)	13.94	80.75	-19.25
	Alternative 3 (Least Restrictive / Status Quo)	17.96	104.04	4.04
Scup	**Alternative 1 (Preferred)**	11.94	131.93	31.93
	Alternative 2 (Most Restrictive)	7.65	84.53	-15.47
	Alternative 3 (Least Restrictive / Status Quo)	12.12	133.92	33.92
Black Sea Bass	**Alternative 1 (Preferred)**	3.83	135.77	35.77
	Alternative 2 (Most Restrictive)	3.59	127.26	27.26
	Alternative 3 (Least Restrictive / Status Quo)	3.93	139.31	39.31

*Note that preliminary quotas are provisional and may change to account for overages according to the quota counting procedures outlined in section 4.1.

5.0 MANAGEMENT ALTERNATIVES

5.1 Summer Flounder

5.1.1 Alternative 1 (Preferred: Monitoring Committee Recommended TAL)

Alternative 1 includes the harvest levels recommended by the Council (adjusted as detailed in section 4.3) on vessels that are permitted to catch summer flounder. The Council recommended a summer flounder TAL of 26.0 million lb (11.79 million kg) for 2006, 26.0 million lb (11.79 million kg) for 2007, and 26.0 million lb (11.79 million kg) for 2008. The summer flounder TALs selected by the Council are identical to the multi-year TALs recommended by the monitoring committee for this species. The recommended coastwide TALs for 2006, 2007, and 2008 have about a 25, 60, and 90 percent probability, respectively, of achieving the target F of 0.276 in 2006, 2007, and 2008, given the results of the latest stock assessment. The Council approved a 2006 research set-aside for summer flounder of 355,762 lb (161,371 kg), which would be deducted from the TAL. After the research set-aside is deducted from the TAL, the TAL is divided between the commercial and recreational components of the fishery in the same proportion as it was each year from 1993 to 2004, 60 percent to the commercial fishery and 40 percent to the recreational fishery. In 2006, the commercial fishery would receive 15.38 million lb (6.98 million kg) as a quota, and the recreational fishery would receive 10.26 million lb (4.65 million kg) as a harvest limit.

The summer flounder commercial quota is allocated to each state based on 1980-1989 adjusted landings as detailed in Amendment 4 of the FMP. State commercial shares would range from negative quotas to 4.22 million lb (1.91 million kg) in 2006.

The quotas presented in Box 5.1 account for preliminary overages (as of September 1, 2005) of 0.05 million lb (0.02 million kg) in Delaware. The commercial quota and state shares are provisional and would be adjusted in early 2006 to reflect noncompliance by the states, i.e., additional 2005 quota excesses would be deducted from the 2006 quota allocation. Similar adjustments would occur in 2007 and 2008.

In 1998, the Council and Board established a system whereby 15 percent of each state's quota for summer flounder would be set-aside to reduce discards after the closure of the directed commercial fishery and allow for summer flounder landings to continue throughout the fishing season. This program would continue in 2006. In order for fishermen to land the incidental catch allowance in a state, the Commission recommended that a state implement possession limits such that summer flounder on board cannot exceed 10 percent of other species on board for any trip set under the incidental catch allocation. Possession limits must be sufficiently restrictive to allow the incidental catch fishery to remain open for the entire year without exceeding the state's overall quota. In addition, the Commission recommended that states implement programs to collect additional data on discards in the commercial fishery.

The Council determined that the action in this specifications package is consistent to the maximum extent practicable with the enforceable provisions of the approved coastal management programs as understood by the Council.

Box 5.1. The amount of summer flounder allocated to the commercial fishery in each state based on coastwide quota alternatives and research set-asides in 2006. Allocations account for overages as of September 1, 2005 and have been adjusted for research set-aside. Negative numbers are in parenthesis ().

		Quota Allocation (lb)*		
State	**Percent**	**Alternative 1****	**Alternative 2**	**Alternative 3**
ME	0.04756	7,318	6,630	8,545
NH	0.00046	71	64	83
MA	6.82046	1,049,433	950,809	1,225,401
RI	15.68298	2,413,068	2,186,293	2,817,689
CT	2.25708	347,287	314,649	405,519
NY	7.64699	1,176,607	1,066,032	1,373,900
NJ	16.72499	2,573,398	2,331,554	3,004,902
DE	0.01779	(45,189)	(45,446)	(44,730)
MD	2.0391	313,747	284,262	366,356
VA	21.31676	3,279,912	2,971,672	3,829,885
NC	27.44584	4,222,966	3,826,099	4,931,069
Total	100	15,383,807	13,938,064	17,963,348

*Total quota is the summation of all states having allocation. A state with a negative number has an allocation of zero (0).
**Preferred Alternative.

The current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. The minimum fish size is 14"; the mesh size is a minimum of 5.5" diamond mesh or 6" square mesh applied throughout the body, extension(s), and codend portion of the net.

5.1.2 Alternative 2 (Most Restrictive TAL)

The most restrictive alternative for summer flounder is a TAL of 23.59 million lb (10.70 million kg) for 2006 only. This TAL has a 50 percent probability of achieving the target F for summer flounder in 2006. The initial commercial quota under this system is 14.15 million lb (6.42 million kg) and the initial recreational harvest limit would be 9.44 million lb (4.28 million kg) for summer flounder in 2006. After deducting the research set-aside for summer flounder of 355,762 lb (161,371 kg) in 2006, the commercial quota is 13.94 million lb (6.32 million kg) and the adjusted recreational harvest limit is 9.30 million lb (4.22 million kg). The state commercial shares range from negative quotas to 3.83 million lb (1.74 million kg) in 2006 (Box 5.1). The quotas presented in Box 5.1 account for a preliminary overage (as of September 1, 2005) of 0.05 million lb (0.02 million kg) in Delaware.

The proposed summer flounder minimum fish size, minimum mesh, and minimum mesh threshold regulations described under the preferred alternative 1 for summer flounder also apply here as well.

5.1.3 Alternative 3 (Status Quo/Least Restrictive TAL)

The least restrictive/status quo alternative for summer flounder is a TAL of 30.30 million lb (13.74 million kg) for 2006 only. The proposed TAL has approximately a 2 percent probability of achieving the target F for summer flounder in 2006. Under this alternative, the initial commercial quota is 18.18 million lb (8.25 million kg) and the initial recreational harvest limit is 12.12 million lb (5.50 million kg) in 2006. After deducting the research set-aside for summer flounder of 355,762 lb (161,371 kg) in 2006, the commercial quota is 17.96 million lb (8.15 million kg) and the adjusted recreational harvest limit is 11.98 million lb (5.43 million kg) in 2006. The state commercial shares range from negative quotas to 4.93 million lb (2.24 million kg) in 2006 (Box 5.1). The quotas presented in Box 5.1 account for a preliminary overage (as of September 1, 2005) of 0.05 million lb (0.02 million kg) in Delaware.

The proposed summer flounder minimum fish size, minimum mesh, and minimum mesh threshold regulations described under the preferred alternative 1 for summer flounder also apply here as well.

5.1.4 Alternative 4 (No Action)

Section 5.03(b) of NOAA Administrative Order (AO) 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 Environmental Quality (CEQ) has explained that there are two distinct interpretations of the "no action": One interpretation is essentially the status quo, i.e., no change from the current management; and the other interpretation is when a proposed project, such as building a railroad facility, does not take place. In the case of the proposed 2006 specifications for summer flounder, determining the no action alternative is slightly more complicated than either of these interpretations suggest.

The status quo management for the summer flounder fishery involves a set of indefinite (i.e., in force until otherwise changed) management measures such as minimum allowable sizes, bag limits, and reporting requirements. These measures will continue as they are even if the proposed specifications are not implemented. However, the current management program includes the specification of a TAL that is specific to the 2005 fishing year. There are no "roll-over" provisions currently provided for in the FMP. Thus, if the proposed 2006 summer flounder specifications are not implemented by January 1, 2006, the fishery will operate without an identified cap on allowable landings. Because of the subtlety in the management program for

summer flounder, the no action alternative is not equivalent to status quo (which would include the current TAL). If the action that results in setting the proposed specifications for this fishery is not taken, some current measures will remain in place, but the overall management program will not be identical to that of 2005.

For the purposes of this EA, the no action alternative is defined as follows: (1) no proposed specifications for the 2006 summer flounder fishery will be published; (2) the indefinite management measures (minimum sizes, bag limits, possession limits, permit and reporting requirements, etc.) remain unchanged; (3) no quota set-aside allocated to research in 2006; and (4) no specific cap on the allowable annual landings in this fishery (i.e., no quota). Under the no action alternative, the only regulatory controls on fishing effort and harvests would be the indefinite measures. A commercial quota, which determines the maximum amount of summer flounder landings allowable before the commercial fishery is shut down, would not be implemented for 2006.

The implications of the no action alternative are substantial. The no action alternative does not allow NMFS to specify and implement a TAL for this fishery, as required in the regulations at 50 CFR part 648, for the upcoming fishing year. Monitoring the landings, and taking action as necessary to prevent the state and federal TAL from being exceeded, as applicable, is essential for management of this fishery and forms the backbone of the current management system under the FMP. Implementation of the no action alternative is inconsistent with the goals and objectives of the FMP and its implementing regulations. The no action alternative, which is likely to result in overfishing of summer flounder (due to NMFS' inability to monitor and enforce the quota), is also inconsistent with National Standard 1 of the Magnuson-Stevens Act. The no action alternative is not a reasonable alternative to the preferred action because it is inconsistent with the goals and objectives of the FMP, the implementing regulations, and the Magnuson-Stevens Act. Additionally, the no action alternative would complicate the approved management program for this fishery and likely result in overfishing. Therefore, the no action alternative is not analyzed further in the Environmental Assessment.

5.2 Scup

5.2.1 Alternative 1 (Preferred: Monitoring Committee Recommended TAL)

The preferred alternative for scup sets the scup TAL at 16.27 million lb (7.38 million kg) for 2006. This TAL recommendation is based on the condition of the stock relative to the biological reference point and is expected to achieve the 21% target exploitation rate.

Estimated discards were added to the TAL to derive a TAC of 19.79 million lb (8.98 million kg). The TAC is allocated to the commercial and recreational fisheries based on the proportions of commercial and recreational catch (landings plus discards) for the years 1988-1992. Based on this data, 78 percent of the TAC is allocated to the commercial fishery and 22 percent to the recreational fishery. The commercial TAC for 2006 is 15.44 million lb (7.0 million kg), and the

recreational TAC is 4.35 million lb (1.97 million kg). Discard estimates are deducted from these TACs to set a TAL for the commercial and recreational sectors. The commercial TAL is a quota; and the recreational TAL is a harvest limit. Both are shown in Box 5.2.

Box 5.2. Derivation of the initial TALs for the commercial and recreational scup fisheries.

	Commercial (million lb)	Recreational (million lb)
TAC:	15.44 (7.0 million kg)	4.35 (1.97 million kg)
Less Discard Estimate:	3.36 (0.94 million kg)	0.16 (0.03 million kg)
Initial TAL:	12.08 (5.48 million kg)	4.19 (1.90 million kg)

Under the preferred alternative, the initial commercial TAL is 12.08 million lb (5.48 million kg), and the initial recreational harvest limit is 4.19 million lb (1.90 million kg) for 2006. Additionally, the Council approved a research set-aside for scup of 184,690 lb (83,774 kg), which would be deducted from the TAL. This resulted in a preliminary adjusted commercial quota of 11.94 million lb (5.42 million kg), and an adjusted recreational harvest limit of 4.14 million lb (1.88 million kg). The commercial quota also adjusted for overages by period, according to the quota counting procedures outlined in section 4.3. However, as of September 1, 2005, there were no overages by the 2005 commercial scup fishery. The allocation of the commercial quota for each period is presented in Box 5.3.

Box 5.3. Comparison (in million lb) of the scup alternatives of quota combinations reviewed (2006).

		Adjusted Quota (million lb)		
Period	**Percent Allocation**	**Alternative 1**	**Alternative 2**	**Alternative 3**
Annual	**100**	11.94	7.65	12.12
Winter I (Jan-April)	**45.11**	5.39	3.45	5.47
Summer (May-Oct)	**38.95**	4.65	2.98	4.72
Winter II (Nov-Dec)	**15.94**	1.90	1.22	1.93

The Summer Flounder, Scup, and Black Sea Bass Framework Adjustment 3 (2003) allows for the transfer of unused scup quota from the Winter I to the Winter II period. As such, if the fishery does not land their quota in Winter I due to poor weather conditions, changes in the distribution of scup, or market conditions (i.e., low price), the opportunity to land those scup is not lost for the fishing year.

The current scup allocation formula remains unchanged with alternative 1, i.e., commercial quota is allocated as follows: Winter I - 45.11 percent, Summer - 38.95 percent, and Winter II - 15.94 percent. The Winter I period ends on April 30 for Federal permit holders. Any unused quota from Winter I would then be added to the Winter II period. Each year, during the specification setting process, the Council will recommend possession limits that account for the transfer. Specifically, the Council recommends possession limits for the Winter I and Winter II periods prior to the start of the fishing year. The Council specified the formula that will be used each year to derive the Winter II possession limits in the event of a rollover from Winter I to Winter II, i.e., the possession limit in Winter II is contingent on the amount of transferred quota. The potential increase in Winter II possession limits given various hypothetical amounts of scup rolled over from Winter I to Winter II are presented in Appendix A. A complete description and impact analyses of the proposed provision allowing the rollover of unused quota from Winter I to Winter II period are found in Framework Adjustment 3 to the Summer Flounder, Scup, and Black Sea Bass FMP.

The current minimum fish size, minimum vent size, and minimum mesh size regulations will remain unchanged in 2006. The minimum fish size is 9". The minimum vent sizes for scup pots/traps are 3 $^{1}/_{10}$" (7.9 cm) in diameter for circular vents, 2 $^{1}/_{4}$" (5.7 cm) square vent for each side, or an equivalent rectangular escape vent. The Winter I scup possession limit will also remain unchanged in 2006. Finally, the threshold levels used to trigger the minimum mesh requirements of 500 pounds of scup from November 1 through April 30 and 200 pounds or more of scup from May 1 through October 31 will remain unchanged. Proposed changes to the Winter II possession limit, and changes in that limit if a transfer of quota from Winter I occurs, are discussed below (alternative 4.2a).

5.2.2 Alternative 2 (Most Restrictive TAL)

The most restrictive alternative considered for scup in 2006 is a TAL of 10.77 million lb (4.89 million kg). This TAL is equal to the 2002 recommended TAL. Based on this TAL, the initial commercial TAL is 7.79 million lb (3.53 million kg), and the initial recreational harvest limit is 2.98 million lb (1.35 million kg) for 2006. After deducting the research set-aside for scup of 184,690 lb (83,774 kg), the preliminary adjusted commercial quota is 7.65 million lb (3.47 million kg), and the preliminary recreational harvest is 2.93 million lb (1.33 million kg). The commercial quota will also be adjusted for overages by period, according to the quota counting procedures outlined in section 4.3. However, as of September 1, 2005, there were no overages by the 2005 commercial scup fishery. The allocation of the commercial quota for each period is presented in Box 5.3.

The other proposed scup management measures described in the last paragraph of section 5.2.1 (preferred alternative) also apply here as well.

5.2.3 Alternative 3 (Status Quo/Least Restrictive TAL)

The least restrictive alternative (status quo) considered for scup in 2006 includes a TAL of 16.5 million lb (7.48 million kg). Based on this TAL, the initial commercial TAL is 12.26 million lb (5.56 million kg), and the initial recreational harvest limit is 4.24 million lb (1.92 million kg) for 2006. After the research set-aside for scup of 184,690 lb (83,774 kg), the commercial scup quota is 12.12 million lb (5.50 million kg) and the recreational harvest limit is 4.20 million lb (1.91 million kg). The commercial quota will also be adjusted for overages by period, according to the quota counting procedures outlined in section 4.3. However, as of September 1, 2005, there were no overages by the 2005 commercial scup fishery. The allocation of the commercial quota for each period is presented in Box 5.3.

The other proposed scup management measures described in the last paragraph of section 5.2.1 (preferred alternative) also apply here as well.

5.2.4 Alternative 4.1a (Status Quo Winter II Landings Limit/No action)

This alternative maintains status quo Winter II possession limit for scup in 2006 i.e., 1,500 lb possession limit. In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 500 lb intervals for every 500,000 lb of scup transferred, i.e., if a million lb is transferred then the limit should increase by 1,000 lb (Appendix A). The Winter I landings limit will remain unchanged, i.e., 30,000 lb possession limit until 80% of the landings are reached and then the possession limit would drop to 1,000 lb.

5.2.5 Alternative 4.2a (Preferred: Winter II Landings Limit of 2,000 Lb)

This alternative implements a Federal possession limit of 2,000 lb (in the Winter II fishery). In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 1,500 lb intervals for every 500,000 lb of scup transferred, i.e., if a million lb is transferred then the limit should increase by 3,000 lb (Appendix A). The Winter I landings limit will remain unchanged, i.e., 30,000 lb possession limit until 80% of the landings are reached and then the possession limit would drop to 1,000 lb.

5.2.6 Alternative 5 (No Action)

Section 5.03(b) of NOAA AO 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 CEQ has explained that there are two distinct interpretations of the "no action": One interpretation is essentially the status quo, i.e., no change from the current management; and the other interpretation is when a proposed project, such as building a railroad

facility, does not take place. In the case of the proposed 2006 specifications for scup, determining the no action alternative is slightly more complicated than either of these interpretations suggest.

The status quo management for the scup fishery involves a set of indefinite (i.e., in force until otherwise changed) management measures such as minimum allowable sizes, bag limits, and reporting requirements. These measures will continue as they are even if the proposed specifications are not implemented. However, the current management program includes specifications of a TAC and TAL that are specific to the 2005 fishing year. There are no "roll-over" provisions currently provided for in the FMP. Thus, if the proposed 2006 scup specifications are not implemented by January 1, 2006, the fishery will operate without an identified cap on allowable landings. Because of this subtlety in the management program for scup, the no action alternative is not equivalent to the status quo (which would include the current TAC and TAL). If the action that results in setting the proposed specifications for this fishery is not taken, some current measures will remain in place, but the overall management program will not be identical to that of 2005.

For the purposes of this EA, the no action alternative is defined as follows: (1) no proposed specifications for the 2006 scup fishery will be published; (2) the indefinite management measures (minimum sizes, bag limits, possession limits, permit and reporting requirements, etc.) remain unchanged; (3) no quota set-aside allocated to research in 2006; (4) the existing gear restrictive areas (GRAs) as identified in 66 FR 12902 will remain in place for 2006. Specifically, the areas and times would remain unchanged, i.e., the southern GRA will be in effect from January 1 to March 15, and the northern GRA will be in effect from November 1 to December 31 (Appendix B). Current regulations prohibit fishing for *Loligo* squid, black sea bass, and silver hake in the GRAs using mesh smaller than 4.5" during the effective times; and (5) no specific cap on the allowable annual landings in this fishery (i.e., no quota). Under the no action alternative, the only regulatory controls on fishing effort and harvests would be the indefinite measures. A commercial quota, which determines the maximum amount of scup landings allowable before the commercial fishery is shut down, would not be implemented for 2006.

The implications of the no action alternative are substantial. The no action alternative does not allow NMFS to specify and implement a TAC or TAL for this fishery, as required in the regulations at 50 CFR part 648, for the upcoming fishing year. Monitoring the landings, and taking action as necessary to prevent the state and federal TAC or TAL from being exceeded, as applicable, is essential for management of this fishery and forms the backbone of the current management system under the FMP. Implementation of the no action alternative is inconsistent with the goals and objectives of the FMP and its implementing regulations. The no action alternative, which is likely to result in overfishing of scup (due to NMFS' inability to monitor and enforce the quota), is also inconsistent with National Standard 1 of the Magnuson-Stevens Act. The no action alternative is not a reasonable alternative to the preferred action because it is inconsistent with the goals and objectives of the FMP, the implementing regulations and the Magnuson-Stevens Act. Additionally, the no action alternative would complicate the approved

management program for this fishery and likely result in overfishing. Therefore, the no action alternative is not analyzed further in the Environmental Assessment.

5.3 Black Sea Bass

5.3.1 Alternative 1 (Preferred TAL)

The Council and Board recommended a coastwide TAL of 8.00 million lb (3.63 million kg) in 2006 for black sea bass. Because of uncertainty in the survey estimates and the potential underestimation of the 2003 exploitation rate, two different sets of assumptions were used to estimate the TAL. The first assumes the spring survey for 2006 is equal to 0.396 (three year moving average for 2004) and assumes an exploitation rate of 21% in 2003. Therefore, the TAL associated with an exploitation rate of 25% is about 6.36 million lb (2.88 million kg). Alternatively, if the spring survey estimate in 2006 is assumed to be 0.538, the same value for 2003 (the average of 2002, 2003 and 2004), the TAL associated with an exploitation rate of 25% would be 8.63 million lb (3.92 million kg). The Council and Board therefore selected a TAL of 8.00 million lb (3.63 million kg), a value between the estimates derived from the two different sets of assumptions. The TAL associated with this alternative is less restrictive than alternative 2, but more restrictive than maintaining the status quo (alternative 3). Based on landings data from 1983 to 1992, 49 percent of the TAL is allocated to the commercial fishery as quota and 51 percent is allocated to the recreational fishery as a harvest limit. The Council approved a research set-aside for black sea bass of 178,956 lb (81,173 kg), which is deducted from the TAL. As such, the preliminary adjusted commercial quota alternative is 3.83 million lb (1.74 million kg), and the preliminary recreational harvest is 3.99 million lb (1.81 million kg). The commercial quota is also adjusted for overages according to the quota counting procedures outlined in section 4.3. However, as of September 1, 2005, there were no overages by the 2005 commercial black sea bass fishery.

The Commission adopted state-specific allocations for 2004 and 2005 and recently adopted an addendum to extend the state-by-state allocations through 2007. Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP established a federal coastwide quota to facilitate the implementation of the state-by-state quotas by the Commission.

The current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. The minimum fish size is 11"; the mesh size is a minimum of 75 meshes of 4.5" diamond mesh in the codend in large nets or at least 4.5" diamond mesh throughout in a small net. The threshold to trigger the minimum mesh size is 500 lb of black sea bass from January through March and 100 lb of black sea bass from April through December. Proposed changes to the pot/trap vent size regulations and changes in the number of vents required in the parlor portion of a pot/trap are discussed below (alternative 4.2b). The current minimum vent sizes for black sea bass pots/traps are 1 $^{3}/_{8}$" x 5 $^{3}/_{4}$" for rectangular vents, 2 $^{3}/_{8}$" in diameter for circular vents, and 2" for square vents (alternative 4.1b).

5.3.2 Alternative 2 (Monitoring Committee Recommended/Most Restrictive TAL)

The most restrictive alternative considered for black sea bass in 2006 was also recommended by the monitoring committee, which is a TAL of 7.50 million lb (3.40 million kg). Because of uncertainty in the survey estimates and the potential underestimation of the 2003 exploitation rate, two different sets of assumptions were used to estimate the TAL. The first assumes the spring survey for 2006 is equal to 0.396 (three year moving average for 2004) and assumes an exploitation rate of 21% in 2003; therefore, the TAL associated with an exploitation rate of 25% is about 6.36 million lb (2.88 million kg). Alternatively, if the spring survey estimate in 2006 is assumed to be 0.538, the same value for 2003 (the average of 2002, 2003 and 2004), the TAL associated with a rate of 25% would be 8.63 million lb (3.92 million kg). The monitoring committee therefore recommended a TAL of 7.50 million lb (3.40 million kg), which assumes a survey estimate of 0.467 for 2006 and is halfway between the 2006 TAL estimates derived from the two differing sets of assumptions. After the research set-aside for black sea bass of 178,956 lb (81,173 kg) is accounted for, the preliminary commercial quota is 3.59 million lb (1.63 million kg) and the preliminary recreational harvest is 3.73 million lb (1.69 million kg). The commercial quota is adjusted for overages according to the quota counting procedures outlined in section 4.3. However, as of September 1, 2005, there were no overages by the 2005 commercial black sea bass fishery.

The proposed black sea bass minimum fish size, minimum mesh, minimum mesh threshold, and minimum vent size regulations described under the preferred alternative 1 for black sea bass also apply here as well.

5.3.3 Alternative 3 (Status Quo/Least Restrictive TAL)

The least restrictive/status quo coastwide TAL for black sea bass is 8.20 million lb (3.72 million kg). After the research set-aside for black sea bass of 178,956 lb (81,173 kg), the preliminary adjusted commercial quota is 3.93 million lb (1.78 million kg) and the preliminary recreational harvest is 4.09 million lb (1.86 million kg). The commercial quota is also adjusted for overages according to the quota counting procedures outlined in section 4.3. However, as of September 1, 2005, there were no overages by the 2005 commercial black sea bass fishery.

The proposed black sea bass minimum fish size, minimum mesh, minimum mesh threshold, and minimum vent size regulations described under the preferred alternative 1 for black sea bass also apply here as well.

5.3.4 Alternative 4.1b (Status Quo Trap Escape Vents/No Action)

This alternative maintains minimum vent size requirements for black sea bass pots/traps as 1 $^{3}/_{8}$" x 5 $^{3}/_{4}$" for rectangular vents, 2 $^{3}/_{8}$" in diameter for circular vents, and 2" for square vents. In addition, 1 vent is required in the parlor portion of the pot/trap.

5.3.5 Alternative 4.2b (Preferred: Trap Escape Vents)

Under this alternative the minimum circle vent size requirements for black sea bass pots/traps would increase to 2 $^{1}/_{2}$"; requirements of 1 $^{3}/_{8}$" x 5 $^{3}/_{4}$" for rectangular vents and 2" for square vents remain unchanged. In addition, 2 vents would be required in the parlor portion of the pot/trap. These requirements would become effective January 1, 2007. Therefore, fishermen would convert their gear over time throughout 2006.

5.3.6 Alternative 5 (No Action)

Section 5.03(b) of NOAA AO 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 CEQ has explained that there are two distinct interpretations of the "no action": One interpretation is essentially the status quo, i.e., no change from the current management; and the other interpretation is when a proposed project, such as building a railroad facility, does not take place. In the case of the proposed 2006 specifications for black sea bass, determining the no action alternative is slightly more complicated than either of these interpretations suggest.

The status quo management for the black sea bass fishery involves a set of indefinite (i.e., in force until otherwise changed) management measures such as minimum allowable sizes, bag limits, and reporting requirements. These measures will continue as they are even if the proposed specifications are not implemented. However, the current management program includes the specification of a TAL that is specific to the 2005 fishing year. There are no "roll-over" provisions currently provided for in the FMP. Thus, if the proposed 2006 black sea bass specifications are not implemented by January 1, 2006, the fishery will operate without an identified cap on allowable landings. Because of this subtlety in the management program for black sea bass, the no action alternative is not equivalent to the status quo (which would include the current TAL). If the action that results in setting the proposed specifications for this fishery is not taken, some current measures will remain in place, but the overall management program will not be identical to that of 2005.

For the purposes of this EA, the no action alternative is defined as follows: (1) no proposed specifications for the 2006 black sea bass fishery will be published; (2) the indefinite management measures (minimum sizes, bag limits, possession limits, permit and reporting requirements, etc.) remain unchanged; (3) no quota set-aside allocated to research in 2006; and (4) no specific cap on the allowable annual landings in this fishery (i.e., no quota). Under the no action alternative, the only regulatory controls on fishing effort and harvests would be the indefinite measures. A commercial quota, which determines the maximum amount of black sea

bass landings allowable before the commercial fishery is shut down, would not be implemented for 2006.

The implications of the no action alternative are substantial. The no action alternative does not allow NMFS to specify and implement a TAL for this fishery, as required in the regulations at 50 CFR part 648, for the upcoming fishing year. Monitoring the landings, and taking action as necessary to prevent the state and federal TAL from being exceeded, as applicable, is essential for management of this fishery and forms the backbone of the current management system under the FMP. Implementation of the no action alternative is inconsistent with the goals and objectives of the FMP and its implementing regulations. The no action alternative, which is likely to result in overfishing of black sea bass (due to NMFS' inability to monitor and enforce the quota), is also inconsistent with National Standard 1 of the Magnuson-Stevens Act. The no action alternative is not a reasonable alternative to the preferred action because it is inconsistent with the goals and objectives of the FMP, the implementing regulations and the Magnuson-Stevens Act. Additionally, the no action alternative would complicate the approved management program for this fishery and likely result in overfishing. Therefore, the no action alternative is not analyzed further in the Environmental Assessment.

5.4 Research Set-Aside Measures

5.4.1 Alternative 1 (No Research Set-aside/No-Action)

Under this alternative, no research set-aside will be implemented for summer flounder, scup, or black sea bass in 2006. Thus, the quotas would not be adjusted downward for the RSAs.

5.4.2 Alternative 2 (Preferred: Specify Research Set-Asides/Status Quo)

As part of the research set-aside program, several research projects were submitted to NMFS that could potentially require exemptions from some of the current summer flounder, scup, and black sea bass regulations. Under the research set-aside program, the Council, in consultation with the NMFS Northeast Regional Administrator, and the Commission have recommended a summer flounder, scup, and black sea bass research project for 2006 (August 5, 2005 letter from Mears to Furlong). In order to expedite the approval and implementation of the research project, Council staff agreed to analyze the impacts of the exemptions on the environment for inclusion in the specification package for these species. The impacts of the research set-asides for squid, mackerel, and butter fish were discussed in detail in the 2006 Atlantic Mackerel, *Loligo*, *Illex*, and Butterfish Specifications (section 7.4). The impacts of the research set-asides for bluefish are discussed in detail in the 2006 Bluefish Specifications (section 7.4).

The proposed summer flounder, scup, and black sea bass research set-asides are for a maximum of 355,762 lb (161,371 kg), 184,690 lb (83,774 kg), and 178,956 lb (81,173 kg) for 2006, respectively. These research set-aside amounts are deducted from the summer flounder, scup, and black sea bass TALs, respectively (Boxes 4.1 and 4.2).

A summary of the research set-aside projects requesting summer flounder, scup, and black sea bass for 2006 is presented in Appendix C. This description includes project name, description and duration, amount of research set-aside requested, and gear to be used to conduct the project.

6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES

6.1 Description of the Managed Resource

6.1.1 Description of the Fisheries

The commercial and recreational fisheries for summer flounder, scup, and black sea bass are fully described in section 3.3.2, of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP and are outlined by principal port in section 3.4.2 of that document. A summary of each of the fisheries is provided below.

6.1.1.1 Summer Flounder

In 1993, the first year that a coastwide quota was implemented, commercial landings were 12.60 million lb (5.71 million kg), slightly in excess of the quota for that year. Commercial landings increased to 15.42 million lb (6.99 million kg) in 1995 and then dropped to 8.81 million lb (3.99 million kg) in 1997. Commercial landings ranged from 10.69 to 11.26 million lb (4.84 to 5.10 million kg) from 1998 to 2001 and then increased to over 14.54 million lb (6.60 million kg) and 14.23 million lb (6.45 million kg) in 2002 and 2003, respectively. In 2004, commercial landings were estimated at 17.26 million lb (7.83 million kg). Recreational landings in 1997 were 11.87 million lb (5.38 million kg), more than double the landings estimate for 1995 of 5.42 million lb (2.45 million kg). Recreational landings increased to 16.47 million lb (7.47 million kg) in 2000, dropped to 8.01 million lb (3.63 million kg) in 2002 and then increased to 11.61 million lb (5.26 million kg) in 2003. In 2004, recreational landings were estimated at 10.76 million lb (4.88 million kg). Combined commercial and recreational landings were 28.02 million lb (12.71 million kg) in 2004.

6.1.1.2 Scup

Commercial scup landings declined from 1988 to 1989 by over 33 percent (13.10 million lb or 5.94 million kg to 8.76 million lb or 3.97 million kg), increased to 15.61 million lb (7.08 million kg) in 1991 and then dropped to the lowest value in the time series, 2.66 million lb (1.20 million kg), in 2000. Commercial landings substantially increased to over 9.75 million lb (4.42 million kg) in 2003 and then slightly decreased to 9.05 million lb (4.11 million kg) in 2004. The recreational landings declined steadily from a 1986 value of 11.60 million lb (5.26 million kg) to 0.87 million lb (0.39 million kg) in 1998, the lowest value in the time series. Recreational landings then increased substantially to 8.48 million lb (3.85 million kg) in 2003 and then decreased to 4.38 million lb (1.99 million kg) in 2004.

6.1.1.3 Black Sea Bass

Commercial black sea bass landings have varied without trend since 1981, ranging from a low of 2.03 million lb (0.92 million kg) in 1994 to a high of 4.33 million lb (1.96 million kg) in 1984. Commercial landings in 2002 increased to 3.43 million lb (1.55 million kg) and then dropped to 2.82 million lb (1.28 million kg) in 2004. For the same time frame, recreational landings ranged from a low of 1.15 million lb (0.52 million kg) in 1998 to a high of 12.39 million lb (5.62 million kg) in 1986. Recreational landings in 2004 were about 1.94 million lb (0.88 million kg) or about 50% below the average for 1981-2004.

Commercial landings by state have varied over the years. New Jersey landings were the highest every year from 1993 to 1997 and again in 2003 and 2004. Virginia had the highest landings from 1998 to 2001. In addition, although Massachusetts requires a 12" TL size limit for black sea bass, landings in that state almost doubled from 1998 to 1999, and increased again in 2002 to 0.96 million lb (0.43 million kg). In 2004, New Jersey, Virginia, and Rhode Island had the highest landings by state.

6.1.2 Status of the Stock

6.1.2.1 Summer Flounder

The status of the summer flounder stock is evaluated annually. The Northeast Fisheries Science Center's (NEFSC) Southern Demersal Working Group met in May to address the terms of reference for the 41st Stock Assessment Workshop (SAW). The 41st Stock Assessment Review Committee (SARC) panelist reports indicated acceptance of the stock assessment update as the basis for management advice and accepted the recommendations of the working group regarding reference points.

The assessment update indicates that the stock is not overfished but overfishing is occurring relative to the biological reference points detailed in Amendment 12. The fishing mortality rate estimated for 2004 is 0.40, a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.26. In addition, total stock biomass has increased substantially since 1989 to 121 million lb (55 million kg) in 2004, slightly above the current biomass threshold[1] of 117 million lb (53 million kg). Spawning stock biomass has increased each year since 1993 to 85 million lb (39 million kg) in 2004, the highest value in the time series.

[1] Biomass threshold is a term used to define when a fishery is considered overfished. When the stock biomass is below the threshold biomass, then the fishery is considered overfished. According to the biological reference points established for summer flounder, scup, and black sea bass, the biomass threshold for these species are: 53,222 mt; 2.77 kg/tow (3-year moving average, NEFSC spring survey SSB index); and 0.9 kg/tow (3-year moving average, NEFSC spring survey SSB index), respectively.

Year-class estimates indicate that the 1995 to 1999 year classes ranged from 30 to 38 million fish; the average for 1982 to 2004 is about 38 million. The 2002 year class is now estimated to be about average at 38 million fish. The 2003 and 2004 year classes were below average.

6.1.2.2 Scup

The most recent assessment on scup was completed in June 2002 (35th SARC or Stock Assessment Review Committee). 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 surveys indicated an increase in stock abundance since the mid to late 90's; however, NEFSC spring survey results indicate that spawning stock has decreased in 2004. Biomass estimates are based on a 3-year average, and the estimate for 2004 is 0.69 kg/tow. This is below the biomass threshold value of 2.77 kg/tow. Therefore, the stock is considered overfished.

The spring survey index increased significantly in 2004 to 1.85 kg/tow relative to the low value of 0.15 derived in 2003. The 2004 index is the highest value in the spring survey since 1978, excluding the high value in 2002. In 2005, the spring index dropped to 0.10 kg/tow. The winter trawl survey exhibited a similar trend increasing from 0.49 kg/tow in 2003 to 3.82 kg/tow in 2004, and then decreasing in 2005 to 1.96 kg/tow.

In 2002 and 2003, the Council and Commission discussed the uncertainty associated with the spring survey estimate for 2002 and decided not to use it in setting the TAC. 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.

Year class strength is evident in the NEFSC autumn trawl survey results. The survey indicates that strong year classes were produced from 1999-2002. The SARC also noted the predominance of the 2000 year class in several of the state surveys. The most recent information indicates a below average year class was produced in 2004.

Estimates of fishing mortality rates for scup are uncertain. The 31st SARC conducted several analyses that indicated that F was at least 1.0 for ages 0-3 scup for the 1984 to 2000 time series. SARC 31 could not estimate Fs on older fish because they were 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 from the 1995 value of 135.5 to single digit values for 2001 to 2003. This relative index increased to 19.4 in 2004 due to the drop in the 3-year average SSB value.

6.1.2.3 Black Sea Bass

The most recent assessment on black sea bass, completed in June 2004, indicated that black sea bass were no longer overfished and overfishing was not occurring. 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 the spring 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 2004 biomass index is 1.3 kg/tow(the three-year average for 2003-2005) or about 44% above the threshold. Based on this value, the stock is not overfished.

Because of the potential influence of an 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. In fact, the index for 2002 of 0.799 kg/tow is the highest value in the time series (1968-2002). Although the biomass index declined to 0.493 kg/tow in 2003 and again in 2004 to 0.321 kg/tow, it increased to 0.374 kg/tow in 2005. The 2004 and 2005 indices were above average. The three point moving average based on these survey results for the recent time period has steadily increased from a low of 0.093 kg/tow in 1997 to 0.538 kg/tow in 2003. However, lower survey results in 2004 and 2005 resulted in a three-year average value for 2004 of 0.396 kg/tow.

The spring survey can also be used as an index of recruitment. The survey, an indicator of age-1 fish, indicates good year classes were produced in 1987, 1989 through 1991, and 1994 and poor year classes in 1992, 1993, and 1995 through 1997. Results for 2000 indicate a strong year class was produced in 1999; the index is 0.661 kg/tow, the highest in the time series. The 2001 year class was good; the index was about four times the average for the period and the third largest value since 1968. Preliminary results indicate an above average year class was produced in 2004.

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 2004 relative to 1996 and 1997 levels. Based on tag recapture models, the F estimated for 2003 was less than 0.26; exploitation rates for 2003 ranged from 15-20%. However, preliminary F estimates for June 2003 to March 2004 ranged from 0.24 to 0.3, and the SARC working group indicated that "uncertainty remains in the tag reporting rates and may result in under estimated exploitation rates. Also, discard losses in the commercial fisheries were not estimated and remain an uncertain component of the fishery."

6.1.3 Stock Characteristics and Ecological Relationships

6.1.3.1 Summer Flounder

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 41st Stock Assessment Workshop (SAW 41) documents. The following is taken from the "41st SAW Assessment Summary 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 SAW 35 (NEFSC 2002) and in the 2003 and 2004 SAW Southern Demersal Working Group assessments (Terceiro 2003, SDWG 2004)."

"Fishing mortality calculated from the average of the currently fully recruited ages (3-5) was high during 1982-1997, varying between 0.9 and 2.2 (55%-83% exploitation), far in excess of the Amendment 12 overfishing definition, $F_{threshold} = F_{max} = 0.26$ (21% exploitation). The fishing mortality rate has declined substantially since 1997 and was estimated to be 0.40 (30% exploitation) in 2004. The 80% confidence interval for F in 2004 ranged from 0.34 to 0.49. Retrospective analysis shows that the current assessment method tends to underestimate recent fishing mortality rates."

"Total stock biomass has increased substantially since 1989 and in 2005 total stock biomass was estimated to be 54,900 mt, slightly above the Amendment 12 biomass threshold. The 80% confidence interval for total stock biomass in 2005 ranged from 49,300 to 62,100 mt."

"For present assessment, updated input data (1992-2004 average mean weights, maturities, and partial recruitment) were used to revise the yield and biomass per recruit analysis. The updated 1982-2004 VPA provided an estimate of median recruitment for summer flounder of 33.1 million age 0 fish. The revised estimates of the biological reference points are $F_{MSY} = F_{max}$ =0.276, MSY = 19,072 mt (42.0 million lbs), and TSB_{MSY} = 92,645 mt (204.2 million lbs). The revised estimate of the biomass threshold, $½TSB_{MSY}$, is 46,323 mt (102.1 million lbs)."

"The arithmetic average recruitment from 1982 to 2004 is 38 million fish at age 0, with a median of 33 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 2003 year class is currently estimated to be below average at 27 million fish. The 2004 year class is currently estimated to be at the median of 33 million fish. Retrospective analysis shows that the current assessment method tends to overestimate the abundance of age 0 fish in the most recent years."

"Spawning stock biomass (SSB; Age 0+) declined 72% from 1983 to 1989 (18,800 mt to 5,200 mt), but with improved recruitment and decreased fishing mortality has increased to 38,600 mt in 2004. Retrospective analysis shows a tendency to overestimate the SSB in the most recent years. The age structure of the spawning stock has expanded, with 75% at ages 2 and older, and 16% at ages 5 and older. Under equilibrium conditions and at F_{max} = 0.263 from Amendment 12, about 85% of the spawning stock biomass would be expected to be ages 2 and older, with 50% at ages 5 and older. Similar results for the long-term population structure are derived using the updated F_{max} = 0.276."

6.1.3.2 Scup

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. As in previous assessment reviews, the SARC concluded that estimates of commercial fishery discards are unreliable 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 is not 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 primarily on landings of scup larger than 9" TL (the commercial minimum fish size) and SSB, the index may indicate fishing mortality rates for the larger fish have 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.

6.1.3.3 Black Sea Bass

A full description of stock characteristics and ecological relationships 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 39th Stock Assessment Workshop (SAW 39) documents. The following is taken from the "SAW Southern Demersal Working Group 2004 Advisory Report: Black Sea Bass."

"The Coastal/Pelagic Working Group concluded that data were adequate to conduct an assessment of the stock. The status of the resource was evaluated from NEFSC spring survey indices. Exploitation rates were estimated with tag recapture models for two periods, October 2002 to September 2003 and May 2003 to April 2004."

"Fishing mortality (F) for 2003 estimated from tag recapture models was less than 0.26. Exploitation rates from tagging data indicate that exploitation was between 15 and 20%. Relative F based on survey indices was well below the value necessary for stock replacement (replacement ratio=0)."

"The NEFSC spring survey recruitment index (mean number per tow) in 2004 (0.08 per tow) was below the average for the last decade (0.187 per tow)."

"SSB was not estimated in the current assessment. However, preliminary mean weight per tow of black sea bass > 22 cm (approximately age 2) in the 2004 NEFSC spring survey decreased to 0.94 kg/tow, yet remained above average for the 1986-2003 period."

"Uncertainty in the tag reporting rates may potentially result in under-estimated exploitation rates. Also, discard losses in the commercial fisheries were not estimated and remain an uncertain component of the fishery. In light of decreasing biomass indices since the peak in 2002, the Working Group recommends caution in exploitation of the resource."

6.2 Habitat (Including Essential Fish Habitat)

A description of the habitat associated with the summer flounder, scup, and black sea bass fisheries is presented in section 3.2 of Amendment 13, and a brief summary of that information is given here. The impact of fishing on summer flounder, scup, and black sea bass EFH and the impact of the summer flounder, scup, and black sea bass fisheries on other species' EFH can be found in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP (section 3.2).

Potential impacts associated with the proposed measures under this specifications package are discussed in section 7.0.

6.2.1 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 includes 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 have 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 gears 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 are 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.

6.2.2 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 to 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 have 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 gears 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 are 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.

6.2.3 Black Sea Bass

The northern population spawns on the Middle Atlantic Bight continental shelf during the spring through fall, and their eggs are pelagic. Spawning begins 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. The duration of larval stage and habitat-related settlement cues are unknown; therefore, 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 than smaller fish. A variety of coastal structures 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, resident 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 to 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 have 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 gears 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 are 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.

6.3 Endangered and Protected Species

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). Sixteen 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:

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 whale (*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
Smalltooth sawfish (*Pristis pectinata*)	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

The status of these and other marine mammal populations inhabiting the Northwest Atlantic has been discussed in detail in the U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments. Initial assessments were presented in Blaylock et al. (1995) and are updated in Waring et al. (1999). The most recent information on the stock assessment of various mammals can be found at:
http://www.nmfs.noaa.gov/pr/PR2/Stock_Assessment_Program/sars.html and in Appendix D.

Three other useful websites on marine mammals are:
www.nmfs.noaa.gov/prot_res/PR3/recovery. html
http://spo.nwr.noaa.gov/mfr611/mfr611.htm
http://www.nmfs.noaa.gov/pr/species/Cetaceans/cetaceans.html

A description of the species listed as endangered which inhabit the management unit of the FMP is presented in Appendix D. A description of loggerhead sea turtles is presented below because of the potential interaction between this species and gear used to commercially harvest summer flounder.

Description of species of concern that are known to interact with the Summer Flounder, Scup, and Black Sea Bass Fishery

Loggerhead Sea Turtle

Loggerhead sea turtles have been listed as "threatened" under the ESA since July 28, 1978. However, both the World Conservation Union (IUCN) and the Convention on International Trade in Endangered Species of Flora and Fauna (CITES) consider loggerhead sea turtles "endangered." Commercial landing data indicate that loggerhead sea turtles were more abundant historically than current population estimates (TEWG 1998). Unfortunately, reliable population

estimates are not available until the period from 1989 to 1995 corresponding to a nest index survey along the U.S. Atlantic and Gulf coasts. According to the results of this survey, the total number of nests laid range from 53,016-85,306 per year, corresponding to a mature female population estimate of 43,060 turtles (TEWG 1998). Subsequent data collected through nest indices, stranding, tagging, and aerial surveys suggest that the mean post-pelagic loggerhead population size ranges between 224,321-234,355 turtles (TEWG 1998). However, these data do not account for turtles in offshore waters and therefore, represent a minimum population estimate. The most recent status report for loggerhead sea turtle populations lists the species as threatened and stable or slightly increasing with the exception of the northern nesting aggregation which is either stable or slightly declining (SEIS 2004).

Juvenile and mature loggerheads are primarily benthic feeders, opportunistically foraging on crustaceans and mollusks (NMFS & FWS 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).

Loggerhead sea turtles are found in a wide variety of habitats throughout the temperate and tropical regions of the Atlantic. These include open ocean, continental shelves, bays, lagoons, and estuaries (NMFS & FWS 1995). The species is also found in entrances to bays and sounds and within bays and estuaries, particularly in the Mid-Atlantic. Loggerhead sea turtles range from Newfoundland to as far south as Argentina and Brazil within the Western North Atlantic. However, within 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.

Since loggerhead sea turtles are limited by water temperatures, they 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. Loggerheads remain in these areas until as late as November and December in some cases, but the large majority of loggerheads leave the Gulf of Maine by mid-September.

Loggerhead sea turtles preferentially nest on warm temperate beaches between the latitudes of 18^{o} and 35^{o} North. A vast majority of the loggerhead nests in the coastal United States occur on the beaches of North Carolina south through Florida (TEWG 1998). Nesting females return to the same beach where they hatched and remain fidel to nesting beaches over seasons and nest sites within a season (TEWG 1998). 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 on the nesting beaches in the WNA (TEWG 1998). However, the group also 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 seem 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 that the northern subpopulation of loggerheads may be experiencing a significant decline (2.5 - 3.2 percent for various beaches). A recovery goal of 12,800 nests has been assumed for the Northern Subpopulation, but TEWG (1998) reported nest numbers 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 1980s, 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 & 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 & 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.

Interactions with commercial fishing gear pose one of the greatest threats to loggerhead sea turtles. In 1992, NOAA issued a technical memorandum addressing the interactions between sea turtles and the summer flounder trawl fishery between the period of November 1991 to February 1992. The report concluded that a positive correlation between trawling activity in coastal waters and sea turtle stranding exists and that further observer data were required to determine the impact on particular species (NOAA NMFS-SEFSC-307). The NMFS observer data for the period of January 2000 to April 2004 describe nine loggerhead turtle takes within the summer flounder, scup, and black sea bass fishery. All of these takes occurred while summer flounder were the target species. Of the nine takes, five loggerhead turtles were released alive and uninjured, one was alive and resuscitated, one was alive with its condition unknown, and two were dead (NMFS, pers. comm. 2004).

Fishery Classification under Section 114 of Marine Mammal Protection Act

Under section 114 of the MMPA of 1972, NMFS must publish, and annually update, the List of Fisheries (LOF) which places all U.S. commercial fisheries in one of three categories based on the level of incidental serious injury and mortality of marine mammals in each fishery (arranging them according to a two tiered classification system). The categorization of a fishery in the List of Fisheries (LOF) determines whether participants in that fishery may be required to comply

with certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements. The classification criteria consist of a two tiered, stock-specific approach that first addresses the total impact of all fisheries on each marine mammal stock (Tier 1) and then addresses the impact of the individual fisheries on each stock (Tier 2). If the total annual mortality and serious injury of all fisheries that interact with a stock is less than 10 percent of the potential biological removal (PBR) for the stock then the stock is designated as Tier 1 and all fisheries interacting with this stock would be placed in Category III. Otherwise, these fisheries are subject to categorization under Tier 2. Under Tier 2, individual fisheries are subject to the following categorization:

I. Annual mortality and serious injury of a stock in a given fishery is greater than or equal to 50 percent of the PBR level;

II. Annual mortality and serious injury of a stock in a given fishery is greater than one percent and less than 50 percent of the PBR level; or

III. Annual mortality and serious injury of a stock in a given fishery is less than one percent of the PBR level.

Under Category I, there is documented information indicating a "frequent" incidental mortality and injury of marine mammals in the fishery. In Category II, there is documented information indicating an "occasional" incidental mortality and injury of marine mammals in the fishery. In Category III, there is information indicating no more than a "remote likelihood" of an incidental taking of a marine mammal in the fishery or, in the absence of information indicating the frequency of incidental taking of marine mammals, other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, and species and distribution of marine mammals in the area suggest there is no more than a remote likelihood of an incidental take in the fishery. "Remote likelihood" means that it is highly unlikely that any marine mammal will be incidentally taken by a randomly selected vessel in the fishery during a 20-day period.

The 2004 LOF indicates that Mid-Atlantic mixed species trawls, which harvest the majority of summer flounder are listed as a Category III fishery. There are no documented marine mammal species or stocks incidentally killed or injured in the Mid-Atlantic mixed species trawl fishery. Smaller quantities of summer flounder are also caught by the Mid-Atlantic commercial sea scallop dredge fishery, the hook and line fishery, and the pound fishery. All three of these fisheries are also listed as Category III under the 2004 LOF, and none of them have documented marine mammal takes.

Otter trawls, pots, and traps are the primary mechanism used in the harvest of scup. All three of these methods are relatively indiscriminate and non-target species including summer flounder, black sea bass, squid, Atlantic mackerel, and silver hake are taken incidentally. The Mid-Atlantic mixed species trawl, as stated above, is a Category III fishery. However, the Atlantic mixed

species trap/pot fishery is listed as a Category II fishery with incidental injuries and kills of fin whales occurring in the Western North Atlantic.

Black sea bass are targeted by the Mid-Atlantic mixed trawl fishery, the Mid-Atlantic commercial hook and line fishery, the Mid-Atlantic pot/trap fishery, and the nearshore floating trap fishery. All of these are Category III fisheries with the exception of the pot/trap fishery, which NMFS lists as a Category II fishery. All types of commercial fishing gear are required to meet the gear restrictions detailed in the Atlantic Large Whale Take Reduction Plan, the Harbor Porpoise Take Reduction Plan, the MMPA, and the ESA.

6.4 Fishery and Socioeconomic Environment

6.4.1 Economic and Social Environment

6.4.1.1 Summer Flounder

The principal ports of commercial and recreational importance to summer flounder, scup, and black sea bass are described in detail in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP (section 3.4.2). 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 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent summer flounder, scup, and black sea bass landing patterns among ports are presented in section 6.5.1.

Since 1993 the commercial fishery has been managed under a quota system. The value of commercial landings of summer flounder from 1993 to 2003 has averaged $21.4 million, ranging from $16.5 million in 1997 to $28.3 million in 1995. The ex-vessel value of summer flounder landings in 2004 was $27.4 million with an average ex-vessel price estimated at $1.59 per pound. In general, summer flounder landings for smaller tonnage vessels were higher in the summer months, while landings for larger tonnage vessels were higher in the winter months. Monthly price fluctuations were evident. On average, higher prices tended to occur during the summer months. This price fluctuation is likely associated with supply responses.

Summer flounder continues to be an important component of the recreational fishery. Estimation of primary species sought as reported by anglers in recent intercept surveys indicates that summer flounder has shown an upward trend in importance in the U.S. North Atlantic and Mid-Atlantic subregions, while decreasing in importance in the South Atlantic subregion. The number of trips for which recreational anglers sought summer flounder in the North Atlantic and Mid-Atlantic subregions in 2002 was 509 thousand and 4.1 million, respectively. This represents a 26 percent decrease relative to 2001 for both regions combined. In 2003, 471 thousand and 5.3 million trips sought summer flounder in the U.S. North Atlantic and Mid-Atlantic subregions, respectively. The combined (North Atlantic and mid-Atlantic regions) total number of trips that sought summer flounder in 2003 increased by 26 percent from the previous year.

Japan continues to be the most important export market for summer flounder. Exports of summer flounder are difficult to determine as summer flounder gets lumped under a variety of export codes, and it is impossible to identify in the U.S. export data (Ross, pers. comm.). However, export of U.S. summer flounder to Japan has been reported to vary from approximately 800 to 1,800 mt (1.76 to 3.97 million lb; 0.80 to 1.80 million kg) in 1993-1997 (Asakawa, American Embassy Tokyo Commercial Section, pers. comm.). Fresh whole U.S. fluke or summer flounder (*Paralichthys dentatus*) is generally exported to Japan for raw (sashimi) consumption. Fresh U.S. summer flounder is used as a substitute for Japanese "hirame" (bastard halibut -- *Paralichthys olivaceus*) and normally imported whole fresh and sold through seafood auction markets to restaurants. They are usually consumed raw for sashimi or sushi toppings in Japan. While U.S. summer flounder is well established in some major action markets, daily prices may fluctuate depending on the total quantity of domestic and imported hirame (including U.S. summer flounder) delivered to auction on a given day. Depending on quality, auction prices for fresh U.S. summer flounder may vary from around 1,000 to 3,000 yen/kilo ($3.13 to $9.40/lb at 145 yen/$ 1.00) depending on size, quality, and market conditions (Asakawa, American Embassy Tokyo Commercial Section, pers. comm.). Frozen summer flounder may not be considered to be of the same quality and is unlikely to become substitute for unfrozen summer flounder. Nevertheless, properly handled frozen summer flounder may receive wholesale prices of 400-900 yen/kilo ($1.73-$3.90/lb) or higher (Asakawa, pers. comm.). The recent economic crisis in Japan could potentially hamper exports of seafood commodities to that country. Furthermore, future devaluation of the yen would result in reduced revenues for exporters of summer flounder to Japan.

Imports of flounders (all species combined) from 1996 to 2003 have averaged 6.48 million lb (2.94 million kg), ranging from 5.39 million lb (2.44 million kg) in 1997 to 7.87 million lb (3.57 million kg) in 1999. The value of these landings has averaged $5.57 million, ranging from $4.35 million in 2003 to $5.81 million in 2000. In 2003, 6.48 million lb (2.94 million kg) of flounders valued at $5.57 million entered the country for consumption. The amount of flounder imported into the U.S. for consumption in 2003 was the second smallest quantity that has entered the country for consumption since 1996. Importers generally tend to import flounders when domestic ex-vessel prices reach $2 per pound. South Atlantic flatfish (e.g., Argentina) are imported to the U.S. when domestic prices are high. However, frozen imports may not make the grade for some restaurants and retail buyers that demand fresh flounder (National Fishermen, 1998). The upward summer flounder quota trend that has occurred in recent years has allowed domestic fishermen to land more summer founder. In general, as domestic producers are able to strengthen summer flounder domestic supply, imports of flounders from other countries may decrease in the short-term.

6.4.1.2 Scup

A detailed description of the economic aspects of the commercial and recreational fisheries for scup was presented in section 3.3.2 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP.

Commercial scup landings were approximately 9.75 million lb (4.42 million kg; from ME to Cape Hatteras, NC) and valued at $5.86 million in 2003. In 2004, 9.05 million lb (4.10 million kg) of scup were landed and valued at $5.42 million. The average price per pound was $0.60 in 2003 and 2004. Information on ports and communities of importance to scup are described in detail in section 3.4.2 in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent summer flounder, scup, and black sea bass landing patterns among ports are presented in section 6.5.1. Scup ex-vessel values and landings were higher for ports located in the northern part of the coast.

6.4.1.3 Black Sea Bass

A detailed description of the economic aspects of the commercial and recreational fisheries for black sea bass is presented in section 3.3.3 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP.

In 2004, black sea bass landings (from ME to Cape Hatteras, NC) were valued at $6.21 million and average ex-vessel price for black sea bass was estimated at $1.54 per pound, a 24 percent decrease from the 2003 price per pound ($2.02). Information on ports and communities of importance to black sea bass are described in detail in section 3.4.2 in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent summer flounder, scup, and black sea bass landing patterns among ports are presented in section 6.5.1. Black sea bass values and landings were higher for ports located along the southern part of the coast.

6.4.2 Description of the Areas Fished

The baseline impact of the summer flounder, scup, and black sea bass commercial fisheries on the environment is fully described in section 3.2.8 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP.

6.4.2.1 Summer Flounder

NMFS 2004 VTR data indicated that 23,310 trips, by five major gear types, caught a total of 16.16 million lb (7.33 million kg) of summer flounder; landing 15.77 million lb (7.16 million kg) and discarding 0.39 million lb (0.18 million kg). The majority of the trips and catch were made by bottom otter and beam trawls (78.9 percent of trips, 97.6 percent of catch), followed by gillnets (7.5 percent of trips, 0.8 percent of catch), handline “other” (8.4 percent of trips, 0.8 percent of catch), pots and traps (3.1 percent of trips, 0.3 percent of catch), and scallop dredges (1.7 percent of trips, 0.6 percent of catch). There were seven statistical areas, which individually, accounted for greater than 5 percent of the summer flounder catch in 2004 (Table 1). Collectively, these seven areas accounted for 74 percent of the summer flounder catch. There were six statistical areas, which individually, accounted for greater than 5 percent of the trips which caught summer flounder in 2004 (Table 2). Collectively, these six areas accounted

for 79 percent of the trips that caught summer flounder and 36 percent of the 2004 summer flounder catch.

6.4.2.2 Scup

NMFS 2004 VTR data indicated that 11,899 trips, by four major gear types, caught a total of 6.33 million lb (2.87 million kg) of scup. Of these, 6.11 million lb (2.77 million kg) of scup were landed, and 0.22 million lb (0.10 million kg) were discarded. The majority of the trips and catch were made by bottom otter and beam trawls (61.2 percent of trips, 83.4 percent of catch), followed hand line "other" (19.2 percent of trips, 3.5 percent of catch), pots and traps (16.1 percent of trips, 6.6 percent of catch), and gillnets (2.6 percent of trips, 0.3 percent of catch). There were six statistical areas, which individually, accounted for greater than 5 percent of the scup catch in 2004 (Table 1). Collectively, these six areas accounted for 83 percent of the scup catch. There were four statistical areas, which individually, accounted for greater than 5 percent of the trips which caught scup in 2004 (Table 2). Collectively, these four areas accounted for 87 percent of the trips that caught scup and 41 percent of the 2004 scup catch.

6.4.2.3 Black Sea Bass

NMFS 2004 VTR data indicated that 10,839 trips, by four major gear types, caught a total of 2.61 million lb (1.18 million kg) of black sea bass. Of these, 2.47 million lb (1.12 million kg) of black sea bass were landed, and 0.13 million lb (0.06 million kg) were discarded. The majority of the trips and catch were made by bottom otter and beam trawls (57.0 percent of trips, 54.4 percent of catch), followed by pots and traps (25.8 percent of trips, 37.8 percent of catch), handline “other” (14.4 percent of trips, 5.0 percent of catch), and gillnets (2.2 percent of trips, 0.7 percent of catch). There were six statistical areas, which individually, accounted for greater than 5 percent of the black sea bass catch in 2004 (Table 1). Collectively, these six areas accounted for 70 percent of the black sea bass catch. There were eight statistical areas, which individually, accounted for greater than 5 percent of the trips which caught black sea bass in 2004 (Table 2). Collectively, these eight areas accounted for 86 percent of the trips that caught black sea bass and 47 percent of the 2004 black sea bass catch.

6.5 Human Environment

6.5.1 Port and Community Description

The ports and communities that are dependent on summer flounder, scup, and black sea bass are fully described in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP (section 3.4.2).

To examine recent landings patterns among ports, 2004 NMFS dealer data are used. The top commercial landings ports for summer flounder, scup, and black sea bass by pounds landed are shown in Table 3. A “top port” is defined as any port that landed at least 100,000 lb of summer

flounder, scup, or black sea bass. Related data for the recreational fisheries are shown in Table 4. However, due to the nature of the recreational database (Marine Recreational Fisheries Statistical Survey), it is inappropriate to desegregate to less than state levels. Thus port-level recreational data are not shown.

6.5.2 Analysis of Permit Data

Federally Permitted Vessels

This analysis estimates that in 2004, there were 2,162 vessels with one or more of the following three commercial or recreational Federal Northeast permits: summer flounder, scup, and black sea bass (Table 5). A total of 1,009, 891, and 946 federal commercial permits for summer flounder, scup, and black sea bass, respectively, had been issued to Northeast region fishing vessels (Table 5). For party/charter operators a total of 739, 645, and 706 federal permits were issued for summer flounder, scup, and black sea bass, respectively (Table 5).

These three fisheries (summer flounder, scup, and black sea bass) have vessels permitted as commercial, recreational, or both. Of the 2,162 vessels with at least one federal permit, there were 1,359 that held only commercial permits for summer flounder, scup, or black sea bass while there were 687 vessels that held only a recreational permit. The remaining vessels (116) held some combination of recreational and commercial permits (Table 5). Whether engaged in a commercial or recreational fishing activity, vessels may hold any one of seven combinations of summer flounder, scup, and black sea bass permits. The total number of vessels holding any one of these possible combinations of permits by species and commercial or recreational status are reported in Table 5.

Row sums in Table 5 indicate the total number of vessels that have been issued some unique combination of commercial permits. For example, there were 341 vessels whose only commercial permit was for summer flounder. By contrast, there were 506 vessels that held all three commercial permits. Column totals in Table 5 indicate the total number of vessels that have been issued some unique combination of federal recreational permits. For example, there were 14 vessels whose only recreational permit was for scup while 577 vessels held all three recreational permits. Each cell in Table 5 reports the total number of vessels that have a unique combination of recreational and commercial permits by species. For example, the cell entry of 3 in row 2 column 2 indicates that there were 3 vessels that held the unique combination of single summer flounder commercial permit and a single summer flounder recreational permit. Note that each cell entry in row one corresponds to vessels that held no commercial permit for summer flounder, scup or black sea bass, while each cell entry in column 1 corresponds to vessels that held no such recreational permit.

In addition to summer flounder, scup, and black sea bass, there are a number of alternative commercial or recreational fisheries for which any given vessel might possess a federal permit.

The total number of vessels holding any one or more of these other permits is reported in Table 6.

Of the vessels that hold at least one federal permit for summer flounder, scup, or black sea bass, the largest number of commercial permit holders are held by Massachusetts vessels, followed by New Jersey, New York, and Rhode Island, then North Carolina and Virginia (Table 7). The fewest permits are held by Pennsylvania, Florida, and Georgia vessels. In terms of average tonnage, the largest commercial vessels are found in Pennsylvania, followed by Virginia, North Carolina, Connecticut, and Massachusetts. In terms of average length, the largest commercial vessels are found in Georgia, followed by Pennsylvania, North Carolina, and Virginia. In terms of average horse power, the largest commercial vessels are found in Pennsylvania, followed by Connecticut, Florida, and Virginia. The smallest vessels are found in New York, New Hampshire, and Maine.

For party/charter vessels (Table 8), the largest numbers of permit holders are found in Massachusetts, followed by New Jersey and New York. The fewest permits are in Pennsylvania, Florida, Maryland, and Delaware. As might be expected, recreational vessels are smaller on average than commercial vessels. In terms of average length, the largest party/charter vessels operate out of principal ports in the states of Delaware and Pennsylvania, followed by Florida and Maryland; while the smallest are in New Hampshire. In terms of average horse power, the largest recreational vessels are found in Florida, followed by Pennsylvania and Delaware.

For vessels that hold a combination of commercial and party/charter permits, most vessels operate out of ports in the states of New York followed by New Jersey and Massachusetts (Table 9). Like the vessels that hold only party/charter summer flounder, scup, or black sea bass permits, these vessels are generally smaller than exclusively commercial vessels.

Summer flounder landings are allocated by state, though vessels are not constrained to land in their home state. It can be useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. Except in the state of Georgia, a high percentage of commercial vessel owners list the same state as both the vessel owner's declared principal port of landing and their identified home port (Table 7). A high percentage of recreational vessel owners list the same state as both the vessel owner's declared principal port of landing and their identified home port (Table 8). Except in the states of Rhode Island and Maryland, a high percentage of recreational/commercial vessel owners list the same state as both the vessel owner's declared principal port of landing and their identified home port (Table 9). Those vessels which have generally made it a practice to land in their home state may have less inherent flexibility in altering their landing state to adjust to smaller quotas in their home state.

Dealers

There were 272 dealers who bought summer flounder, scup and/or black sea bass in 2004. They were distributed by state as indicated in Table 10. Employment data for these specific firms are not available. In 2004 these dealers bought $25.0 million worth of summer flounder; $4.5 million worth of scup; and $3.9 million worth of black sea bass.

7.0 ENVIRONMENTAL CONSEQUENCES AND REGULATORY ECONOMIC EVALUATION OF ALTERNATIVES

This EA analyzes the impacts of the alternatives considered for the years 2006 specifications for scup and black sea bass, and 2006, 2007, and 2008 for summer flounder, relative to the status quo measures for each species. These alternatives include the TALs (commercial quotas and recreational harvest limits), which are necessary to achieve the annual target exploitation rates established under the individual species' rebuilding schedules and other commercial management measures. The Council and Board will meet in December 2005 to adopt specific recreational management measures (i.e., bag limits, size limits, seasonal closures) for 2006, when 2005 recreational landings are more complete. These recreational measures will be analyzed in the 2006 recreational specification package, when the Council and Board submit recommendations for 2006 recreational measures.

The nature of the management programs for the summer flounder, scup, and black sea bass fisheries were examined in detail in the Environmental Impact Statements (EISs) prepared for each of the fisheries in Amendment 2 for summer flounder (1992), Amendment 8 for scup (1996), and Amendment 9 for black sea bass (1996). Those analyses considered the impacts of the overall management measures including rebuilding schedules and annual exploitation rates on stock health and abundance, spawning stock biomass, EFH, and protected species, as well as on the economy and affected fishermen. Those EISs were updated in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP (2003).

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.

7.1 Summer Flounder Alternatives

Since the Council adopted multi-year specifications for summer flounder alternative 1 (preferred), i.e., a TAL of 26.00 million lb for 2006-2008, this package considers those 2007 and 2008 as well. However, because the TALs are the same for all three years and the comparison is

to the base year of 2005, impacts are expected to be the same for all years (2006-2008) when compared to the base year (2005). Alternatives 2 and 3 only consider single year specifications (2006).

7.1.1 Alternative 1 (Preferred: Monitoring Committee Recommended TAL)

7.1.1.1 Biological Impacts

Alternative 1 is the preferred alternative, the resulting impacts from a TAL of 26.0 million lb (a 15.38 million lb adjusted commercial quota; a 10.26 million lb adjusted recreational harvest limit; a 355,762 lb research set-aside) in 2006, 2007, and 2008 for summer flounder. As indicated before, in assessing the multi-year TALs for summer flounder, it was assumed that the RSAs for years 2007 and 2008 were equal to the highest RSA since the program was implemented. Therefore, a value of 355,762 pounds (2006 RSA) was also assumed for 2007 and 2008. The TALs under this alternative as well as the other summer flounder alternatives were allocated to the commercial and recreation sectors as described in section 5.0, and the commercial quotas and the recreational harvest limits were adjusted as described in section 4.3.

The 2006 TAL under this alternative is 2.41 million lb higher (10 percent) than the summer flounder TAL under the most restrictive alternative (alternative 2) in 2006. The 2006 TAL under this alternative is 2.58 million lb lower (14 percent) than the summer flounder TAL under the status quo alternative (alternative 3) for 2006. As such, the preferred summer flounder TAL and the associated allocations are not expected to result in biological impacts (negative) to the summer flounder stock in 2006, relative to the status quo (alternative 3).

The TAL under this preferred alternative was recommended by the Monitoring Committee and was based on the condition of the stock relative to the biological reference points. The latest assessment indicates that the stock is not overfished but overfishing is occurring relative to the biological reference points detailed in Amendment 12. The fishing mortality rate estimated for 2004 is 0.40, a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.26. In addition, total stock biomass has increased substantially since 1991 to 121 million lb in 2004, slightly above the biomass threshold (117 million lb). Spawning stock biomass has increased each year since 1993 to 85 million lb in 2004, the highest value in the time series (1981-2004).

Based on the existing biological reference points, the target F rate for 2006 is F_{max} or 0.276. Projections indicate continued rebuilding of the summer flounder stock. Projections indicate that a constant harvest of 26 million lb for 2006 to 2009 would result in rebuilding to the biomass target (B_{msy}) of 204 million lb by January 1, 2010, the target end date for stock rebuilding. The 2006 TAL under this alternative will have about a 25 percent probability of achieving the F target in 2006, assuming the TAL and discard level in 2005 are not exceeded. However, it is expected to have a 60 and 90 percent probability of achieving the F target in 2007 and 2008,

respectively. As such, over the three year time period, the average probability would be about 58%.

Under this alternative, the 2006 commercial quota of 15.38 million lb is approximately 2.58 million lb (14 percent) lower than the TAL under the status quo alternative (alternative 3). The proposed commercial TAL under this alternative is not expected to result in negative impacts to other fisheries relative to the status quo. The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. A smaller quota could result in decreased effort and reduced catches of other species. As such, this summer flounder preliminary adjusted quota could result in positive impacts on other fisheries, relative to the status quo (alternative 3). More specifically, catch-per-unit-effort could correspondingly increase with increased stock abundance, resulting in a smaller number of tows landings a larger volume of fish. While it is not known with certainty how the proposed measures will affect fishing effort, it is likely that the proposed measures will result in a decrease in the incidental catch rates of other species relative to the status quo alternative.

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2006 relative to 2005.

The purpose of the discard set-aside measures established by the Commission is to decrease discards of sub-legal summer flounder, as well as reduce regulatory discards that could occur as a result of possession limits set by the states. A decrease in the amount of discards would increase the likelihood that the target exploitation rate would be achieved in 2006, because true incidental catch would now be landed and applied to the quota.

The overall summer flounder TALs include a maximum research set-aside of 355,762 lb for 2006. The results of the research conducted through the research set-aside program benefit both the summer flounder stock and the summer flounder fishery. The exemptions required under the research projects are analyzed in section 7.4.2. Because landings under research set-aside projects count against the overall quota, the biological/ecological impacts do not change relative to 2005. In addition, potential benefits could occur as new data or other information pertaining to this fishery are obtained for management or stock assessment purposes through the research set-aside program.

The preferred alternative implements an adjusted recreational harvest limit of 10.26 million lb in 2006. The 2006 recreational limit under this alternative is 14 percent lower than the recreational harvest limit under the status quo alternative. If recreational landings are the same in 2005 as in 2004 (10.76 million lb), the adjusted recreational harvest limits may not constrain recreational landings 2006. Therefore, the adjusted recreational limits under this alternative allow for less

recreational landings in 2006 compared to the status quo alternative. However, as indicated above, projections indicate that a constant harvest of 26 million lb for 2006 to 2009 would result in rebuilding to the B_{msy} level of 204 million lb by January 1, 2010, assuming the TALs and discard levels are not exceeded in any of the years. As such, these recreational harvest limits are expected to result in positive biological impacts to the summer flounder stock in 2006, relative to the status quo alternative 3, due to a reduction in the TAL.

Overall, the summer flounder measures under the preferred alternative are expected to have positive impacts on the summer flounder stock, relative to the status quo measures for summer flounder (alternative 3).

7.1.1.2 Habitat Impacts

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

The 2006 preferred alternative includes a decrease in the summer flounder commercial quota by 14 percent in 2006 (2.58 million lb in 2006) compared to the status quo alternative (alternative 3). It is difficult to predict precisely whether this quota decrease will result in decreased fishing effort on EFH. Several possibilities associated with decreased fishing effort exist. Potentially, a smaller quota could result in a smaller number of fishing trips, or shorter fishing trips, with a corresponding potential for lesser habitat impacts. Similarly, with increased species abundance, catch-per-unit-effort could increase resulting in a smaller number of tows landing a larger volume of fish and thus reducing effort due to the smaller quota. Conversely, a smaller quota may mean that states establish lower possession limits, which result in an equal number of fishing trips landings a smaller volume of fish. Tables 11-13 represent the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species.

Given the range of potential habitat impacts, depending upon whether fishing effort increases or decreases, the preferred alternative may have effects on EFH that range from same as existing to impacts that are less than the existing impacts.

Under this alternative, the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold remains unchanged in 2006. These actions are not expected to change effort in 2006 as compared to 2005 and thus, are not expected to increase adverse impacts on EFH.

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

7.1.1.3 Impacts on Endangered and Other Protected Species

Commercial capture of summer flounder occurs predominately in the Mid-Atlantic mixed trawl fishery. Minor amounts of summer flounder are landed by the Mid-Atlantic commercial sea scallop dredge fishery, the hook and line fishery, and the pound net fishery. All of these are Category III fisheries as defined in the NMFS 2004 List of Fisheries (69 FR 48407, August 10, 2004). Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals. All fishing gears are required to meet gear restrictions under the Atlantic Large Whale Take Reduction Plan (ALWTRP), Harbor Porpoise Take Reduction Plan (HPTRP), MMPA, and the ESA.

The proposed measures in the preferred alternative of this specifications document contain a reduction in the summer flounder TAL, however other management measures remain unaffected. Maintaining the summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold in place will not impact protected resources in 2006 as compared to impacts in 2005, because these measures are not expected to change fishing effort. Changes in overall fishing effort as a result of the decreased summer flounder commercial quota are unknown. Fishing effort may decrease as vessels take fewer or shorter trips (Table 11). Fishing effort may decrease as vessels achieve a higher catch-per-unit-effort due to increased abundance and thus land a larger volume of fish in a smaller number of tows, or shorter, trips. Conversely, a smaller quota may mean that states establish lower possession limits, which results in an equal number of fishing trips landings a smaller volume of fish. Since the proposed change in the commercial quotas is not expected to cause an increase in fishing effort, this document concludes that the preferred summer flounder alternative will not affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals, relative to the status quo.

7.1.1.4 Socioeconomic Impacts

The proposed 2006 TAL of 26.00 million lb for summer flounder is approximately 14 percent lower than the TAL under the status quo alternative (alternative 3).

The preferred summer flounder TAL includes a preliminary adjusted commercial quota of 15.38 million lb; a preliminary adjusted recreational harvest limit of 10.26 million lb; and a maximum research set-aside of 355,762 lb for 2006. The commercial landings level under this alternative represents a 14 percent decrease in landings in 2006 relative to the status quo alternative. As a result of lower adjusted commercial quota for summer flounder, negative economic impacts on

the summer flounder fishery are likely to occur, relative to the status quo alternative. Each state's allocation will decrease under these adjusted commercial quotas (Box 5.1). Overall, the projected decrease in landings in 2006 under this alternative will likely result in revenue reduction relative to the status quo. However, it is possible that given the potential decrease in summer flounder landings, price for this species may increase if all other factors are held constant when compared to the status quo alternative. If this occurs, an increase in the price for summer flounder may mitigate some of the revenue reductions associated with lower quantities of summer flounder quota availability under this alternative relative to the status quo alternative. The negative economic impacts under this alternative are expected to be smaller than those under the most restrictive alternative (alternative 2) when compared to the status quo.

Under this alternative the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will remain unchanged in 2006. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

The recreational harvest limits under this alternative represents a 14 percent decrease in landings in 2006 relative to the status quo alternative. If recreational landings are the same in 2005 as in 2004 (10.76 million lb), the adjusted recreational harvest limits will not constrain recreational landings in 2006. As such, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) be required to prevent anglers from exceeding the recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete. It is expected that this alternative will likely decrease recreational satisfaction for the summer flounder recreational fishery, relative to the status quo alternative. At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures may lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely that these measures will result in any substantive decreases in the demand for party/charter boat trips. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch (sections 7.5 and 5.0 of the RIR/IRFA). The decrease in recreational satisfaction under this alternative is expected to be smaller than that under the most restrictive alternative (alternative 2) when compared to the status quo.

Overall, it is expected that negative social and economic impacts may occur because of the decrease in total landings (in 2006), relative to the status quo measures for summer flounder.

However, positive social and economic impacts will be realized in the long-term, once the stock is rebuilt to sustainable levels.

In order to conduct a more complete socioeconomic analysis, proposed allocations for all three species were combined for analysis. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries. This analysis is presented under the cumulative impact discussion in section 7.5.6 (overall socioeconomic impact of the preferred alternatives), 7.6 (overall socioeconomic impact of the non-preferred alternatives) and in section 5.0 of the RIR/IRFA.

7.1.2 Alternative 2 (Most Restrictive TAL)

7.1.2.1 Biological Impacts

The most restrictive measures for summer flounder is a TAL of 23.59 million lb (a 13.94 million lb adjusted commercial quota; a 9.30 million lb adjusted recreational harvest limit; a 355,762 lb research set-aside) for 2006 only.

Based on the current status of the stock, a TAL of 23.59 million lb has a 50 percent probability of achieving the target F of 0.276 in 2006, assuming the TAL and discard level in 2005 are not exceeded. The latest assessment indicates that the stock is not overfished but overfishing is occurring relative to the biological reference points detailed in Amendment 12. The fishing mortality rate estimated for 2004 is 0.40, a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.26. In addition, total stock biomass has increased substantially since 1991 to 121 million lb in 2004, slightly above the biomass threshold (117 million lb). Spawning stock biomass has increased each year since 1993 to 85 million lb in 2004, the highest value in the time series (1981-2004).

These measures (commercial quotas and recreational harvest limits) have the greatest probability of achieving the fishing mortality targets in 2006 but result in reduced yields from the fishery when compared to alternatives 1 and 3. As such, this alternative and the associated allocations are expected to result in positive biological impacts on the summer flounder stock in 2006.

The 2006 adjusted commercial quota under this alternative is slightly more than 4 million lb (22 percent) million lb lower than the adjusted quota under the status quo alternative (alternative 3). The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests other species, including scup, black sea bass, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. Given that this alternative does substantially decrease total summer flounder landings relative to the quota specified for 2005, impacts on other fisheries may be possible relative to the status quo. A smaller quota could result in decreased effort and reduced catches of other species. As such, this summer flounder preliminary adjusted commercial quota

could result in positive impacts on other fisheries, relative to the status quo alternative. More specifically, catch-per-unit-effort could correspondingly increase with increased stock abundance, resulting in a smaller number of tows landings a larger volume of fish. While it is not known with certainty how the proposed measures will affect fishing effort, it is likely that the proposed measures will result in a decrease in the incidental catch rates of other species relative to the status quo alternative.

Under this alternative the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2006 relative to 2005.

The discussion regarding the discard set-aside measures and research set-aside measures presented in section 7.1.1.1 (alternative 1) also applies here.

The most restrictive measure for summer flounder implements an adjusted recreational harvest limit of 9.30 million lb in 2006. This value is lower (2.68 million lb; about 22 percent) than the adjusted recreational harvest limit in 2005. As indicated above, based on the current status of the stock, the overall TALs and associated allocations have a 50 percent probability of achieving the target F of 0.276 in 2006, assuming the TAL and discard level in 2005 is not exceeded. As such, these recreational harvest limits are expected to result in positive biological impacts to the summer flounder stock in 2006, relative to 2005.

Overall, the summer flounder measures under the most restrictive alternative will likely have greater than small positive impacts on the summer flounder stock and these measures are expected to achieve the target exploitation rate for 2006.

7.1.2.2 Habitat Impacts

The discussion regarding the principal commercial gear used to harvest this species presented in section 7.1.1.2 (alternative 1) also applies here.

Alternative 2 (most restrictive) includes a decrease in the summer flounder commercial quota by 22 percent (4.0 million lb) relative to the status quo alternative (alternative 3). It is difficult to predict precisely whether these quota changes will result in a change in fishing effort on EFH. Several possibilities associated with decreased fishing effort exist. Potentially, a smaller quota could result in a smaller number of fishing trips, or shorter fishing trips, with a corresponding potential for lesser habitat impacts. Similarly, with increased species abundance, catch-per-unit-effort could increase resulting in a smaller number of tows landing a larger volume of fish and thus reducing effort due to the smaller quota. Conversely, a smaller quota may mean that states establish lower possession limits, which result in an equal number of fishing trips landings a smaller volume of fish. Tables 11-13 represent the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species.

Given the range of potential habitat impacts, depending upon whether fishing effort increases or decreases, the most restrictive alternative may have adverse effects to EFH that range from same as existing to impacts that are less than existing impacts.

Under this alternative, the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will remain unchanged in 2006. As such, these measures are not expected to change effort in 2006 as compared to 2005, and are thus not expected to increase adverse impacts on EFH.

This alternative will likely minimize the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA. The restrictive commercial quotas under this alternative are expected to achieve the 2006 target exploitation rates for summer flounder.

7.1.2.3 Impacts on Endangered and Other Protected Species

The discussion presented in section 7.1.1.3 regarding the types of gear used to capture summer flounder commercially also applies here.

The proposed measures in the most restrictive alternative contain a reduction in the summer flounder TAL, however other management measures remain unaffected. Maintaining the summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold in place will not impact protected resources in 2006 as compared to impacts in 2005, because these measures are not expected to change fishing effort. Changes in overall fishing effort as a result of the decreased summer flounder commercial quota are unknown. Fishing effort may decrease as vessels take fewer or shorter trips (Table 11). Fishing effort may decrease as vessels achieve a higher catch-per-unit-effort due to increased abundance and thus land a larger volume of fish in a smaller number of tows, or shorter, trips. Conversely, a smaller quota may mean that states establish lower possession limits, which results in an equal number of fishing trips landings a smaller volume of fish. Since the proposed change in the commercial quota is not expected to cause an increase in fishing effort, it is expected that this alternative will not affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals, relative to the status quo.

7.1.2.4 Socioeconomic Impacts

This alternative contains the most restrictive measures for summer flounder. The summer flounder TAL under this alternative is 23.59 million lb for 2006. This TAL is approximately 22 percent lower than the TAL under the status quo alternative (alternative 3).

The most restrictive summer flounder TAL includes a preliminary adjusted commercial quota of 13.94 million lb; a preliminary adjusted recreational harvest limit of 9.30 million lb; and a

maximum research set-aside of 355,762 lb for 2006. The commercial landings level under this alternative represents a 22 percent decrease in landings in 2006 relative to the status quo alternative. As a result of lower adjusted commercial quota for summer flounder, negative economic impacts on the summer flounder fishery are likely to occur, relative to the status quo alternative. Each state's allocation will decrease under these adjusted commercial quotas (Box 5.1). Overall, the projected decrease in landings in 2006 under this alternative will likely result in revenue reduction relative to the status quo. However as with alternative 1, it is possible that given the potential decrease in summer flounder landings, price for this species may increase if all other factors are held constant when compared to the status quo alternative. If this occurs, an increase in the price for summer flounder may mitigate some of the revenue reductions associated with lower quantities of summer flounder quota availability under this alternative relative to the status quo alternative. The negative economic impacts under this alternative are expected to be greater than those under the preferred alternative (alternative 1) when compared to the status quo.

Under this alternative the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will remain unchanged in 2006. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

The recreational harvest limits under this alternative represents a 22 percent decrease in landings in 2006 relative to the status quo alternative. If recreational landings are the same in 2005 as in 2004 (10.76 million lb), the adjusted recreational harvest limits will not constrain recreational landings in 2006. As such, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) be required to prevent anglers from exceeding the recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete. It is expected that this alternative will likely decrease recreational satisfaction for the summer flounder recreational fishery, relative to the status quo alternative. The discussion regarding the impacts of fishing regulations on the demand for recreational fishing trips presented in section 7.1.1.4 (alternative 1) also applies here. The decrease in recreational satisfaction under this alternative is expected to be greater than that under the preferred alternative (alternative 1) when compared to the status quo.

Similar impacts as those described under section 7.1.1.4 (alternative 1 - preferred alternative) are expected here. However, given that the commercial quotas and recreational harvest levels are lower under this alternative than under alternative 1, it is expected that the overall negative social and economic impacts (due to lower expected ex-vessel revenues) under this alternative compared to the status quo (alternative 3) would be higher than those derived when comparing the preferred alternative (alternative 1) to the status quo alternative.

Based on the current status of the stock, a TAL of 23.59 million lb has a 50 percent probability of achieving the target F of 0.276 in 2006, assuming the TAL and discard level in 2005 is not exceeded.

7.1.3 Alternative 3 (Status Quo/Least Restrictive TAL)

7.1.3.1 Biological Impacts

The least restrictive measures for summer flounder (alternative 3) and also the status quo alternative would implement a TAL of 30.30 million lb (a 17.96 million lb adjusted commercial quota; a 11.98 million lb adjusted recreational harvest limit; a 355,762 lb research set-aside) for 2006 only. The 2006 TAL under this alternative is equal to the summer flounder TAL in 2005.

Based on the current status of the stock, the overall TALs and associated allocations under this alternative, there is an approximately 2 percent probability of achieving the fishing target rate in 2006, assuming the TAL and discard levels in 2005 is not exceeded. The summer flounder TAL under this alternative is unrealistic. As such, it results in an exploitation rate that most likely will exceed the target rate for 2006. If the target is exceeded, stock rebuilding will be slowed. The probability of achieving the fishing target rate in 2006 associated with this alternative is lower than those under alternatives 1 and 2.

Under this alternative, the 2006 commercial quota is approximately 70 thousand lb (less than 1 percent) thousand lb higher than the adjusted commercial quota implemented in 2005. The commercial fishery for summer flounder is primarily prosecuted with otter trawls. This fishery often harvests mixed species, including scup, black sea bass, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the summer flounder fishery, incidental catch of other species does occur. The increase in the commercial quota under this alternative compared to the commercial quota implemented in 2005 is nil; therefore impacts to other fisheries are not expected when compared to 2005.

Under this alternative the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2006 relative to 2005.

The discussion regarding the discard set-aside measures and research set-aside measures presented in section 7.1.1.1 (alternative 1) also applies here. The positive biological impacts of these measures are identical to the status quo, because these measures were in effect in 2005.

The least restrictive alternative implements an adjusted recreational harvest limit of 11.98 million lb in 2006. The 2006 recreational limit under this alternative is equal to the recreational harvest limit implemented in 2005. If recreational landings are the same in 2005 as in 2004 (10.76 million lb), the adjusted recreational harvest limit will constrain recreational landings in

2006. However, as indicated above, based on the current status of the stock, the overall TAL and associated allocations under this alternative have approximately 2 percent probability of achieving the fishing target rate in 2006, assuming the TALs and discard levels in 2005 are not exceeded. As such, these recreational harvest limits are not expected to result in biological impacts (positive or negative) to the summer flounder stock in 2006, relative to 2005. The magnitude of these impacts is unknown.

Note that even though the proposed TAL for 2006 is the same as the overall TAL implemented in 2005 (a status quo measure), the adjusted commercial quotas and recreational harvest limits vary mainly due to differences in the value of the research set-aside used to derived those period allocations.

Overall, the summer flounder TAL under this alternative could result in an exploitation rate that most likely will exceed the target rate for 2006. If this were to occur, negative impacts to the summer flounder stock could occur relative to 2005.

7.1.3.2 Habitat Impacts

The discussion presented in section 7.1.1.2 (alternative 1) regarding the types of gear used in the summer flounder fishery, potential gear impacts on habitat, and impacts of quota changes also applies here.

Alternative 3 (status quo/least restrictive) includes an increase in the summer flounder commercial quota of less than 1 percent (70 thousand lb) in 2006 as compared to 2005. As indicated above, the difference is mainly due to differences in the research set-aside values used to derive the commercial quotas in those two periods. It is difficult to predict precisely whether these quota changes will result in a change in fishing effort on EFH. Several possibilities exist that influence fishing effort. Potentially, a larger quota could result in a more, or longer fishing trips, with a corresponding increase in habitat impacts. Conversely, a larger quota may mean that states establish higher possession limits, which result in an equal number of fishing trips landings a larger volume of fish. Similarly, with increased species abundance, catch-per-unit-effort could increase which results in the same number of tows landing a larger volume of fish. In these instances, the proposed quota result in the same or reduced gear impacts to bottom habitats. However, given that the proposed quota under this alternative is nearly identical to the commercial quota implemented in 2005, it is not expected that changes in fishing effort will occur as a consequence of this alternative (Table 11).

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2006 relative to 2005.

The increase in the commercial quota under alternative 3 may not achieve the rebuilding schedule for summer flounder. Although there is a lack of evidence to suggest that fishing effort on bottom habitat will actually increase due to this action, this action may not comply with section 305 (a)(7) of the MSFCMA, and may not minimize the adverse effects of fishing on EFH to the extent practicable.

7.1.3.3 Impacts on Endangered and Other Protected Species

The discussion presented in section 7.1.1.3 regarding the types of gear used in the capture of summer flounder in the commercial fishery also applies here.

Under this alternative, the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will remain unchanged in 2006. As such, these measures are not expected to change effort in 2006 as compared to 2005 and is thus not expected to increase adverse impacts on EFH.

Changes in the overall fishing effort as a result of the higher summer flounder quota are unknown. Fishery effort could increase as vessels take more or longer trips. Conversely, fishing effort could remain constant because vessels may achieve a higher catch-per-unit-effort due to increased species abundance. Conversely, a larger quota may mean that states establish lower possession limits, which results in an equal number of fishing trips landings a larger volume of fish. However, given that the proposed 2006 commercial quota under this alternative is nearly identical to the commercial quota implemented in 2005, it is not expected that changes in fishing effort will occur (Table 11). Therefore, it is concluded that this summer flounder alternative will not affect endangered and threatened species in any manner not considered in a prior consultation on this fishery, and will have no adverse impact on marine mammals, relative to 2005.

7.1.3.4 Socioeconomic Impacts

The least restrictive measures for summer flounder are the status quo measures. The summer flounder TAL under this alternative is 30.30 million lb for 2006. Based on the current status of the stock, the overall TAL and associated allocations have about 2 percent probability of achieving the target F of 0.26 in 2006, assuming that TAL and discard level in 2005 are not exceeded. At this landing level, it is likely that overfishing on the summer flounder stock will continue. The TAL under this alternative is not as conservative as necessary to achieve the target F for 2006. The probability of achieving the fishing target rate in 2006 associated with this alternative is lower than those under alternatives 1 and 2 (preferred and most restrictive alternatives, respectively).

The least restrictive summer flounder TAL includes a preliminary adjusted commercial quota of 17.96 million lb; a preliminary adjusted recreational harvest limit of 11.98 million lb; and a maximum research set-aside of 355,762 lb for 2006.

This alternative includes a decrease in the summer flounder commercial quota by < 1 percent (70 thousand lb) in 2006 as compared to 2005. As a result of a slightly lower adjusted commercial quota for summer flounder, small negative economic impacts on the summer flounder fishery will probably occur, relative to 2005. The quota landings allow for slightly lower landings, resulting in a decrease in revenue, relative to 2005. However, this economic impact may be small due to the relatively minor projected decrease in commercial quota in 2006 relative to 2005. It is important to note that even thought this is the status quo alternative, the adjusted quota and recreational harvest limits under this alternative for 2006 are slightly different that those implemented in 2005 due to different levels of research set-asides used to make quota adjustments between these two time periods (and/or other adjustments due to overages).

Under this alternative the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will remain unchanged in 2006. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

The least restrictive measures for summer flounder implement an adjusted recreational harvest limit of 11.98 million lb in 2006. This value is near identical to the recreational harvest limit implemented in 2005. If recreational landings are the same in 2005 as in 2004 (10.76 million lb), the adjusted recreational harvest limits will constrain recreational landings in 2006. As such, it is unlikely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) will be required to prevent anglers from exceeding the recreational harvest limit in 2006. It is unlikely that this limit will negatively affect the demand for recreational fishing trips. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete.

Overall, the status quo summer flounder measures under this alternative (least restrictive) will likely result in no or negligible negative social and economic impacts on the summer flounder fishery compared to 2005. However, these measures most likely will not achieve the target exploitation rate for summer flounder in 2006.

7.2 Scup Alternatives

7.2.1 Alternative 1 (Preferred: Monitoring Committee Recommended TAL)

7.2.1.1 Biological Impacts

The proposed scup TAL of 16.27 million lb under alternative 1 is the Monitoring Committee recommended TAL for 2006. Estimated discards were added to the TAL to derive a TAC of 19.79 million lb. The TAL recommendation is based on the condition of the stock relative to the biological reference point, and is the TAL expected to achieve the 21% target exploitation rate.

Specifically, given that the stock is considered overfished (i.e., the biomass is less than the biomass threshold) indicates that the biomass may be less than ½ B_{MSY}.

The preferred 2006 scup TAL of 16.27 million lb includes a preliminary adjusted commercial quota of 11.94 million lb, a preliminary adjusted recreational harvest limit of 4.14 million lb, and a research set-aside of 184,690 lb. Past performance of the scup stock and scup fishery, and the advice given by the 35th SARC, indicate that if the scup stock can be fished at this level, then fishing will not exceed the target exploitation rate of 21 percent for 2006. The preferred scup TAL and the associated allocations are not expected to result in biological impacts (positive or negative) to the scup stock in 2006.

The TALs under this as well as the other scup alternatives were allocated to the commercial and recreational sectors as described in section 5.0 and the commercial quotas and the recreational harvest limits were adjusted as described in section 4.3.

The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, black sea bass, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. The commercial quota under this alternative is approximately 0.18 million lb lower than the status quo alternative for 2006 (alternative 3). However, since the adjusted commercial quota is nearly identical to the adjusted commercial status quo quota in 2006 (i.e., 0.18 million lb lower), the proposed measure is not expected to result in an increase of effort in the scup fishery, and the incidental catch rates of other species would not be expected to increase. Given that this alternative slightly decreases total scup landings relative to the quota specified under the status quo alternative, small positive impacts on this fishery and other fisheries could occur.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2005.

Alternative measures addressing preferred changes in the Winter II landings limit (alternative 4.2) are discussed below. This preferred alternative is expected to result in positive biological impacts to the scup stock or other fisheries in 2006, when compared to the status quo alternative (alternative 4.1) as it allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the scup fishery.

The proposed scup TAL includes a research set-aside of 184,690 lb. The results of the research conducted through the research set-aside program benefit both the scup stock and the scup fishery. The exemptions required by the proposed research projects are analyzed under section 7.4.2. Because landings under research set-aside projects count against the overall quota, the

biological/ecological impacts will not change relative to 2005. In addition, potential benefits could occur as new data or other information pertaining to this fishery are obtained for management or stock assessment purposes from the research set-aside program.

The preferred alternative would implement an adjusted recreational harvest limit of 4.14 million lb, approximately 180 thousand lb (about 5 percent) higher than the adjusted recreational harvest limit under the status quo alternative (alternative 3). Given the small difference, this recreational harvest limit is not expected to result in biological impacts (positive or negative) to the scup stock in 2006, relative to the status quo alternative.

Overall, the scup measures under the preferred alternative should have no negative impacts on the scup stock, and potential null or slight positive impact on the scup stock in 2006 compared to the status quo alternative.

7.2.1.2 Habitat Impacts

The discussion presented in section 7.1.1.2 regarding the types of gear used in the scup fishery, potential gear impacts on habitat, and impacts of quota changes on effort also applies here.

Alternative 1 (preferred) includes a decrease in the scup commercial quota by < 1 percent (0.18 million lb) in 2006 compared to the status quo alternative (alternative 3). It is difficult to predict precisely whether these quota changes will result in a change in fishing effort on EFH. Several possibilities exist that influence fishing effort. Potentially, a smaller quota could result in fewer fishing trips, or shorter fishing trips, with a corresponding reduction in habitat impacts. Conversely, a smaller quota may mean that states establish smaller possession limits, which result in an equal number of fishing trips. Similarly, with increased species abundance, catch-per-unit-effort could increase which results in the same number of tows landing a larger volume of fish. In these instances, the proposed quotas result in either the same or reduced gear impacts to bottom habitats. However, given that the proposed 2006 commercial quota under this alternative is nearly identical to the commercial quota under the status quo, it is not expected that changes in fishing effort will occur as a consequence of the proposed quota under this alternative when compared to 2005. Table 12 represents the range of potential habitat impacts that could occur under each of the various quota alternatives for scup.

The measures in the preferred alternative of this specifications document do not contain substantial changes to existing scup management measures. The current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2005. These actions are not expected to change effort in 2006 as compared to 2005 and thus, are not expected to increase adverse impacts on EFH.

Alternative measures addressing preferred changes in Winter II landings limit (alternative 4.2) are discussed below. This alternative will not change fishing effort or redistribute fishing effort by gear type. For this reason, this alternative is expected to have no addition impact to EFH in 2006 as compared to impacts 2005.

This alternative would likely minimize the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.2.1.3 Impacts on Endangered and Other Protected Species

Commercial capture of scup occurs predominately in the Mid-Atlantic mixed trawl fishery, the Mid-Atlantic commercial hook and line fishery, the Mid-Atlantic pot/trap fishery, and the nearshore floating trap fishery, the latter being a type of pound net. All of these are Category III fisheries as defined in the NMFS 2004 List of Fisheries (69 FR 48407, August 10, 2004) with the exception of the pot/trap fishery. Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals.

Scup landings recorded in dealer weighout data as coming from pots/traps may be harvested through the Atlantic mixed species trap/pot fishery. This fishery has been reclassified as Category II (69 FR 48407, August 10, 2004) because the gear used has similarities (buoy lines) to lobster and blue crab traps which are category I and II fisheries, respectively. Marine mammal species injured or killed by Mid-Atlantic mixed species traps/pots include fin whale, humpback whale, Minke whale, and harbor porpoise. It is not known whether any of these incidents directly involved the scup fishery. The scup fishery has never been implicated in take reduction efforts for bottlenose dolphin. All fishing gears are required to meet gear restrictions under the ALWTRP, HPTRP, MMPA, and the ESA.

The measures in the preferred alternative of this specifications document do not contain substantial changes to existing scup management measures. Maintaining the scup commercial quota, current minimum fish size, minimum vent size, winter period mesh threshold, GRA management measures (Appendix B) and the transfer of unused scup quota from Winter I to Winter II period regulations in place will not have a different impact on protected resources in 2006 as compared to 2005 because these measures are not expected to change fishing effort.

Alternative measures addressing preferred changes in the Winter II possession limits (alternative 4.2) are also discussed below. This alternative is not expected to change overall fishing effort or redistribute fishing effort by gear type. For that reason, this alternative is not expected to yield different impacts to endangered and protected resources in 2006 as compared to impacts in 2005.

Because the proposed measures are not expected to increase fishing effort, it is concluded that the preferred scup alternative will not affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will not adversely impact marine mammals.

7.2.1.4 Socioeconomic Impacts

The proposed 2006 TAL of 16.27 million lb for scup is slightly over 1 percent lower than the TAL under the status quo alternative (alternative 3). Best available information indicates that the scup stock can be fished at this level without exceeding the target exploitation rate of 21 percent for 2006.

The preferred scup TAL include preliminary adjusted commercial quota of 11.94 million lb; a preliminary adjusted recreational harvest limit of 4.14 million lb; and a maximum research set-aside of 184,690 lb for 2006. The commercial quota and recreational harvest limit under this alternative are approximately 0.18 and 0.06 million lb lower than the adjusted quota and recreational harvest limit under the status quo alternative.

The adjusted commercial quota under this alternative is approximately 1.5 percent lower than the adjusted quota under the status quo alternative. As a result of a slightly lower adjusted commercial quota for scup, small negative economic impacts on the scup fishery will probably occur, relative to the status quo alternative. These quota landings allow for slightly lower landings, resulting in a decrease in revenue, relative to the status quo. However, this negative economic impact may be small due to the relatively minor projected decrease in commercial quotas under this alternative when compared to the status quo alternative.

The adjusted recreational harvest limit for scup under this alternative is approximately 1.5 percent lower than the adjusted recreational harvest limit under the status quo alternative. If 2006 landings are the same as the 2004 landings (1.94 million lb), more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) are not necessary to prevent anglers from exceeding this recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are complete. However, it is not expected that such measures will result in a decrease in recreational satisfaction.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2005. As such, these measures are not expected to result in socioeconomic impacts (positive or negative) in 2006 as compared to impacts in 2005.

An alternative measure addressing preferred changes in the Winter II possession limit (alternative 4.2) is discussed below. This alternative is expected to have a positive socioeconomic impact in 2006 as compared to impacts in 2005.

Overall, small social and economic impacts are expected to occur as a result of the preferred scup measures for 2006 relative to the status quo measures). The measures under this alternative are expected to achieve the target exploitation rate in 2006. Positive social and economic impacts will be realized in the long-term, once the stock is rebuilt.

In order to conduct a more thorough socioeconomic analysis, proposed allocations for all three species were combined for analysis. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries. This analysis is presented under the cumulative impact discussion in section 7.5.6 (overall socioeconomic impact of the preferred alternatives), in 7.6 of the EA (overall socioeconomic impact of the non-preferred alternatives), and in section 5.0 of the RIR/IRFA.

7.2.2 Alternative 2 (Most Restrictive TAL)

7.2.2.1 Biological Impacts

The most restrictive TAL for scup is 10.77 million lb. Based on this overall TAL, the preliminary adjusted commercial quota is 7.65 million lb, the preliminary adjusted recreational harvest limit is 2.93 million lb, and the research set-aside is 184,690 lb. The commercial quota and the recreational harvest limit under this alternative are the most restrictive of all alternatives evaluated.

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

This alternative TAL is equal to the 2002 recommended TAL; 2002 was the most recent year prior to an increase in the TAL that occurred in 2003, 2004, and 2005. These measures are likely to result in positive biological impacts to the stock, relative to the status quo alternative based on the decrease in TAL.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2005. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2006.

Alternative measures addressing preferred changes in the Winter II landings limit (alternative 4.2) are discussed below. This preferred alternative is expected to result in positive biological impacts to the scup stock or other fisheries in 2006, when compared to the status quo alternative (alternative 4.1) as it allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the scup fishery.

The preliminary adjusted commercial quota for scup under alternative 2 is approximately 37 percent lower (4.47 million lb) than the preliminary adjusted quota under the status quo alternative. The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, black sea bass, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. Given that this alternative decreases total scup landings relative to the quota specified under the status quo alternative, small positive impacts on other fisheries could occur.

This TAL includes an adjusted recreational harvest limit for scup 2.93 million lb, approximately 26 percent lower than the adjusted recreational harvest limit under the status quo alternative. If landings in 2006 equal landings from 2004 (4.38 million lb), the adjusted recreational harvest limit decreases recreational landings by approximately 33 percent. This reduction, relative to 2004 landings, may be greater than necessary to achieve the target exploitation rate for 2006. In fact, the recreational limit associated with this alternative will likely result in fewer recreational landings compared to the status quo alternative. However, this recreational harvest limit should have small positive biological impacts on the stock relative to status quo alternative 3.

Overall, the scup measures under this alternative should have a small positive impact on scup stock and the stocks of other species in 2006, relative to the status quo scup alternative 3. However, these measures are probably more conservative than needed to achieve the target exploitation rate for scup for 2006.

7.2.2.2 Habitat Impacts

The discussion presented in section 7.1.1.2 regarding the types of gear used in the scup fishery, potential gear impacts on habitat, and impacts of quota changes on effort also applies here. Alternative 2 (most restrictive alternative) includes a decrease in the scup commercial quota by 37 percent (4.47 million lb) in 2006 compared to the status quo alternative.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. These actions are not expected to change effort in 2006 as compared to 2005 and thus, are not expected to increase adverse impacts on EFH.

Alternative measures addressing preferred changes in Winter II landings limit (alternative 4.2) are discussed below. This alternative will not change fishing effort or redistribute fishing effort by gear type. For this reason, this alternative is expected to have no addition impact to EFH in 2006 as compared to impacts in 2005.

This alternative would likely minimize the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA. However, the restrictive commercial quotas under this alternative are more conservative than necessary to achieve the 2006 target exploitation rates for scup.

7.2.2.3 Impacts on Endangered and Other Protected Species

The discussion presented in section 7.2.1.3 regarding the types of gear used to capture scup commercially also applies here. Alternative 2 (most restrictive alternative) includes a decrease in the scup commercial quota by 37 percent (4.47 million lb) in 2006 compared to the status quo alternative.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to change effort in 2006 when compared to 2005, and are therefore not expected to increase adverse impacts on EFH.

Alternative measures addressing preferred changes in the Winter II possession limits (alternative 4.2) are also discussed below. This alternative is not expected to change overall fishing effort or redistribute fishing effort by gear type. For that reason, this alternative is not expected to yield different impacts to endangered and protected resources in 2006 as compared to impacts in 2005.

This alternative is not expected to negatively affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals, relative to the status quo.

7.2.2.4 Socioeconomic Impacts

The most restrictive TAL for scup is 10.77 million lb for 2006. The SARC-35 concluded that although “the relative exploitation rates have declined in recent years the absolute value of F cannot be determined.” However, they did indicate that “survey data indicate strong recruitment and some rebuilding of age structure” in recent years. The 35th SARC commented that “the stock can likely sustain modest increases in catches, but managers should do so with consideration of high uncertainty in stock status determination.”

This TAL includes a preliminary adjusted commercial quota of 7.65 million lb, a preliminary adjusted recreational harvest limit of 2.93 million lb, and a maximum research set-aside of 184,690 lb for 2006.

A preliminary adjusted commercial quota of 7.65 million lb is approximately 37 percent lower than the adjusted commercial quota for scup under the status quo alternative (alternative 3). A more restrictive TAL would result in a loss of revenue for the commercial fishery. As such, a commercial quota of 7.65 million lb is expected to result in negative social and economic impacts, relative to the status quo alternative.

An adjusted recreational harvest limit of 2.93 million lb is approximately 30 percent lower than the recreational harvest limit under the status quo alternative. If 2005 landings are the same as the 2004 landings (4.38 million lb), more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) are necessary to prevent anglers from exceeding this recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete. Such measures may result in a decrease in recreational satisfaction relative to the status quo alternative. The discussion regarding the impacts of fishing regulations on the demand for recreational fishing trips presented in section 7.1.1.4 (summer flounder alternative 1) also applies here.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to result in socioeconomic impacts (positive or negative) in 2006 as compared to impacts in 2005.

An alternative measure addressing preferred changes in the Winter II possession limit (alternative 4.2) is discussed below. This alternative is expected to have a positive socioeconomic impact in 2006 as compared to impacts in 2005.

Overall, small negative economic impacts will probably occur as a result of the overall reduction in the TAL, relative to the existing scup measures (alternative 3-status quo). Additionally, these measures are more conservative than necessary to achieve the target exploitation rate for scup in 2006.

7.2.3 Alternative 3 (Status Quo/Least Restrictive TAL)

7.2.3.1 Biological Impacts

The proposed scup TAL of 16.50 million lb under alternative 3 is the status quo TAL for 2006. Estimated discards were added to the TAL to derive a TAC of 20.02 million lb. It is possible that given the condition of the stock relative to the biological reference point, this TAL may not achieve the 21% target exploitation rate for 2006.

The preferred 2005 scup TAL of 16.50 million lb includes a preliminary adjusted commercial quota of 12.12 million lb, a preliminary adjusted recreational harvest limit of 4.20 million lb, and a research set-aside of 184,690 lb. The status quo scup TAL and the associated allocations could potentially result in small negative biological impacts to the scup stock in 2005.

The TALs under this as well as the other scup alternatives were allocated to the commercial and recreational sectors as described in section 5.0 and the commercial quotas and the recreational harvest limits were adjusted as described in section 4.3.

The commercial fishery for scup is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, black sea bass, squid, Atlantic mackerel, and silver hake. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. The commercial quota under this alternative is approximately 0.11 million lb lower than the adjusted quota in 2005. Note that even though this is a status quo measure, the 2006 adjusted commercial quota and recreational harvest limit are slightly lower than the 2005 allocations mainly due to the fact that a greater discard estimate was used to derive the 2006 allocations compared to 2005. However, since the adjusted commercial quota is nearly identical to the adjusted commercial quota in 2004 (i.e., 0.10 million lb lower), the proposed measure is not expected to result in an increase of effort in the scup fishery, and the incidental catch rates of other species should not increase.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2006.

Alternative measures addressing preferred changes in the Winter II possession limits (alternative 4.2) are also discussed below. This alternative is not expected to change overall fishing effort or redistribute fishing effort by gear type. For that reason, this alternative is not expected to yield different impacts to endangered and protected resources in 2006 as compared to impacts in 2005.

The proposed scup TAL includes a research set-aside of 184,690 lb. The results of the research conducted through the research set-aside program benefit both the scup stock and the scup fishery. The exemptions required by the proposed research projects are analyzed under section 7.4.2. Because landings under research set-aside projects count against the overall quota, the biological/ecological impacts will not change relative to 2005. In addition, potential benefits could occur as new data or other information pertaining to this fishery are obtained for management or stock assessment purposes from the research set-aside program.

The status quo alternative would implement an adjusted recreational harvest limit of 4.20 million lb, approximately 235 thousand lb (about 6 percent) higher than the adjusted recreational harvest

limit implemented in 2005. This recreational harvest limit is not expected to result in biological impacts (positive or negative) to the scup stock in 2006, relative to 2005.

Overall, the scup measures under the status quo alternative should have no impacts (positive or negative) on the scup stock in 2006 as compared to impacts in 2005, unless the measures do not meet the 21% target exploitation rate. In the case that this target is not met, the measures in this alternative could potentially result in small negative biological impacts compared to 2005.

7.2.3.2 Habitat Impacts

The discussion presented in section 7.1.1.2 regarding the types of gear used in the scup fishery, potential gear impacts on habitat, and impacts of quota changes on effort also applies here.

Alternative 1 (preferred/status quo alternative) includes a decrease in the scup commercial quota by < 1 percent (0.11 million lb) in 2006 as compared to 2005. It is difficult to predict precisely whether these quota changes will result in a change in fishing effort on EFH. Several possibilities exist that influence fishing effort. Potentially, a smaller quota could result in fewer fishing trips, or shorter fishing trips, with a corresponding reduction in habitat impacts. Conversely, a smaller quota may mean that states establish smaller possession limits, which result in an equal number of fishing trips. Similarly, with increased species abundance, catch-per-unit-effort could increase which results in the same number of tows landing a larger volume of fish. In these instances, the proposed quotas result in either the same or reduced gear impacts to bottom habitats. However, given that the proposed 2006 commercial quota under this alternative is nearly identical to the quota implemented in 2005, it is not expected that changes in fishing effort will occur as a consequence of the proposed 2006 quota. Table 12 represents the range of potential habitat impacts that could occur under each of the various quota alternatives for scup.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. These actions are not expected to change effort in 2006 as compared to 2005 and thus, are not expected to increase adverse impacts on EFH.

Alternative measures addressing preferred changes in Winter II landings limit (alternative 4.2) are discussed below. This alternative will not change fishing effort or redistribute fishing effort by gear type. For this reason, this alternative is expected to have no addition impact to EFH in 2006 as compared to impacts in 2005.

This alternative would likely minimize the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.2.3.3 Impacts on Endangered and Other Protected Species

Commercial capture of scup occurs predominately in the Mid-Atlantic mixed trawl fishery, the Mid-Atlantic commercial hook and line fishery, the Mid-Atlantic pot/trap fishery, and the nearshore floating trap fishery, the latter being a type of pound net. All of these are Category III fisheries as defined in the NMFS 2004 List of Fisheries (69 FR 48407, August 10, 2004) with the exception of the pot/trap fishery. Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals.

Scup landings recorded in dealer weighout data as coming from pots/traps may be harvested through the Atlantic mixed species trap/pot fishery. This fishery has been reclassified as Category II (69 FR 48407, August 10, 2004) because the gear used has similarities (buoy lines) to lobster and blue crab traps which are category I and II fisheries, respectively. Marine mammal species injured or killed by Mid-Atlantic mixed species traps/pots include fin whale, humpback whale, minke whale, and harbor porpoise. It is not known whether any of these incidents directly involved the scup fishery. The scup fishery has never been implicated in take reduction efforts for bottlenose dolphin. All fishing gears are required to meet gear restrictions under the ALWTRP, HPTRP, MMPA, and the ESA.

The measures in the status quo alternative of this specifications document do not contain substantial changes to existing scup management measures. Maintaining the scup commercial quota, current minimum fish size, minimum vent size, winter period mesh threshold, GRA management measures (Appendix B), and the transfer of unused scup quota from Winter I to Winter II period regulations in place will not have a different impact to protected resources in 2006 as compared to impacts in 2005 because these measures are not expected to change fishing effort.

Alternative measures addressing preferred changes in Winter II landings limit (alternative 4.2) are discussed below. This alternative is expected to result in positive impacts to protected resources in 2006 compared to the status quo because these measures could reduce the number of trips necessary to land the quota, and therefore decrease the opportunity for protected resources to interact with the fishery.

This alternative is not expected to negatively affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals, relative to 2005.

7.2.3.4 Socioeconomic Impacts

The least restrictive scup measure (also status quo measure) includes a TAL of 16.50 million lb. Under this alternative, the preliminary adjusted commercial quota is 12.12 million lb, the

preliminary adjusted recreational harvest limit is 4.20 million lb, and a maximum research set-aside is 184,690 lb.

A preliminary adjusted commercial quota of 12.12 million lb is less than 1 percent lower (0.11 million lb) than the existing adjusted commercial quota for scup. As a result of a slightly lower adjusted commercial quota for scup, small negative economic impacts on the scup fishery will probably occur, relative to 2005. The quota landings allow for slightly lower landings, resulting in a decrease in revenue, relative to 2005. However, this economic impact may be small due to the relatively minor projected decrease in commercial quota in 2006 relative to 2005. It is important to note that even thought this is the status quo alternative, the adjusted quota and recreational harvest limits under this alternative for 2006 are slightly different that those implemented in 2005 mainly due to different discard levels used to derived the TAC/TAL levels and research set-asides used to make quota adjustments between these two time periods.

An adjusted recreational harvest limit of 4.20 million lb is approximately 6 percent higher than the recreational harvest limit for 2005. If 2005 landings equal the 2004 landings (4.38 million lb), more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) are necessary to prevent anglers from exceeding this recreational harvest limit in 2006. However, such measures may result in a decrease in recreational satisfaction relative to 2005 because the recreational limit associated with this alternative is higher than the adjusted limit implemented in 2005. Specific recreational management measures will be determined in December when recreational landings for 2005 are complete. The discussion regarding the impacts of fishing regulations on the demand for recreational fishing trips presented in section 7.1.1.4 (summer flounder alternative 1) also applies here.

Under this alternative, the current minimum fish size, minimum vent size, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, and winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2006. As such, these measures are not expected to result in socioeconomic impacts (positive or negative) in 2006 as compared to impacts in 2005.

An alternative measure addressing preferred changes in the Winter II possession limit (alternative 4.2) is discussed below. This alternative is expected to have a positive socioeconomic impact in 2006 as compared to impacts in 2005.

The scup TAL under this alternative will probably result in short-term, small negative social and economic impacts on the scup fishery, relative to 2005. However, it is possible that given the condition of the stock relative to the biological reference point, that this may not achieve the 21% target exploitation rate for 2006.

7.2.4 Alternative 4.1a (Status Quo Winter II Landings Limit/No action)

7.2.4.1 Biological Impacts

The discussion regarding the condition of the scup fishery (i.e., scup abundance; condition of the stock relative to the biological reference point) presented in section 7.2.1.1 also applies here.

This alternative maintains status quo Winter II possession limit for scup in 2006 i.e., 1,500 lb possession limit. In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 500 pound intervals for every 500,000 pounds of scup transferred, i.e., if a million pounds is transferred then the limit should increase by 1,000 pounds. The Winter I landings limit will remain unchanged i.e., 30,000 lb possession limit until 80% of the landings are reached and then the possession limit would drop to 1,000 pounds. This measure is not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2006 relative to 2005.

7.2.4.2 Habitat Impacts

The discussion presented in section 7.2.1.2 regarding the types of gear used in the scup fishery and potential gear impacts on habitat due to changes in effort also applies here.

Given that the proposed 2006 Winter II possession limit, and adjustments to the Winter II possession limit relating to transfer of quota from Winter I to Winter II, under this alternative is the same possession limit that was in effect in 2005 (status quo), it is not expected that changes in fishing effort or redistribution of fishing effort will occur as a consequence of this alternative. For this reason, this alternative is expected to have no additional impacts on EFH relative to 2005.

7.2.4.3 Impacts on Endangered and Other Protected Species

The discussion presented in section 7.2.1.3 regarding the types of gear used to capture scup commercially also applies here.

Winter II possession limit, and adjustments to the Winter II possession limit relating to transfer of quota from Winter I to Winter II, under this alternative is the same possession limit that was in effect in 2005 (status quo), it is not expected that changes in fishing effort or redistribution of fishing effort will occur as a consequence of this alternative. For this reason, interaction between commercial scup gear and endangered species or marine mammals is not expected to increase, and impacts on protected resources are not significant.

7.2.4.4 Socioeconomic Impacts

Maintaining the Winter II possession limit is not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

7.2.5 Alternative 4.2a (Preferred: Winter II Landings Limit of 2,000 Pounds)

7.2.5.1 Biological Impacts

The discussion regarding the condition of the scup fishery (i.e., scup abundance; condition of the stock relative to the biological reference point) presented in section 7.2.1.1 also applies here.

This alternative implements a Federal possession limit of 2,000 lb (in the Winter II fishery). In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 1,500 pound intervals for every 500,000 pounds of scup transferred, i.e., if a million pounds is transferred then the limit should increase by 3,000 pounds. The Winter I landings limit will remain unchanged i.e., 30,000 lb possession limit until 80% of the landings are reached and then the possession limit would drop to 1,000 pounds. The potential increase in Winter II possession limits given various amounts of scup rollover from Winter I to the Winter II period under the preferred alternative are presented in Appendix A.

Scup are a schooling species; therefore, otter trawl vessels operating where scup occur occasionally make very large hauls that consist almost entirely of scup. Under the current system, when one of these hauls is brought up, the trip limit may be kept by the hauling vessel while the remaining catch must be discarded. Under the proposed action alternative, 2,000 lb of scup could be landed given the proposed Winter II possession limit. In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at intervals allowing greater amounts of scup to be landed on a per trip basis. This would convert regulatory discards of scup into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery. In practice this alternative is still constrained by the commercial quota, but alters the rate at which those landings are taken. This measure is likely to result in small positive biological impacts to the stock, by reducing regulatory discarding of scup relative to the no action alternative (alternative 4.1).

Given the mixed species nature of the scup fishery, incidental catch of other species does occur. Since this alternative allows for more flexibility to land scup, threfore small positive impacts on other fisheries could occur.

7.2.5.2 Habitat Impacts

The discussion presented in section 7.2.1.2 regarding the types of gear used in the scup fishery and potential gear impacts on habitat due to changes in effort also applies here.

This alternative will not change fishing effort or redistribute effort by gear type. For this reason, it is expected to have no additional impacts to EFH relative to the status quo Winter II possession limit (alternative 4.1).

7.2.5.3 Impacts on Endangered and Other Protected Species

The discussion presented in section 7.2.1.3 regarding the types of gear used to capture scup commercially also applies here.

This alternative will not change fishing effort or redistribute effort by gear type. For this reason, it is expected to have no additional impacts on endangered, threatened, or protected resources relative to the status quo Winter II possession limit (alternative 4.1).

7.2.5.4 Socioeconomic Impacts

The implementation of this alternative allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery. It is expected that the proposed Winter II possession limit under this alternative will benefit fishermen as it allows for scup that would normally be discarded to be landed, thereby making scup trips more economically viable. In addition, the proposed limit under this alternative (i.e., 2,000 lb per week) will not affect the equitable distribution of the quota over the period compared to the existing possession limit (i.e., 1,500 lb per week). In fact the existing 1,500 lb per week Winter II trip limit constrained the fishery to land approximately 80 and 72 percent of the overall Winter II quota in 2003 and 2004, respectively. The proposed limit under this alternative was chosen as an appropriate balance between the economic concerns of the industry, i.e., landing enough scup to make the trip economically viable and ensuring the quota extends over the time period.

In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 1,500 pound intervals (compared to the current 500 pound intervals) for every 500,000 pounds of scup transferred, i.e., if a million pounds is transferred then the limit should increase by 3,000 pounds. This will allow fishermen for a greater flexibility to land larger amounts of scup when transfers are made from Winter I to Winter II while reducing bycatch and improving the efficiency of the commercial scup fishery. The Winter I landings limit will remain unchanged i.e., 30,000 lb possession limit until 80% of the landings are reached and then the possession limit would drop to 1,000 pounds.

This alternative is expected to result in positive economic and social changes compared to the status quo Winter II possession limit alternative (alternative 4.1).

7.3 Black Sea Bass Alternatives

7.3.1 Alternative 1 (Preferred TAL)

7.3.1.1 Biological Impacts

Black sea bass alternative 1 (preferred alternative) would implement a TAL of 8.00 million lb (a 3.83 million lb adjusted commercial quota; a 3.99 million lb adjusted recreational harvest limit; a 178,956 lb research set-aside) for 2006. The TAL under this as well as the other black sea bass alternatives were allocated to the commercial and recreation sectors as described in section 5.0, and the commercial quotas and the recreational harvest limits were adjusted as described in section 4.3.

Log-transformed NEFSC survey data indicate 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). The biomass index declined to 0.493 kg/tow in 2003, declined again to 0.321 kg/tow, and then increased slightly to 0.374 kg/tow. The three point moving average steadily increased from a low of 0.093 kg/tow in 1997 to 0.538 kg/tow in 2003. However, lower survey results in 2004 and 2005 resulted in a three year average value for 2004 of 0.396 kg/tow.

The target exploitation rate for 2006 is 25 percent, the exploitation rate associated with F_{max} (0.32), and equivalent to the target exploitation rate in 2004 and 2005. Because of uncertainty in the survey estimates and the potential underestimation of the 2003 exploitation rate, two different sets of assumptions were used to estimate the TAL. The first assumes the spring survey for 2006 is equal to 0.396 (three year moving average for 2004) and assumes an exploitation rate of 21% in 2003, therefore the TAL associated with an exploitation rate of 25% is about 6.36 million lb (2.88 million kg). Alternatively, if the spring survey estimate in 2006 is assumed to be 0.538, the same value for 2003 (the average of 2002, 2003 and 2004), the TAL associated with a rate of 25% would be 8.63 million lb (3.92 million kg). The Council and Board therefore selected a TAL of 8.00 million lb (3.63 million kg), a value between those derived from the two different sets of assumptions used to estimate a possible 2006 TAL. As such, the preferred black sea bass TAL and the associated allocations are not expected to result in biological impacts (positive or negative) to the black sea bass stock in 2006, relative to the status quo alternative (alternative 3).

The proposed black sea bass TAL of 8.00 million lb for 2006 under alternative 1 represents a 2.5 percent decrease (0.2 million lb) relative to the TAL under the status quo alternative. The commercial quota is slightly lower than the 2005 TAL under this alternative, and; therefore, the black sea bass measures are not expected to result in negative impacts on other fisheries. The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. A small quota decrease could result in slightly decreased effort and fewer catches of other species. As such, this black sea bass preliminary adjusted commercial quota could result in slightly positive impacts on other fisheries, relative to the status quo. However, given that the decrease in commercial quota from 2005 to 2006 associated with this alternative is not substantially large (i.e., 0.2 million lb) and catch-per-unit-effort could correspondingly decrease with decreasing stock abundance, which could result in the same number of tows landing a smaller volume of fish, it is unknown if these measures will result in

an decrease of effort in the black sea bass fishery. Therefore, the impact on incidental catch rates of other species relative to the status quo alternative is unknown.

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the black sea bass stock or other fisheries in 2006 relative to 2005.

Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are discussed below. This preferred alternative is expected to result in small positive biological impacts to the black sea bass stock and other fisheries in 2006, relative to the status quo alternative (alternative 4.1).

The proposed black sea bass TAL includes a research set-aside of 178,956 lb. The results of the research conducted through the research set-aside program benefit both the black sea bass stock and the black sea bass fishery. The exemptions that are required under the proposed research projects are analyzed in section 7.4.2. Relative to the status quo, the positive impacts of the research set-aside would be identical to the status quo because the program was in effect in 2005.

The preferred alternative implements an adjusted recreational harvest limit of 3.99 million lb, approximately 0.1 million lb (2.5 percent) lower than the recreational harvest limit under the status quo alternative. If recreational landings are the same in 2005 as in 2004 (1.94 million lb), this limit could constrain recreational landings in 2006. However, as indicated above, based on the current status of the stock, the overall TAL and associated allocations are expected to meet the target exploitation rate in 2006, assuming the TAL and discard level in 2005 are not exceeded. As such, this recreational harvest limit is not expected to result in biological impacts (positive or negative) to the black sea bass stock relative to the status quo alternative.

Overall, the black sea bass measures under the preferred alternative are not expected to have positive or negative impacts on the black sea bass stock, relative to the status quo measures for black sea bass.

7.3.1.2 Habitat Impacts

The discussion regarding the types of gear used to harvest this species presented in section 7.3.1.1 also applies here.

The preferred alternative includes an decrease in the black sea bass commercial quota by 2.5 percent in 2006 (0.2 million lb) compared to the status quo alternative (alternative 3). It is difficult to predict precisely whether this quota increase will result in decreased fishing effort on EFH. Several possibilities exist that would influence fishing effort. Potentially, the smaller quota could result in fewer fishing trips, or shorter fishing trips, with a corresponding potential for lesser habitat impacts. Conversely, a smaller quota could mean that states establish lower

possession limits, which will result in a greater number of fishing trips landing a smaller volume of fish. Similarly, with decreased species abundance, catch-per-unit-effort could decrease requiring a greater number of tows to land the same volume of fish. In these latter instances, the proposed quotas will result in either the same or lesser gear impacts to bottom habitats. Furthermore, the decrease in commercial quota under this alternative compared to the status quo alternative is very small, and it is not expected that it will affect fishing effort. Table 13 presents the range of potential habitat impacts that could occur under each of the various quota alternatives.

Under this alternative the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. These actions are not expected to change effort in 2006 as compared to 2005 and thus, are not expected to increase adverse impacts on EFH.

Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are discussed below. This preferred alternative is not expected to result in impacts (positive or negative) to EFH in 2006, relative to the status quo alternative (alternative 4.1).

This alternative minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.3.1.3 Impacts on Endangered and Other Protected Species

The discussion regarding the types of gear used to harvest this species presented in section 7.3.1.1 also applies here.

Commercial capture of black sea bass occurs predominately in the Mid-Atlantic mixed trawl fishery, the Mid-Atlantic commercial hook and line fishery, the Mid-Atlantic pot/trap fishery, and the nearshore floating trap fishery, which is a type of pound net. All of these are Category III fisheries as defined in the NMFS 2004 List of Fisheries (69 FR 48407, August 10, 2004) with the exception of the pot/trap fishery. Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals.

Black sea bass landings recorded in dealer weighout data from pots/traps may be harvested through the Atlantic mixed species trap/pot fishery. This fishery has been reclassified as Category II (69 FR 48407, August 10, 2004) because the gear used has similarities (buoy lines) to lobster and blue crab traps, which are Category I and II fisheries, respectively. Marine mammal species injured or killed by Mid-Atlantic mixed species traps/pots include fin whale, humpback whale, Minke whale, and harbor porpoise. It is not known whether any of these incidents directly involved the black sea bass fishery. The black sea bass fishery has never been implicated in take reduction efforts for bottlenose dolphin. All fishing gear are required to meet gear restrictions under the ALWTRP, HPTRP, MMPA, and the ESA.

The measures in the preferred alternative of this specifications document do not contain major changes to existing black sea bass management measures. Maintaining the existing minimum fish size, minimum mesh regulations, minimum mesh threshold, and minimum vent size regulations in place will not have a different impact on protected resources in 2006 as compared to impacts in 2005, because these measures are not expected to change fishing effort. Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are also not expected to result in changes in effort. Changes in overall fishing effort as a result of the lower black sea bass commercial quota are unknown. Fishing effort could decrease as vessels take fewer, or shorter, trips (Table 13). Conversely, fishing effort could remain constant because vessels may achieve a lower catch-per-unit-effort due to decreased species abundance. Furthermore, the decrease in commercial quota from 2005 to 2006 under this alternative is very small, and it is not expected that it will affect fishing effort. Therefore, it is concluded that the preferred black seas bass alternative will not affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will have no adverse impact on marine mammals, relative to the status quo.

7.3.1.4 Socioeconomic Impacts

The proposed TAL of 8.00 million lb for black sea bass under this alternative is approximately 2.5 percent lower (0.10 million lb) than the TAL under the status quo alternative (alternative 3). The preferred black sea bass TAL includes preliminary adjusted commercial quota of 3.83 million lb, a preliminary adjusted recreational harvest limit of 3.99 million lb, and a maximum research set-aside of 178,956 lb for 2006.

The commercial landings level under this alternative represents an approximately 2.5 percent decrease (0.10 million lb) in landings relative to the status quo alternative. As a result of a lower adjusted commercial quota for black sea bass, negative economic impacts on the black sea bass fishery are likely to occur, relative to the status quo alternative. However, given the small decrease in quota under this alternative compared to the status quo alternative, these impacts are likely to be small.

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

An alternative measure addressing preferred changes in the minimum vent size regulations (alternative 4.2) is discussed below. This alternative is expected to have a positive socioeconomic impact in 2006 as compared to impacts in 2005.

An adjusted recreational harvest limit of 3.99 million lb is 0.10 million lb (approximately 2.5 percent) lower than the adjusted limit under the status quo alternative. This adjusted recreational harvest limit may decrease recreational satisfaction for the black sea bass recreational fishery compared to the status quo alternative. However, if 2005 landings are the same as the 2004 or

2003 landings (1.94 and 3.29 million lb, respectively), more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) are not necessary to prevent anglers from exceeding this recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete.

Overall, it is expected that small negative social and economic impacts may occur because of the decrease in commercial landings in 2006, relative to the status quo alternative. These measures will achieve the target exploitation rate for 2006. As such, positive social and economic impacts will be realized in the long-term, once the stock is rebuilt to sustainable levels.

In order to conduct a more complete socioeconomic analysis, proposed allocations for all three species were combined for analysis. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries. This analysis is presented under the cumulative impact discussion in section 7.5.6 (overall socioeconomic impact of the preferred alternatives), 7.6 (overall socioeconomic impact of the non-preferred alternatives) and in section 5.0 of the RIR/IRFA.

7.3.2 Alternative 2 (Monitoring Committee Recommended/Most Restrictive TAL)

7.3.2.1 Biological Impacts

The most restrictive measures for black sea bass are the status quo measures. As such, the black sea bass TAL under this alternative will be 7.50 million lb for 2006. Under this alternative, the preliminary adjusted commercial quota will be 3.59 million lb, the preliminary adjusted recreational harvest limit will be 3.73 million lb, and the research set-aside will be 178,956 lb. This TAL will likely achieve the target exploitation rate of 25 percent for 2006. Log-transformed NEFSC survey data indicate 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). The biomass index declined to 0.493 kg/tow in 2003, declined again to 0.321 kg/tow, and then increased slightly to 0.374 kg/tow. The three point moving average steadily increased from a low of 0.093 kg/tow in 1997 to 0.538 kg/tow in 2003. However, lower survey results in 2004 and 2005 resulted in a three year average value for 2004 of 0.396 kg/tow.

The target exploitation rate for 2006 is 25 percent, the exploitation rate associated with F_{max} (0.32), and equivalent to the target exploitation rate in 2004 and 2005. Because of uncertainty in the survey estimates and the potential underestimation of the 2003 exploitation rate, two different sets of assumptions were used to estimate the TAL. The first assumes the spring survey for 2006 is equal to 0.396 (three year moving average for 2004) and assumes an exploitation rate of 21% in 2003, therefore the TAL associated with an exploitation rate of 25% is about 6.36 million lb (2.88 million kg). Alternatively, if the spring survey estimate in 2006 is assumed to be 0.538, the same value for 2003 (the average of 2002, 2003 and 2004), the TAL associated with a rate of

25% would be 8.63 million lb (3.92 million kg). The monitoring committee therefore recommended a TAL of 7.50 million lb (3.40 million kg), which assumes a survey estimate of 0.467 for 2006 and is halfway between the 2006 TAL estimates derived from the two differing sets of assumptions. As such, the most restrictive black sea bass TAL and the associated allocations are expected to result in nil or small positive biological impacts to the black sea bass stock in 2006, relative to the status quo alternative (alternative 3).

The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. The preliminary adjusted commercial quota under this alternative will be 3.59 million lb. This represents a 0.34 million lb (9 percent) decrease from the 2005 adjusted quota. The small decrease in quota associated with this alternative may result in nil or small positive biological impacts to other fisheries in 2006 relative to the status quo alternative.

Under this alternative the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the black sea bass stock or other fisheries in 2006 relative to 2005.

Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are discussed below. This preferred alternative is expected to result in small positive biological impacts to the black sea bass stock or other fisheries in 2006, relative to the status quo alternative (alternative 4.1).

This TAL implements an adjusted recreational harvest limit of 3.73 million lb, 0.36 million lb (10 percent) less than the recreational harvest limit in 2005. The recreational limit associated with this alternative will likely result in fewer recreational landings compared to the status quo alternative. Therefore it is expected that this recreational harvest limit may result in nil or slight positive biological impacts to the black sea bass stock in 2006, relative to the status quo

Overall, the black sea bass measures under this alternative should result in nil or small positive impacts on the black sea bass stock or other fisheries in 2006 relative to the status quo. However, these measures may be more conservative than needed to achieve the target exploitation rate for black sea bass for 2006.

7.3.2.2 Habitat Impacts

The discussion regarding the types of gear used to harvest this species presented in section 7.3.1.2 also applies here.

Alternative 2 (most restrictive alternative) includes an decrease in the black sea bass commercial quota by 9 percent in 2006 (0.34 million lb) compared to the adjusted quota specified for the status quo alternative (alternative 3). It is difficult to predict precisely whether this quota decrease will result in decreased fishing effort on EFH. Several possibilities exist that will influence fishing effort. Potentially, the smaller quota could result in fewer fishing trips, or shorter fishing trips, with a corresponding potential for lesser habitat impacts. Conversely, a smaller quota could mean that states establish lower possession limits, which results in an equal number of fishing trips landing a smaller volume of fish. Similarly, with decreased species abundance, catch-per-unit-effort could decrease requiring a greater number of tows to land the same volume of fish. In these latter instances, the proposed quotas result in either the same or lesser gear impacts to bottom habitats. The decrease in the adjusted commercial quota in 2006 as compared to 2005 is small; therefore, it is not expected that it will dramatically affect fishing effort. Table 13 presents the range of potential habitat impacts that could occur under the various quota alternatives.

Under this alternative the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. These actions are expected to maintain or slightly decrease effort in 2006 as compared to 2005 and thus, are expected to result in nil or small positive impacts on EFH.

Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are discussed below. This preferred alternative is expected to result in either no biological impacts or small positive biological impacts to the EFH in 2006, relative to the status quo alternative (alternative 4.1).

This alternative minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.3.2.3 Impacts on Endangered and Other Protected Species

The discussion regarding the types of gear used to harvest this species presented in section 7.3.1.3 also applies here.

The measures in the most restrictive alternative of this specifications document do not contain major changes to existing black sea bass management measures. Maintaining the existing current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations in place will not have a different impact on protected resources in 2006 as compared to impacts in 2005, because these measures are not expected to change fishing effort. Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are also not expected to result in changes in effort. Changes in overall fishing effort as a result of the lower black sea bass commercial quota are unknown. Fishing effort could decrease as vessels take fewer, or shorter, trips (Table 13). Conversely, fishing effort could remain constant because vessels may achieve a lower catch-per-unit-effort due to decreased species abundance.

Furthermore, the decrease in commercial quota from 2005 to 2006 under this alternative is very small, and may only result in nil or small decreases in fishing effort. Therefore, it is concluded that this black seas bass alternative will not affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will have no adverse impact or small positive impacts on marine mammals, relative to the status quo.

7.3.2.4 Socioeconomic Impacts

The black sea bass TAL under this alternative is 7.50 million lb for 2006 (most restrictive alternative). This alternative includes preliminary adjusted commercial quota of 3.59 million lb, a preliminary adjusted recreational harvest limit of 3.73 million lb, and a maximum research set-aside of 178,956 lb for 2006.

The preliminary adjusted commercial quota of 3.59 million lb is 0.34 million lb (approximately 9 percent) lower than the adjusted commercial quota under the status quo alternative (alternative 3). As a result of a lower adjusted commercial quota for black sea bass, negative economic impacts on the black sea bass fishery are likely to occur, relative to the status quo alternative.

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

An alternative measure addressing preferred changes in the minimum vent size regulations (alternative 4.2) is discussed below. This alternative is expected to have a positive socioeconomic impact in 2006 as compared to impacts in 2005.

An adjusted recreational harvest limit of 3.73 million lb is 0.36 million lb (approximately 9 percent) lower than the adjusted limit under the status quo alternative. This adjusted recreational harvest limit may decrease recreational satisfaction for the black sea bass recreational fishery compared to the status quo alternative. However, if 2005 landings are the same as the 2004 or 2003 landings (1.94 and 3.29 million lb, respectively), more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) are not necessary to prevent anglers from exceeding this recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete.

Overall, the status quo black sea bass TAL and associated allocations under this alternative (most restrictive) will likely result in negative social and economic impacts on the black sea bass fishery in 2006 compared to the status quo alternative.

7.3.3 Alternative 3 (Status Quo/Least Restrictive TAL)

7.3.3.1 Biological Impacts

The least restrictive measures for black sea bass are the status quo measures. As such, the black sea bass TAL under this alternative will be 8.20 million lb for 2006. Under this alternative, the preliminary adjusted commercial quota will be 3.93 million lb, the preliminary adjusted recreational harvest limit will be 4.09 million lb, and the research set-aside will be 178,956 lb. This TAL will likely achieve the target exploitation rate of 25 percent for 2006. Log-transformed NEFSC survey data indicate 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). The biomass index declined to 0.493 kg/tow in 2003, declined again to 0.321 kg/tow, and then increased slightly to 0.374 kg/tow. The three point moving average steadily increased from a low of 0.093 kg/tow in 1997 to 0.538 kg/tow in 2003. However, lower survey results in 2004 and 2005 resulted in a three year average value for 2004 of 0.396 kg/tow.

The target exploitation rate for 2006 is 25 percent, the exploitation rate associated with F_{max} (0.32), and equivalent to the target exploitation rate in 2004 and 2005. The TAL under this least restrictive alternative is the status quo alternative, and is a value between the two methods presented for estimated the 2006 TAL. The spring survey for 2006 is equal to 0.396 (three year moving average for 2004) and assuming an exploitation rate of 21% in 2003, the TAL associated with an exploitation rate of 25% is about 6.355 million pounds. However, if the spring survey estimate in 2006 is 0.538, the same value for 2003 (the average of 2002, 2003 and 2004), the TAL associated with a rate of 25% would be 8.634 million pounds. Given the uncertainty in the survey estimates and the potential underestimation of the 2003 exploitation rate, this alternative recommends a TAL for 2006 of 8.20 million lb. As such, the least restrictive black sea bass TAL and the associated allocations are expected to result in no biological impacts (positive or negative) to the black sea bass stock in 2006, relative to 2005.

The commercial fishery for black sea bass is primarily prosecuted with otter trawls and pots/traps. This fishery often harvests other species, including summer flounder, scup, squid, Atlantic mackerel and silver hake. Given the mixed species nature of the black sea bass fishery, incidental catch of other species does occur. The preliminary adjusted commercial quota under this alternative will be 3.93 million lb. This represents a 36 thousand lb decrease from the 2005 adjusted quota. As the black sea bass stock increases, catch-per-unit-effort could correspondingly increase resulting in the same number of tows landing a larger volume of fish. Given that this alternative does not significantly increase or decrease black sea bass landings relative to the quota specified in 2005 and that catch-per-unit-effort could increase as the black sea bass stock increases, impacts to other fisheries in 2006 would be similar to 2005.

Under this alternative the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. As such, these measures are not expected to result in biological impacts (positive or negative) to the black sea bass stock or other fisheries in 2006 relative to 2005.

Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are discussed below. This preferred alternative is expected to result in small positive biological impacts to the black sea bass stock and other fisheries in 2006, relative to the status quo alternative (alternative 4.1).

This TAL implements an adjusted recreational harvest limit of 4.09 million lb, 0.04 million lb (about 1 percent) lower than the recreational harvest limit in 2005. This recreational harvest limit is not expected to result in biological impacts (positive or negative) to the black sea bass stock in 2006, relative to 2005. Note that even though this is a status quo measure, the adjusted commercial quota and recreational harvest limit are slightly lower than the 2005 allocation because of the higher research set-aside used to derive the adjusted limits for 2006 as compared to 2005.

Overall, the black sea bass measures under this alternative should have no impact (positive or negative) on the black sea bass stock or other fisheries in 2006 relative to 2005.

7.3.3.2 Habitat Impacts

The discussion regarding the types of gear used to harvest this species presented in section 7.3.1.2 also applies here.

Alternative 2 (least restrictive/status quo alternative) includes a decrease in the black sea bass commercial quota by 1 percent in 2006 (36 thousand lb) compared to the adjusted quota specified for 2005. It is difficult to predict precisely whether this quota increase will result in increased fishing effort on EFH. Several possibilities exist that will influence fishing effort. Potentially, the smaller quota could result in fewer fishing trips, or shorter fishing trips, with a corresponding potential for lesser habitat impacts. Conversely, a smaller quota could mean that states establish lower possession limits, which results in an equal number of fishing trips landing a smaller volume of fish. Similarly, with decreased species abundance, catch-per-unit-effort could decrease requiring a greater number of tows to land the same volume of fish. In these latter instances, the proposed quotas result in either the same or reduced gear impacts to bottom habitats. The decrease in the adjusted commercial quota in 2006 as compared to 2005 is very small; therefore, it is not expected that it will affect fishing effort. Table 13 presents the range of potential habitat impacts that could occur under the various quota alternatives.

Under this alternative the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. These actions are not expected to change effort in 2006 as compared to 2005 and thus, are not expected to increase adverse impacts on EFH.

Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are discussed below. This preferred alternative is expected to result in no biological impacts (positive or negative) to the EFH in 2006, relative to the status quo alternative (alternative 4.1).

This alternative minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.3.3.3 Impacts on Endangered and Other Protected Species

The discussion regarding the types of gear used to harvest this species presented in section 7.3.1.3 also applies here.

The measures in the least restrictive/status quo alternative of this specifications document do not contain major changes to existing black sea bass management measures. Maintaining the existing current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations in place will not have a different impact on protected resources in 2006 as compared to impacts in 2005, because these measures are not expected to change fishing effort. Alternative measures addressing preferred changes in the requirements for vent sizes and numbers (alternative 4.2) are also not expected to result in changes in effort. Changes in overall fishing effort as a result of the slightly lower black sea bass commercial quota are unknown. Fishing effort could decrease as vessels take fewer, or shorter, trips (Table 13). Conversely, fishing effort could remain constant because vessels may achieve a lower catch-per-unit-effort due to decreased species abundance. Furthermore, the decrease in commercial quota from 2005 to 2006 under this alternative is very small, and it is not expected to result in changes in fishing effort. Therefore, it is concluded that this black seas bass alternative will not affect endangered and threatened species in any manner not considered in prior consultations on these fisheries, and will have no adverse impacts (positive or negative) on marine mammals in 2006, relative to 2005.

7.3.3.4 Socioeconomic Impacts

The status quo and least restrictive black sea bass measures include a TAL of 8.20 million lb. Under this alternative, the preliminary adjusted commercial quota is 3.93 million lb, the preliminary adjusted recreational harvest limit is 4.09 million lb, and a maximum research set-aside of 178,956 lb for 2006.

A preliminary adjusted commercial quota of 3.93 million lb is approximately 1 percent lower (0.04 million lb) than the adjusted commercial quota implemented in 2005. As a result of a slightly lower adjusted commercial quota for black sea bass, small negative economic impacts on the black sea bass fishery may occur, relative to 2005. The quota landings allow for slightly lower landings, resulting in a decrease in revenue, relative to 2005. However, this economic impact may be nil due to the relatively minor projected decrease in commercial quota in 2006 relative to 2005. It is important to note that even thought this is the status quo alternative, the adjusted quota and recreational harvest limits under this alternative for 2006 are slightly different that those implemented in 2005 due to different levels of research set-asides used to make quota adjustments between these two time periods (and/or other adjustments due to overages).

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2006. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

An alternative measure addressing preferred changes in the minimum vent size regulations (alternative 4.2) is discussed below. This alternative is expected to have a positive socioeconomic impact in 2006 as compared to impacts in 2005.

An adjusted recreational harvest limit of 4.09 million lb is near identical to the recreational limit implemented in 2005 (4.13 million lb). If 2005 landings are the same as the 2004 or 2003 landings (1.94 and 3.29 million lb, respectively), more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) are not necessary to prevent anglers from exceeding this recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete.

Overall, the status quo black sea bass TAL and associated allocations under this alternative (status quo and least restrictive alternative) will not likely result in negative social and economic impacts on the black sea bass fishery in 2006 as compared to impacts in 2005.

7.3.4 Alternative 4.1b (Status Quo Trap Escape Vents/No Action)

7.3.4.1 Biological Impacts

The discussion regarding the condition of the black sea bass fishery (i.e., black sea bass abundance; condition of the stock relative to the biological reference point) presented in section 7.3.1.1 also applies here.

This alternative maintains minimum vent size requirements for black sea bass pots/traps as 1 3/8" x 5 3/4" for rectangular vents, 2 3/8" in diameter for circular vents, and 2" for square vents. In addition, 1 vent is required in the parlor portion of the pot/trap. The vent requirements described were in place in 2005. Therefore, no biological impacts (positive or negative) on the black sea bass stock or other fisheries are anticipated, relative to 2005.

7.3.4.2 Habitat Impacts

The discussion presented in section 7.3.1.2 regarding the types of gear used in the black sea bass fishery and potential gear impacts on habitat due to changes in effort also applies here.

This alternative will not change overall fishing effort or redistribute effort by gear type. For this reason, this alternative is expected to have no additional impacts on EFH, relative to 2005.

7.3.4.3 Impacts on Endangered and Other Protected Species

The discussion presented in section 7.3.1.3 regarding the types of gear used to capture black sea bass commercially also applies here.

This alternative will not change overall fishing effort or redistribute effort by gear type. For this reason, this alternative is expected to have no additional impacts on endangered species or marine mammals relative to 2005.

7.3.4.4 Socioeconomic Impacts

Maintaining the current black sea bass escape vent regulations is not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005.

7.3.5 Alternative 4.2b (Preferred: Trap Escape Vents)

7.3.5.1 Biological Impacts

The discussion regarding the condition of the black sea bass fishery (i.e., black sea bass abundance; condition of the stock relative to the biological reference point) presented in section 7.3.1.1 also applies here.

Under this alternative the minimum circle vent size requirements for black sea bass pots/traps would increase to 2 1/2"; requirements of 1 3/8" x 5 3/4" for rectangular vents and 2" for square vents remain unchanged. In addition, 2 vents would be required in the parlor portion of the pot/trap. These requirements would become effective January 1, 2007. Therefore, fishermen would convert their gear over time throughout 2006.

An increase in the size of the circle vents and an additional vent in the parlor portion of a black sea bass trap may allow for increased escapement of undersized black sea bass, as well as other non-target species. As such, this measure is likely to result in small positive biological impacts to the stock, as well as other fisheries relative to the status quo alternative (alternative 4.1).

7.3.5.2 Habitat Impacts

The discussion presented in section 7.3.1.2 regarding the types of gear used in the black sea bass fishery and potential gear impacts on habitat due to changes in effort also applies here.

This alternative will not change overall fishing effort or redistribute effort by gear type. For this reason, this alternative is expected to have no additional impacts on EFH relative to the status quo alternative (alternative 4.1).

7.3.5.3 Impacts on Endangered and Other Protected Species

The discussion presented in section 7.3.1.3 regarding the types of gear used to capture black sea bass commercially also applies here.

This alternative will not change overall fishing effort or redistribute effort by gear type. For this reason, this alternative is expected to have no additional impacts on endangered species or marine mammals relative to the status quo alternative (alternative 4.1).

7.3.5.4 Socioeconomic Impacts

Under this alternative the minimum circle vent size requirements for black sea bass pots/traps would increase to 2 1/2"; requirements of 1 3/8" x 5 3/4" for rectangular vents and 2" for square vents remain unchanged. In addition, 2 vents would be required in the parlor portion of the pot/trap. These requirements would become effective January 1, 2007. Therefore, fishermen would convert their gear over time throughout 2006.

Pots/traps account for a substantial amount of the black sea bass landings. For example, according to VTR data pots/tarps accounted for approximately 36 percent of the total commercial landings for 2004. This gear is fixed at varying depths and hauled to the surface quickly with hydraulic or electric hauler. As a result, fish may experience internal trauma due to changes in pressure and a significant portion may not survive (Rogers et al 1986). Although many pot/trap fishermen use sorters on deck to release nonmarketable fish, the escape of these fish from traps before they are hauled will significantly increase survival. The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen.

The cost of making the modifications proposed under this alternative will vary depending on the type of pot/trap (e.g., wooden, wire) and the existing features that this type of gear may already have. More specifically, the cost of a 2 1/2" circular vent ranges between $0.40 (Wagner, pers. comm.) to $0.56 (Scott, pers. comm.) per vent. In addition to this, there is an additional labor cost associated with changing vents or adding an additional escape vent. For example, replacing an existing vent in a wire pot/trap will take approximately 10 minutes per pot/trap (Hodges, pers. comm.; Scott, pers. comm.; and Wagner, pers. comm.).

Based on the inputs described above and mean average wage value of $16.09/hour[2], the cost of replacing a circular vent is likely to range between $3.08 and $3.24 for each wire pot/trap. The cost of removing traps from the water to make these modifications is not included here as it is assumed that fishermen will make these modifications as they pull traps out of water to conduct customary repairs and maintenance e.g., clean, paint, replace trap components due to wear and

[2] Private industry mean average earnings for 2003, ME to VA. Source: U.S. Department of Labor Bureau of Labor Statistics National Compensation Survey - Wages (http://www.bls.gov/ncs/ocs/compub.htm).

tear. It is important to mention that the proposed regulations will become effective January 1, 2007. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of replacing the circular vent is approximately between $1.54 and $1.62 for each wire pot/trap.

On the other hand, fishermen using wood pots/traps typically employ rectangular or square vents (circular vents do not work well in wood pots/traps because the gear loses integrity), therefore, in order to add an additional vent to comply with the 2 vents requirement under this alternative it will take approximately 10 to 20 minutes per pot/trap. Based on the inputs described above and mean average wage value of $16.09/hour, the cost of making the required modifications is likely to be approximately between $2.68 and $5.36 for each wood pot/trap. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of adding an additional trap to a wood pot/trap is approximately between $1.34 and $2.68 for each pot/trap.

It is not possible to calculate how the proposed gear changes will affect the total cost of production for black sea bass pot/trap fishermen for several reasons. First, there is no cost data for pot/trap fishermen available (Kitts, pers. comm.). Therefore, it is not possible to estimate with certainty how the costs associated with the proposed modifications will affect the overall production cost. Second, many black sea bass pot/trap fishermen use both wire and wood pots/traps and we have no detail data on the number of each type of pot/trap currently in use. Third, many black sea bass fishermen are also fishing for lobster and they already have a circular vent size larger than the one proposed under these measures therefore are not required to make any changes to their pots/traps. Lastly, many fishermen using wood pots/traps build their own gear. The costs associated with constructing wood pots/traps vary from fishermen to fishermen and average construction estimates are not available.

However, given that the cost of a wire pot/trap can be in the $60-$65 range per unit, the estimated cost of replacing a circular vent is likely to increase the cost of each wire trap by about 5%. Therefore, if all production costs are considered, the proposed regulations are likely to increase the total production cost by less than 5%. It is also expected that when all production costs are considered, the proposed regulations may increase the production cost for fishermen using wood pot/traps by less than 5%. It is important to mention that the proposed regulations would become effective January 1, 2007. Therefore the annualized costs associated with the proposed regulations are lower than those estimated above. That is, the annualized cost of replacing the circular vent is approximately between $1.54 and $1.62 for each wire pot/trap and the annualized cost of adding an additional vent to each wood pot/trap is approximately between $1.34 to $2.68.

This alternative will provide positive economic and social impacts in the long-term as sublegal mortality will be reduced, increasing yields and the mature fish in the stock.

7.4 Research Set-Aside Measures

7.4.1 Alternative 1 (No Research Set-Aside/No Action)

Under this alternative no research set-aside would be implemented for summer flounder, scup, or black sea bass.

7.4.1.2 Biological Impacts

Under this alternative there would not be a summer flounder, scup, or black sea bass research set-aside implemented for 2006. Because all summer flounder, scup, and black sea bass landings would count against the overall quota whether or not a research set-aside is implemented, the biological/ecological impacts would not change relative to 2005. However, there would also be no indirect positive effects from broadening the scientific base upon which management decisions are made.

7.4.1.3 Habitat Impacts

The discussion presented in section 7.1.1.2 regarding the types of gear used in these fisheries also applies here.

The basic fishing operations for summer flounder, scup, and black sea bass are expected to remain the same under this alternative. It is not expected that fishing effort will increase or be redistributed by gear type under this alternative. Therefore, the overall impact to EFH is not expected to change relative to 2005.

7.4.1.4 Impacts on Endangered and Other Protected Species

The discussion presented in sections 7.1.1.3, 7.2.1.3, and 7.3.1.3 regarding the types of gears used to capture summer flounder, scup, and black sea bass commercially are also applicable here.

The basic fishing operations for summer flounder, scup, and black sea bass are not expected to change under this alternative. As such, overall fishing effort should not change. This alternative is not expected to negatively affect endangered and threatened species or critical habitat in any manner not considered in prior consultations on these fisheries and will have no adverse impacts on marine animals or other protected resources relative to 2005.

7.4.1.5 Socioeconomic Impacts

Under this alternative, there will be no research set-aside deducted from the overall TALs for summer flounder, scup, and black sea bass. Therefore, the initial commercial quotas and

recreational harvest limits for these species do not need to be adjusted downward as would be done under a situation when a research set-aside is established.

In fisheries where the entire quota is taken and the fishery is prematurely closed (i.e., the quota is constraining), the economic and social costs of the program are shared among the non research set-aside participants in the fishery. That is, each participant in a fishery that utilizes a resource that is limited by the annual quota relinquishes a share of the amount of quota retained in the research set-aside quota. Since no research set-aside is implemented under this alternative, there are no direct economic or social costs as described above.

Under this alternative, the collaborative efforts between the public, research institutions, and government in broadening the scientific base upon which management decisions are made will cease. In addition, the Nation will not receive the benefit derived when data or other information about these fisheries is obtained for management or stock assessment purposes that would not otherwise be obtained.

7.4.2 Alternative 2 (Preferred: Specify Research Set-Asides/Status Quo)

The Council and Board recommended to specify a maximum summer flounder, scup, and black sea bass research set-aside of 355,762 lb, 184,690 lb, and 178,956 lb for 2006, respectively. There are various research projects submitted to NMFS requesting set-asides for these species for 2006. If the research set-aside is not used, the research set-aside quota will be put back into the overall TAL. A summary of the research set-aside projects requesting summer flounder, scup, and black sea bass for 2006 is presented in Appendix C. This description includes project name, description and duration, amount of research set-aside requested, and gear to be used to conduct the project. This alternative is the status quo alternative.

The impacts of the research set-asides for squid, mackerel, and butter fish were discussed in detail in the 2006 Atlantic Mackerel, *Loligo*, *Illex*, and Butterfish Specifications (section 7.4). The impacts of the research set-asides for bluefish are discussed in detail in the 2006 Bluefish Specifications (section 7.4). There are no significant impacts expected from those research set-aside projects.

7.4.2.1 Biological Impacts

Summer Flounder

Proposed research will allow for landings of summer flounder in excess of federal or state possession limits. Federal possession limit will require that otter trawlers whose owners are issued a summer flounder permit and that land or possess 100 or more lb of summer flounder from May 1 through October 31, or 200 lb or more of summer flounder from November 1 through April 30, per trip, must fish with nets that have a minimum mesh size of 5.5" diamond mesh or 6" square mesh applied throughout the body, extension(s), and codend portion of the

net. Additional proposed research allows for landings of summer flounder during a state or federal closure. The Regional Administrator shall close the EEZ to fishing for summer flounder by commercial vessels for the remainder of the calendar year by publishing notification in the Federal Register if he/she determines that the inaction of one or more states will cause the applicable F specified in § 648.100(a) to be exceeded, or if the commercial fisheries in all states have been closed.

These landings will count against the overall quota; therefore, the biological/ecological impacts will not change relative to 2005 (section 7.1.1.1). In addition, potential benefits could occur as new data or other information pertaining to these fisheries are obtained for management or stock assessment purposes.

Scup

Proposed research allows for landings of scup in excess of federal or state possession limits. The current regulations limit fishermen to a 30,000 lb possession limit (state landings limit for a 2 week period) and proposed regulations limit fishermen to a 1,500 lb possession limit for the first and second winter periods, respectively. Although the possession limits can be exceeded, the landings count against the quota; therefore, the biological/ ecological impacts would not change relative to 2005.

In addition, proposed research allows for landings of scup during a state or federal closure. These landings count against the overall quota; thus, the biological/ecological impacts will not change relative to 2005 (section 7.2.1.1).

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

The current regulations require a 9" TL minimum fish size in the commercial fishery. Assuming that undersized fish are not caught and discarded, minimum sizes increase the size at full recruitment because yields are increased as fishermen catch larger, heavier fish. These regulations also can increase spawning stock biomass by allowing more fish to spawn. In this specifications package, the preferred minimum mesh size for the scup fishery is a 5.0" mesh with a minimum length of 75 meshes from the terminus of the net. For small nets with less than 75 mesh codends, the entire net will be 5".

The smaller mesh allows for the capture and retention of fish less than the current minimum size of 9" TL. If these fish are exempt from the minimum size requirement for sale, they will be landed, and those landings would count against the quota. If they are not landed, the fish are

discarded at sea. In either case, mortality on smaller fish could increase slightly relative to the no action alternative. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 9" TL), if smaller fish are sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set-aside cannot exceed the TAL.

Black Sea Bass

The proposed research uses smaller mesh to catch and retain small black sea bass. Based on retention lengths derived from length and body depth measurements, the current minimum mesh size of 4.5" has an associated L_{25} of 10.6" TL. This means that 25 percent of the 10.6" TL black sea bass that encounter the net will be retained by this mesh. Mesh sizes of 2.0", 3.0", and 4.0" have an associated L_{25} of 4.0" TL, 6.6" TL, and 9.3" TL, respectively.

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

Current vent size regulations require 1 $^{3}/_{8}$" x 5 $^{3}/_{4}$" rectangular vents, 2" diameter circular vents, and proposed regulations limit fishermen to a 2-$^{1}/_{2}$" square vent. Smaller mesh and smaller vent sizes allow for the capture and retention of fish less than the proposed minimum size of 11" TL. If these fish are exempt from the minimum size requirement for sale, they will be landed and counted against the quota. If they are not landed, the fish will be discarded at sea. In either case, mortality on smaller fish may increase slightly relative to the no action alternative. This increase in mortality could be offset by a decrease in mortality for larger fish (greater than 11" TL), if smaller fish are sold instead. However, because overall mortality rates are controlled by the TAL, any changes in mortality should be insignificant, i.e., total landings including the research set-aside cannot exceed the TAL.

Proposed research allows for landings of black sea bass during a state or federal closure. Because these landings count against the overall quota, the biological/ecological impacts do not change relative to 2005 (section 7.3.1.1).

Non-targeted species projected to be caught during the course of the research set-aside projects and the status of those species are presented in Table 14. While amounts of non-targeted species estimated to be caught during the course of the projects was not provided, it is expected that the amounts of non-targeted species will be close to the amounts expected to be caught last year (Table 15), and at minimal levels compared to the commercial fisheries. In addition, any hesitation regarding proposed quantities of catch are outweighed by the information and data to be gained from the proposed research. Total estimated catch of these species is for scientific research purposes only. The research vessels do not intend to bring back to the dock any fish below legal size, as a result of using smaller mesh gear, or in excess of a quota except for a few

specimens that may be retained for scientific purposes or transferred to NMFS/NEFSC (Thompson, pers. comm.). Under this alternative the collaborative efforts between the public, research institutions, and government in broadening the scientific base upon which management decisions are made will continue. The Nation would receive the benefit derived when data or other information about these fisheries is obtained for management or stock assessment purposes that would not otherwise be obtained.

7.4.2.2 Habitat Impacts

The discussion presented in section 7.1.1.2 regarding the types of gear used in these fisheries also applies here.

The basic fishing operations for summer flounder, scup, and black sea bass are expected to remain the same in spite of the research set-aside. In addition, the research set-aside specifications should not result in an increase in fishing effort or redistribute effort by gear type. Landings in excess of the state possession limits or during a closure would have no impact on essential fish habitat. Therefore, the overall impact to EFH is not expected to change.

7.4.2.3 Impacts on Endangered and Other Protected Species

The discussion presented in sections 7.1.1.3, 7.2.1.3, and 7.3.1.3 regarding the types of gear used to capture summer flounder, scup, and black sea bass commercially also apply here.

There are numerous species which inhabit the management unit of this FMP that are afforded protection under the ESA and/or the MMPA. Through the use of the research quota set-aside, the basic fishing operations for summer flounder, scup, and black sea bass are expected to remain the same. It should be noted, however, that fishing activities under the research set-aside program may occur in areas and/or times outside those of the normal directed fisheries. The degree of the resulting impacts on protected resources of these research set-aside fishing activities, if any, are not precisely known but are believed to be minimal. Therefore, the overall impact to species afforded protection under the ESA and the MMPA are not expected to change. A complete description of these species and a discussion of the potential impacts the summer flounder, scup, and black sea bass fisheries may have on them can be found in section 6.3.

7.4.2.4 Socioeconomic Impacts

Under this program, successful applicants receive a share of the annual quota for the purpose of conducting scientific research. The Nation receives a benefit when that data or other information about these fisheries are obtained for management or stock assessment purposes. In fisheries where the entire quota is taken and the fishery is prematurely closed (i.e., the quota is constraining), the economic and social costs of the program are shared among the non research set-aside participants in the fishery. That is, each participant in a fishery that utilizes a resource

that is limited by the annual quota relinquishes a share of the amount of quota retained in the research set-aside quota.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.1, 7.2.1, and 7.3.1 were based on adjusted commercial quotas accounting for the research set-aside proposed under this alternative. More specifically, a maximum research set-aside of 355,762 lb (213,456 lb for commercial and 142,305 lb for recreational), 184,690 lb (137,084 lb for commercial and 49,422 lb for recreational), and 178,956 lb (87,688 lb for commercial and 91,268 lb for recreational) for summer flounder, scup, and black sea bass, respectively, were assumed. A summary of the scope of work for 2006 Mid-Atlantic research set-aside projects is presented in Appendix C. This description includes project name, description and duration, amount of set-aside requested, and gear to be used to conduct the various projects.

NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bass -- $1.54/lb), the 2006 research set-aside for the commercial component of the fishery could be worth as much as $339,397 for summer flounder, $82,250 for scup, and $135,040 for black sea bass. As such, the research set-asides could result in a potential decrease in revenue of approximately $444, $190, and $237 per individual vessel in the summer flounder, scup, and black sea bass fishery, respectively, relative to commercial quotas without RSA in place. These values assume an equal decrease in revenue among all active vessels in 2004, i.e., 765, 432, and 569 commercial vessels that landed summer flounder, scup, and black sea bass, respectively. The adjusted commercial quotas analyzed in sections 7.1, 7.2, and 7.3 account for the research set-asides (as described in sections 4.3 and 5.0). If research set-asides are not used, the landings would be put back into the overall TAL for each fishery. As such, the estimated economic impacts would be smaller than those estimated under each alternative.

Changes in the recreational harvest limit will be insignificant; the limit changes from 10.40 to 10.26 million lb (a 1.3 percent decrease) in 2006 for summer flounder; from 4.19 million lb to 4.14 million lb (a 1.2 percent decrease) for scup; and from 4.08 million lb to 3.99 million lb (a 2.2 percent decrease) for black sea bass in 2006 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this research set-aside, and there will be no negative impacts.

In addition, it is possible that the vessels that will be used by researchers will not be vessels that have traditionally fished for summer flounder, scup, and/or black sea bass. As such, permit holders that land these species during a period where the quota has been reached and the fishery closed could be disadvantaged.

Research set-aside Impacts on GRAs for Scup, Black Sea Bass, and Loligo

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

NMFS implemented the current GRAs in 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5" in areas and times that were identified as having high scup discards. Current specific areas and times include a northern GRA from November 1 to December 31 and a southern GRA from January 1 to March 15. The Council proposed to continue the GRAs in 2006. Current regulations prohibit fishing for *Loligo* squid, black sea bass, and silver hake in the GRAs using mesh smaller than 4.5" during the effective times.

Analyses conducted to support these GRAs, indicate that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs, thereby increasing the discards of scup relative to quotas without research set-aside. However, given the level of the research set-aside, the effects on scup discards and mortality should be minimal. In addition, because landings of the regulated species count against the overall quotas for each species, the overall mortality level does not change relative to the no action alternative.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $182,250, $135,040, and $205,768 dockside for scup, black sea bass and *Loligo* squid based on 2004 prices, respectively. Assuming an equal reduction among all active vessels (i.e., 432, 569, and 340 commercial vessels that landed scup, black sea bass, and *Loligo* in 2004, respectively), this may mean a reduction of $190,237, and $605 per individual vessel, for scup, black sea bass, and *Loligo*, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. It is also possible that the vessels used by researchers to conduct the research are vessels that have not traditionally fished for these species. As such, some minimal distributive effects may result as permit holders that would have landed these species could be disadvantaged.

7.5 Cumulative Impacts of Preferred Alternative

The final specifications are considered the most reasonable to achieve the fishery conservation objectives while minimizing the impacts on fishing communities as per the objectives of the FMP. A summary of the environmental consequences for each of the alternatives considered is given in the Boxes ES-1 through ES-4 (see Executive Summary).

7.5.1 Introduction; Definition of Cumulative Effects

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 discussion 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 SFA amended mandates of the MSFCMA require 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 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 any commercial landings exceeding the specifications in one year or quota period be deducted from the commercial quota designated for 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").

However, as mentioned before, Framework Adjustment 5 allows for the specification of TALs for summer flounder, scup, and/or black sea bass fisheries in any given year for up to three years. The ASMFC Board approved similar measures in August 2004. This modification to the FMP should relieve administrative demands on the Council and NOAA Fisheries imposed by the

annual specification process. Additionally, longer-term specifications should provide greater regulatory consistency and predictability to the commercial and recreational fishing sectors.

Cumulative effects to the physical and biological dimensions of the environment may also result 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 facilitates 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 will accelerate the review process and outline areas of increased disturbance. Inter-agency coordination could also prove beneficial.

The MAFMC first considered the development of an FMP for summer flounder in late 1977. During the early discussions, the Council considered that a significant portion of the catch was taken from state waters. 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 MAFMC 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 (MAFMC 1988) 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" 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 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 lb 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 lb 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 a FMP for black sea bass in 1978. Although preliminary work supported the development of a FMP, a plan was not completed. Work on a FMP began again in January 1990 when the Council and the Commission initiated the development of a 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 Amendments 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 implements 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 inconsistent with National Standard 7. Specifically, the Regional Director stated that the provisions that apply to the area north of Cape

Hatteras, North Carolina 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 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 could 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 fish 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 (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 that allows for review and modifications to management measures specified in the FMP on an annual basis. In addition, 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.

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 among residents of different states (National Standard 4); they do not have economic allocation as their sole purpose (National Standard 5); the measures account for variations in fisheries (National Standard 6); avoid unnecessary duplication (National Standard 7); take into account the fishing communities (National Standard 8); reduce bycatch (National Standard 9); and promote safety at sea (National Standard 10). 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 ensure 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 communities.

7.5.2 Targeted Fishery Resources

First and foremost for 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 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 but overfishing is occurring relative to the biological reference points detailed in Amendment 12. The fishing mortality rate estimated for 2004 is 0.40, a significant decline from the 1.32 estimated for 1994 and above the threshold F of 0.26. The most recent scup assessment indicates that the scup fishery is overfished, stock status with respect to overfishing cannot currently be evaluated, and that in general relative exploitation rates follow a downward trend since the late 1990s. Finally, the black sea bass stock is no longer considered overfished and overfishing is not occurring.

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. 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 significantly impact either population on more than simply a local level.

None of the proposed quotas or other management measures have any significant effect on the target species by itself, or in conjunction with other anthropogenic activities. Setting these quotas continues to support the sustainability of these species as characterized in the Summer Flounder, Scup, and Black Sea Bass FMP.

7.5.3 Non-Target 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 impede efforts to protect marine ecosystems and achieve sustainable fisheries and the full benefits they can provide to the Nation in two ways. First, bycatch can substantially increase the uncertainty concerning total fishing-related mortality, making 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 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 are legally 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.

The commercial fisheries for summer flounder, scup, and black sea bass are primarily prosecuted with otter trawls, otter trawls and floating traps, and otter trawls and pots/traps, respectively. These fisheries are managed principally through the specification of annual quotas. In addition, there are other management measures in place which affect discard rates in the summer flounder, scup, and black sea bass fisheries (e.g., minimum size regulation, mesh size/mesh thresholds, and possession limits).

Given the mixed fishery nature of the summer flounder, scup, and black sea bass fisheries, discards of targeted species and/or incidental species will occur. Landings data indicate that

vessels that land summer flounder, scup, and black sea bass also harvest other species throughout the year. These fisheries are mixed fisheries, where squid, Atlantic mackerel, silver hake, skates, and other species are harvested with summer flounder, scup, and/or black sea bass.

The nature of the data makes it difficult to develop any definitive or reliable conclusions about discards for these fisheries especially during the periods or in areas where sea sampling has not occurred. It is difficult for the Council and Commission to modify or add management measures to further minimize discards if the data are not available to define the nature and scope of the discard problem or the data indicate that a discard problem does not exist.

The Council recognizes the need for improved estimates of discards for all of the fisheries managed under this FMP. The Council has requested increased at-sea sampling intensity over a broader temporal and geographical scope than is currently available.

The lack of discard data for summer flounder, scup and black sea bass has hampered the ability of the Council and Commission to respond to potential discard problems in the commercial fisheries. In fact, the lack of this data has been the primary reason cited by the SARC as to why an age-based assessment cannot be developed for either scup or black sea bass. The collection of additional data by NMFS will allow the Council and Commission to more effectively respond to discard problems by changes in mesh, threshold and minimum size regulations or by implementing season and area closures in response to changes in fishermen behavior or an increased level of discards.

There are also significant recreational fisheries for summer flounder, scup, and black sea bass. A large portion of the summer flounder, scup, and black sea bass that are caught is released after capture. It is estimated that 10 percent, 15 percent, and 25 percent of the summer flounder, scup, and black sea bass, respectively, 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 affect 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 larger 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 percent. 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. Currently, the Council and Commission have implemented GRAs through their annual specification process to minimize scup discards in the small mesh fisheries. The Council also funded research to identify gear modifications that reduce the bycatch of scup in small mesh fisheries. In addition, 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.

The management system proposed in Amendment 13 represents the most effective tool for managing the black sea bass fishery. It is intended to distribute black sea bass landings throughout the year. In distributing black sea bass landings throughout the year, it is less likely that seasonal closures will occur in the commercial black sea bass fishery. Therefore, when black sea bass are caught in the directed and mixed trawl fisheries, they will not have to be discarded.

The proposed summer flounder, scup, and black sea bass quotas are not expected to result in increased effort or greater catch rates of other species. In fact, the proposed quotas in 2006 (preliminary adjusted quotas) for the three species are lower than the quotas under the status quo alternatives. Changes in overall fishing effort as a result of lower commercial quotas are unknown. Fishing effort could decrease as vessels take fewer, or shorter, trips (Table 13). Fishing effort could also remain constant because vessels may achieve a higher catch-per-unit-effort due to higher species abundance, or the opposite as species abundance decreases. The incidental catch rates of other species may decrease in 2006, relative to 2005.

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

7.5.4 Protected Species

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. Sixteen 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 6.3) of species protected 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. Adverse effects to ESA/MMPA species are occurring, as discussed in Appendix D. These effects will continue to occur until further action on recovery plans and take reduction plans are implemented.

Commercial capture of summer flounder occurs predominately in the Mid-Atlantic mixed trawl fishery. Minor amounts of summer flounder are landed by the Mid-Atlantic commercial sea scallop dredge fishery, the hook and line fishery, and the pound net fishery. All of these are Category III fisheries as defined in the NMFS 2004 List of Fisheries (69 FR 48407, August 10, 2004). Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals.

Commercial capture of scup and black sea bass occurs predominately in the Mid-Atlantic mixed trawl fishery, the Mid-Atlantic commercial hook and line fishery, the Mid-Atlantic pot/trap fishery, and the nearshore floating trap fishery, which is a type of pound net. All of these are Category III fisheries as defined in the NMFS 2004 List of Fisheries (68 FR 48407, August 10, 2004), with the exception of the pot/trap fishery.

Scup and black sea bass landings recorded in dealer weighout data as coming from pots/traps may be harvested through the Atlantic mixed species trap/pot fishery. This fishery is classified as Category II (69 FR 48407, August 10, 2004) because the gear used has similarities (buoy lines) to lobster and blue crab traps which are category I and II fisheries, respectively. Marine mammal species injured or killed by Mid-Atlantic mixed species traps/pots include fin whales, humpback whales, Minke whales, and harbor porpoises. It is not known whether any of these incidents directly involved the scup or black sea bass fisheries. The scup and black sea bass fisheries have never been implicated in take reduction efforts for bottlenose dolphins.

None of the proposed quotas or other management measures will have any significant effect on protected resources individually, or in conjunction with other anthropogenic activities.

7.5.5 Habitat (Including EFH Assessment)

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

The proposed quotas in 2006 (preliminary adjusted quotas) for the summer flounder, scup, and black sea bass fisheries are lower than the quotas under the status quo alternatives. Changes in overall fishing effort as a result of lower commercial quotas are unknown. Fishing effort could

decrease as vessels take fewer, or shorter, trips (Table 13). Fishing effort could also remain constant because vessels may achieve a higher catch-per-unit-effort due to higher species abundance, or the opposite as species abundance decreases. (Conversely, a smaller quota may mean that states establish lower possession limits, which result in an equal number of fishing trips landing a smaller volume of fish. In these latter instances, the proposed quotas would result in either the same or reduced gear impacts to bottom habitats). The incidental catch rates of other species may decrease in 2006, relative to 2005.

None of the proposed quotas or other management measures would have any significant effect on habitat individually, or in conjunction with other anthropogenic activities.

7.5.6 Communities

National Standard 8 requires that management measures take into account the fishing communities. The ports and communities that are dependent on summer flounder, scup, and black sea bass are fully described in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP (section 3.4.2). To examine recent landings patterns among ports, 2004 NMFS dealer data are used. The top commercial landings ports for summer flounder, scup, and black sea bass by pounds landed are shown in Table 3.

Overall, the ports and communities involved in the summer flounder fisheries will likely encounter some negative impacts from the quota for this species. However, it is possible that given the potential decrease in summer flounder landings compared to 2005, price for this species may increase if all other factors are held constant. If this occurs, an increase in the price for summer flounder may mitigate some of the revenue reductions associated with lower quantities of summer flounder quota available and thus reducing negative impacts to ports and communities. With regard to the specific quota recommendations proposed in this document, impacts to the affected biological and physical and human environment are described in section 7.0. These impacts will be felt most strongly in the social and economic dimension of the environment. However, as previously stated, the proposed summer flounder measures are expected to produce positive biological and social and economic impacts in the long-term as the stock rebuilds to sustainable levels. Given that the associated reduction in scup and black sea bass measures under the preferred alternatives for these species is very small, compared to 2005, it is not expected that they will result in negative impacts to ports and communities involved in these fisheries. In addition, the proposed measures for these species are expected to produce positive biological, social, and economic impacts in the long-term as stocks continue to rebuild to sustainable levels as well.

Historical Account of Overages

Although the measures proposed in this EA are for the year 2006 only for scup and black sea bass, and 2006, 2007, and 2008 for summer flounder, 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 Fs for the coming fishing year. Because of the nature of the fisheries (e.g., the landing of these species over a large number of coastal states) and the inherent time lags encountered in collecting landings that are necessary to make final determinations of actual landings, there is always the possibility that some harvest quotas may be unintentionally exceeded before the information necessary to close that portion of the fishery is available. On the other hand, other sectors of the fishery (e.g., certain states, in the case of summer flounder) may under-achieve their allowable harvest levels in a given year.

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

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

Summer Flounder Commercial Quota					
Year	**Quota**	**Commercial Share**	**Adjusted Commercial Quota**	**Commercial Landings**	**Overage**
1993	20.73	12.35	-	12.60	-
1994	26.68	16.01	-	14.56	-
1995	19.40	14.69 (add on)	-	15.42	0.73
1996	18.52	11.11	10.21	12.96	2.75
1997	18.52	11.11	8.38	8.81	0.43
1998	18.52	11.11	10.93	11.22	0.29
1999	18.52	11.11	10.73	10.69[b]	-
2000	18.52	11.11	10.88	11.26	0.38
2001	17.91	10.75	10.06	10.93	0.87
2002	24.30	14.58	14.46	14.54	0.08
2003	23.30	13.98	13.87	14.23	0.36
2004[a]	28.20	16.92	16.76	17.26	0.50
2005	30.30	18.18	17.90	n/a	n/a

[a] Preliminary

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

Note: 2005 landings not yet available.

Summer Flounder Recreational Harvest Limit			
Year	**Harvest Limit**	**Recreational Landings**	**Overage**
1995	7.76	5.42	-
1996	7.04	9.82	2.78
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	8.01	-
2003[a]	9.28	11.64	2.36
2004	11.21	10.76	-
2005	11.98	n/a	n/a

[a] Preliminary

Note: 2005 landings not yet available.

Scup TAL[a]			
Year	**TAL**	**Recreational Landings**	**Overage**
1997	7.947	6.035	-
1998	6.125	5.049	-
1999	3.770	5.209	1.439
2000	3.770	8.103	4.332
2001	6.210	8.328	2.118
2002	10.770	10.905	0.135
2003	16.500	18.237	1.737
2004[b]	16.500	13.432	-
2005	16.270	n/a	n/a

[a] Includes both commercial and recreational harvest limits.
[b] Preliminary.
Note - 2005 landings not yet available.

Black Sea Bass TAL[a]			
Year	**TAL**	**Recreational Landings**	**Overage**
1997	-	-	-
1998	6.173	3.715	-
1999	6.173	4.562	-
2000	6.173	6.630	0.457
2001	6.173	6.249	0.076
2002	6.800	7.784	0.984
2003	6.800	6.722	-
2004[b]	8.000	4.761	-
2005	8.200	n/a	n/a

[a] Includes both commercial and recreational harvest limits.
[b] Preliminary.
Note - 2005 landings not yet available.

The summer flounder, scup, and black sea bass commercial fisheries have experienced annual total overages. In 2003, summer flounder and scup overages (recreational and commercial) totaled approximately 2.72 and 1.74 million lb, respectively. There were no overages in the black sea bass fisheries in 2003. In 2004, overall overages (recreational and commercial) totaled approximately 0.5 million lb for summer flounder. There were no overages in the scup or black sea bass fisheries in 2004. Even though the recreational overage cannot be deducted from the TAL, the total overage factors into the cumulative impact on the stocks.

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

The second possible result of overages is the potential that the annual F targets of the FMP will not be met and/or that the rebuilding schedule will be delayed. The significance of any such delays depends on the magnitude of the overages and their resultant impact on the stock size and age structure. While it is not possible to quantify those effects precisely, the fact that the FMP's management regime takes into account the overages and the current status of the stocks in setting the specifications for the next year mitigates any such impacts.

The Council and NMFS recognize that future overages in any of the fisheries could have additional negative impacts on the rate of rebuilding. Given the history of the summer flounder, scup, and black sea bass fisheries, the mitigating influence of annual overage adjustments, and the fact that the stocks have shown continued improvement during the rebuilding period, despite the overages that have occurred, the cumulative impacts of overages are not considered to be significant.

Overall Socioeconomic Impact

In order to conduct a more thorough socioeconomic analysis, overall impacts of the three species combined were examined. The analyses conducted examined the measures recommended by the Council for each of the three species combined. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries. The analysis of the preferred alternatives is presented below and the analysis for the non-preferred alternatives (most restrictive and least restrictive alternatives) is presented in the following section (section 7.6). Additional analysis of the combined impact of the management measures for the three species combined is presented under section 5.0 of the RIR/IRFA.

For example, for 2006, quota alternative 1 (preferred alternative) includes the three preferred alternatives for summer flounder, scup, and black sea bass combined and for 2006. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries.

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

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

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

More recently, McCay and Cieri (2000) reported a small pot fishery in Wildwood, NJ, that mainly targets black sea bass. In Sea Isle City, NJ, there is an offshore pot fishery for lobster, conch, and fish (mostly black sea bass). The value of fish trapped within the pot fishery accounted for 12 percent of the total value landed by the pot fishery in Sea Isle City in 1998. In Delaware, fishermen (predominantly “bayman” or “watermen”) use a wide array of gear types when working the estuary, bay, and tributaries of the Delaware Bay and River, bordering New Jersey. Pots and traps are an important type of gear for these fishermen. For fish traps, the most important species is black sea bass. A description of ports and communities that are dependent on summer flounder, scup, and black sea bass is found in section 3.4.2 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent landings patterns among ports are examined in section 6.5.1.

Combined socioeconomic impacts in 2006

Combined socioeconomic impacts of alternative 1 (preferred)

The preferred quotas for summer flounder, scup, and black sea bass for year 2006 (adjusted for overages and/or research set-aside) under this alternative are approximately 14, 2, and 3 percent lower relative to the adjusted quotas specified for those species in 2005. The recreational harvest limits (adjusted for research set-asides) in preferred alternative 1 for summer flounder, scup, and black sea bass for the year 2006 are 14, 5, and 34 percent lower relative to the adjusted recreational harvest limits for year 2005. The commercial quotas and recreational harvest limits selected as the preferred alternative were chosen because they provide for the maximum level of commercial and recreational landings, yet still achieve the fishing mortality and exploitation rates specified in the FMP. While some individual fishermen and their families may find the final adjusted 2006 quotas to have impacts, the larger communities and towns in which they live will not.

Commercial Impacts

Vessels affected under the 2006 recommended quota harvest levels (alternative 1)

The economic impacts for the 906 vessels participating in these fisheries ranged from expected revenue losses on the order of < 5 percent for a total of 208 vessels to an expected revenue loss of ≥ 5 percent for 698 vessels in 2006 relative to 2005 (section 5.1.1 of the RIR/IRFA).

The analysis of the harvest levels under this alternative indicate that the economic impacts ranged from expected revenue losses on the order of < 5 percent for 208 vessels that landed all combinations of summer flounder, scup, and/or black sea bass (except fluke only) to ≥ 50 percent for 2 vessels that landed fluke only (Table 16). In total, 698 vessels are projected to incur revenue reduction of ≥ 5 percent. More specifically, 108 vessels are projected to incur revenue reductions in the order of 5-9 percent; 573 vessels are projected to incur revenue reductions in the order of 10-19 percent; 13 vessels are projected to incur revenue reductions in the order of 20-29 percent; 3 vessels are projected to incur revenue reductions in the order of 40-49 percent; and 2 vessels are projected to incur revenue reductions in the order of ≥ 50 percent.

Given that a large number of vessels are projected to incur large revenue reduction under the analysis conducted above, Council staff further examined the level of ex-vessel revenues for the impacted vessel to assess further impacts. For example, according to dealer data, it was estimated that 100 percent of the vessels (5 vessels) projected to incur revenue reductions of ≥ 40 percent had total gross sales (all possible species combined not just summer flounder, scup, and black sea bass) of less than $1,000. Further more, 22% (24 vessels) of the 108 vessels projected to incur revenue losses of 5-9 percent had total gross sales of approximately $1,000 or less; 31% (176 vessels) of the 573 vessels projected to incur revenue losses of 10-19 percent had total gross sales of approximately $1,000 or less; and 17% (2 vessels) of the 12 vessels projected to incur revenue losses of 20-29 percent had total gross sales of approximately $1,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (698) are likely to be impacted with revenue reductions of more than 5 percent, a large proportion of those vessels (207 or 30 percent) had small gross sales (less than $1,000), thus likely indicating that the dependence on fishing is very small.

Impacts of the quotas provisions were examined relative to a vessel's home state as reported on the vessel's permit application (Table 17). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of < 5 percent by home state ranged from none in New Hampshire, to 25 in both New York and New Jersey. The number of vessels with revenue reduction of > 5 percent, ranged from 2 vessels in Delaware to 157 vessels in Massachusetts.

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

The majority of the revenue losses of 5 percent or higher are attributed to quota reductions associated with the summer flounder fishery. Most vessels with revenue losses of 5 percent or higher had landed summer flounder only, or a combination of summer flounder with the other two species. Since there is a number of vessels that could experience large revenue reductions under this alternative, additional analysis regarding these vessels is presented below (e.g., evaluation of permit status, geographic distribution of permitted vessel).

Of the 698 vessels showing revenue reduction of ≥ 5 percent, 558 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 558 vessels holding various combinations of summer flounder, scup, and black sea bass permits are described in Table 18. It is most common for vessels to have permits for all 3 species and summer flounder only permits.

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

The majority of the 558 vessels with federal permits for summer flounder, scup and/or black sea bass have home ports in Massachusetts, Rhode Island, New York, New Jersey, and North Carolina. The principal ports of landing for these vessels are mainly located in Massachusetts, Rhode Island, New York, New Jersey, and North Carolina as well (Table 20).

Although the summer flounder quota is allocated to the individual states, vessels are not necessarily constrained to land in their home state. It is useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. Thus, of the various states home-porting vessels projected to have revenue reductions in the $\geq$ 5 percent range, vessels in those states are likely to land in their home port state (50-100 percent, excluding Pennsylvania; Table 20). This information is important because impacts will occur both in the community of residence and in the community where the vessel's catch is landed and sold.

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

Most commercial vessels showing revenue reductions in the $\geq$ 5 percent range are concentrated in Massachusetts, Rhode Island, New York, New Jersey, and North Carolina (Table 21). Within these states, the most impacted counties are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Washington and Newport counties in Rhode Island; Suffolk and New York City counties in New York; Ocean, Cape May, and Monmouth counties in New Jersey; and Pamlico, Carteret, and Dare counties in North Carolina. Some individual ports with large numbers of impacted vessels (10 or more) in these counties are: New Bedford (Bristol county) and Boston (Suffolk county) in Massachusetts; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; Montauk (Suffolk county) and New York (New York City county) in New York; Barnegat Light (Ocean county), Cape May (Cape May county), and Belford (Monmouth county) in New Jersey; and Beaufort (Carteret county), Wanchese (Dare county), and Oriental (Pamlico county) in North Carolina. Other ports with a large number of impacted vessels (10 or more) are: Stonington (New London county in CT), Fairhaven (Bristol county in MA); Other (Suffolk county in NY); Newport News and Norfolk (City of Newport News and City of Norfolk counties, respectively, in VA). If communities having larger numbers of impacted vessels also have a larger total numbers of vessels, the proportion that may be impacted thus may be lower. This effect may mitigate the impacts on the community as a whole.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles were constructed. The profile is based on impacts under the most restrictive possible alternative. Since Alterative 2 is the most restrictive alternative, impacts of other alternatives will be less

than the impacts under this alternative (section 5.1.2 of the RIR/IRFA). The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Reported statistics including demographic statistics, employment, and wages for these counties is presented in section 6.1 of the RIR/IRFA. In addition, a description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent landings patterns among ports are examined in section 6.5.1.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bass -- $1.54/lb), the 2006 quotas associated with the preferred alternative would decrease summer flounder, scup, and black sea bass revenues by approximately $3.98, $0.17, and $0.22 million, respectively, relative to the quota implemented in 2005.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with the preferred alternative is distributed equally among the 765 vessels that landed summer flounder in 2004, the average decrease in revenue associated with the decrease in summer flounder quota is approximately $5,203/vessel. Assuming the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally among the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in the scup quota is approximately $394/vessel. Finally, if the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally among the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is approximately $387/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2006 relative to quotas implemented in 2005 is approximately $4.37 million (assuming 2004 ex-vessel prices) under the preferred alternative. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2004, the average decrease in revenue is approximately $4,823/vessel. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2006 versus 2005 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

Overall, the projected decrease in landings in 2006 under this alternative will likely result in revenue reduction for these species. However, it is possible that given the potential decrease in summer flounder, scup, and black sea bass, price for these species may increase holding all other

factors constant. If this occurs, an increase in the price for summer flounder, scup, and black sea bass may mitigate some of the revenue reductions associated with lower quantities of quota availability under this alternative.

It is important to stress that these changes as well as those described under the other alternatives represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to possession limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2005 for quota overages in 2005 that were not accounted for here.

Recreational Impacts

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures may lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely that these measures will result in any substantive decreases in the demand for party/charter boat trips. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch (section 5.1.1 of the RIR/IRFA).

Other Impacts

<u>Effects of Commercial Possession Limits, Minimum Mesh, and Minimum Fish Size</u>

For summer flounder no changes to the existing current minimum fish size, minimum mesh regulations, or minimum mesh threshold regulations will be made for 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005. A description of the impacts of these measures is presented in section 7.1.

For the scup fishery, the current minimum fish size, minimum vent size, the transfer of unused scup quota from Winter I to Winter II period, Winter I possession limit, winter period mesh threshold regulations, and GRA management measures will remain unchanged in 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005. A description of the impacts of these scup measures is presented in section 7.2. The potential impacts of an alternative measure addressing preferred changes in the scup Winter II possession limits (alternative 4.2a) are presented below.

For the black sea bass fishery, the current minimum fish size, minimum mesh regulation, and minimum mesh threshold will remain unchanged in 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2006 relative to 2005. A description of the impacts of these black sea bass measures is presented in section 7.3. The potential impacts of an alternative measure addressing preferred changes in the black sea bass minimum vent size regulations (alternative 4.2b) are presented below. In addition, potential impacts of the research set-aside are discussed below.

Effects of the proposed scup Winter II possession limit

Under alternative 4.2a (preferred alternative), the Council and Commission recommended to change the current Winter II possession limits in the scup fishery from 1,500 lb per week to a possession limit of 2,000 lb. It is expected that the proposed Winter II possession limit under this alternative will benefit fishermen as it allows for scup that would normally be discarded to be landed, thereby making scup trips more economically viable. This measure is likely to result in positive biological and socioeconomic impacts to the stock as it allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery. A description of the impacts of the preferred scup Winter II possession limit is presented in section 7.2.5.

Effects of the proposed black sea bass vent size regulations

Under alternative 4.2b (preferred alternative), the Council and Commission recommended to increase the minimum circle vent size requirements for black sea bass pots/traps to 2 1/2"; requirements of 1 3/8" x 5 3/4" for rectangular vents and 2" for square vents remain unchanged. In addition, 2 vents would be required in the parlor portion of the pot/trap. These requirements would become effective January 1, 2007. Therefore, fishermen would convert their gear over time throughout 2006. A description of the impacts of the preferred black sea bass vent size regulations is presented in section 7.3.5.

The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen.

The cost of making the modifications proposed under this alternative will vary depending on the type of pot/trap (e.g., wooden, wire) and the existing features that this type of gear may already have. As it was indicated in section 7.3.5, the cost of replacing a circular vent is likely to range between $3.08 and $3.24 for each wire pot/trap. It is important to mention that the proposed regulations will become effective January 1, 2007. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of replacing the circular vent is approximately between $1.54 and $1.62 for each wire pot/trap.

On the other hand, for fishermen using wood pots/traps, the cost of making the required modifications is likely to be approximately between $2.68 and $5.36 for each wood pot/trap. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of adding an additional trap to a wood pot/trap is approximately between $1.34 and $2.68 for each wire pot/trap.

As it was extensively discussed in section 7.3.5**,** it is not possible to calculate how the proposed gear changes will affect the total cost of production for black sea bass pot/trap fishermen. However, given the assumptions described in section 7.3.5**,** if all production costs are considered, the proposed regulations are likely to increase the total production cost by a less than 5%.

This alternative will provide positive economic and social impacts in the long-term sublegal mortality will be reduced increasing yields and the mature fish in the stock.

Effects of the research set-aside

Under this program, successful applicants receive a share of the annual quota for the purpose of conducting scientific research. The Nation receives a benefit in that data and other information about that fishery are obtained for management or stock assessment purposes. In fisheries where the entire quota is taken and the fishery is prematurely closed (i.e., the quota is constraining), the economic and social costs of the program are shared among the non research set-aside participants in the fishery. That is, each participant in a fishery that utilizes a resource that is limited by the annual quota relinquishes a share of the amount of quota retained in the research set-aside quota.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.1, 7.2.1, and 7.3.1 were based on adjusted commercial quotas accounting for the research set-aside proposed under this alternative. More specifically, a maximum research set-aside of 355,762 lb (213,457 lb commercial and 142,305 lb recreational), 184,690 lb (137,084 lb for commercial and 49,422 lb for recreational), and 178,956 lb (87,688 lb for commercial and 91,268 lb for recreational) for summer flounder, scup, and black sea bass, respectively, was assumed. A summary of the scope of work for 2006 Mid-Atlantic research set-aside projects is presented in Appendix C. This description includes project name, description and duration, amount of set-aside requested, and gear to be used to conduct the various projects.

Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bass -- $1.54/lb), the 2006 research set-aside could be worth as much as $339,397 for summer flounder, $82,250 for scup, and $135,040 for black sea bass. As such, the research set-asides could result in a potential decrease in revenue of approximately $444, $190, and $237 per individual vessel in the summer flounder, scup, and black sea bass fishery, respectively, relative to commercial quotas without RSA in place. These values assume an equal decrease in revenue among all active vessels in 2004, i.e., 765, 432, and 569 commercial vessels that landed summer

flounder, scup, and black sea bass, respectively. The adjusted commercial quotas analyzed in section 7.1, 7.2, and 7.3 account for the research set-asides (as described in section 4.3 and 5.0). If research set-asides are not used the landings would be put back into the overall TAL for each fishery. As such, the estimated economic impacts would be smaller than those estimated under each alternative.

Changes in the recreational harvest limit will be insignificant; the limit changes from 10.40 to 10.26 million lb (a 1.3 percent decrease) in for summer flounder; from 4.19 million lb to 4.14 million lb (a 1.2 percent decrease) for scup; and from 4.08 million lb to 3.99 million lb (a 2.2 percent decrease) for black sea bass in 2006 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this research set-aside, and there will be no negative impacts.

In addition, it is possible that the vessels that will be used by researchers will not be vessels that have traditionally fished for summer flounder, scup, and/or black sea bass. As such, permit holders that land these species during a period where the quota has been reached and the fishery closed could be disadvantaged.

Research set-aside Impacts on GRAs for Scup, Black Sea Bass, and Loligo

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

NMFS implemented the current GRAs in 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5" in areas and times that were identified as having high scup discards. Current specific areas and times include a northern GRA from November 1 to December 31 and a southern GRA from January 1 to March 15 Appendix B). The Council proposed to continue the GRAs in 2006. Current regulations prohibit fishing for *Loligo* squid, black sea bass, and silver hake in the GRAs using mesh smaller than 4.5" during the effective times.

Analyses conducted to support these GRAs, indicate that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs, thereby increasing the discards of scup relative to quotas without research set-aside. However, given the level of the research set-aside, the effects on scup discards and mortality should be minimal. In addition, because landings of the regulated species count against the overall quotas for each species, the overall mortality level does not change relative to the no action alternative.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $182,250, $135,040, and $205,768 dockside for scup, black sea bass and *Loligo* squid based on 2004 prices, respectively. Assuming an equal reduction among all active

vessels (i.e., 432, 569, and 340 commercial vessels that landed scup, black sea bass, and *Loligo* in 2004, respectively), this may mean a reduction of $190, $237, and $605 per individual vessel, for scup, black sea bass, and *Loligo*, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. It is also possible that the vessels used by researchers to conduct the research are vessels that have not traditionally fished for these species. As such, some minimal distributive effects may result as permit holders that would have landed these species could be disadvantaged. If research set-asides are not used and are put back into the overall TAL for each fishery, then the estimated economic impacts would be smaller than those estimated in threshold analyses presented in this section and in the IRFA (sections 5.1.1, 5.1.2, and 5.1.3).

Combined socioeconomic impacts in 2007 and 2008

Assuming that the condition of the scup and black sea bass fisheries do not significantly change in 2007 and 2008 as compared to 2006, then the impacts of the summer flounder quotas in 2007 and 2008 will be similar to those described above.

7.5.7 Conclusions

None of the proposed quotas or other management measures will have any significant effect on non-target species individually, or in conjunction with other anthropogenic activities. The proposed actions, together with past and future actions are expected to result in positive cumulative impacts on the biological, physical, and human components of the environment. As long as management continues to prevent overfishing and continue the rebuilding process, the fisheries and their associated communities will prosper.

This action builds on actions taken in the original FMP, subsequent amendments, and the annual specification process for the 2005 fishing year. Based on the information and analyses presented in these documents, and this document, there are no significant cumulative effects associated with the proposed summer flounder, scup, and black sea bass specifications.

7.6 Combined Socioeconomic Analyses of the Non-preferred Alternatives

The combined impacts of the preferred summer flounder, scup, and black sea bass quota measures were analyzed in section 7.5.6 above. The combined impacts of the non-preferred quotas are discussed in this section. For example, for 2006, quota alternative 2 (most restrictive alternative) includes the three most restrictive alternatives for summer flounder, scup, and black sea bass combined; and quota alternative 3 (least restrictive alternative) includes the three least restrictive alternatives for summer flounder, scup, and black sea bass combined. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries.

Combined socioeconomic impacts in 2006

Combined socioeconomic impacts of alternative 2 (most restrictive)

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

The most restrictive quotas for summer flounder, scup, and black sea bass (status quo) for year 2006 (adjusted for overages and research set-aside) are approximately 22, 37, and 9 percent lower relative to the quotas specified (adjusted quotas) for those species in 2005, respectively. In addition, adjusted recreational limits for year 2006 are 22, 26, and 10 percent lower for summer flounder, scup, and black sea bass, respectively, relative to the 2005 limits.

Commercial Impacts

Vessels affected under the most restrictive alternative (alternative 2)

The analysis of the harvest levels under this alternative indicate that all vessels will incur in revenue losses of ≥ 5 percent. The economic impacts ranged from expected revenue losses in the order of 5-9 percent for 114 vessels; 10-19 percent for 142 vessels; 20-29 percent for 597 vessels; 30-39 percent for 48 vessels; 40-49 percent for 3 vessels; and ≥ 50 percent for 2 vessels (Table 22). The majority of the revenue losses of 30 percent or higher are attributed to quota reductions associated with the summer flounder fishery. Since there is a number of vessels that could experience large revenue reductions under this alternative, additional analysis regarding these vessels is presented below (e.g., evaluation of permit status, geographic distribution of permitted vessel). Since Alterative 2 is the most restrictive alternative, impacts of other alternatives will be less than the impacts under this alternative (section 5.1.2 of the RIR/IRFA).

As with cumulative impacts under alternative 1 (section 7.5.6), it is likely that a large proportion of the impacted vessels indicated above are likely to have small gross sales (less than $1,000), thus likely indicating that the dependence on fishing is very small.

Impacts of the quotas provisions were examined relative to a vessel's home state as reported on the vessel's permit application (Table 23). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of > 5 percent by home state ranged from 3 in New Hampshire to 180 in Massachusetts.

By virtue of holding a valid federal permit for summer flounder, scup, or black sea bass a vessel is subject to any regulations that are promulgated under the FMP. From this perspective, these

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

Of the 906 vessels showing revenue reduction of ≥ 5 percent, 684 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 684 vessels holding various combinations of summer flounder, scup, and black sea bass permits are described in Table 24. It is most common for vessels to have permits for all 3 species and summer flounder only.

Many of the vessels projected to have revenue reductions of ≥ 5 percent hold permits in other fisheries (Table 25). In particular, most vessels have bluefish, dogfish, squid-mackerel-butterfish, and skate. As a result, they have access to some alternative fisheries, although some like multispecies, dogfish, and scallops, are already under heavy regulation and likely to have increasingly stringent catch limits for the near future.

The majority of the 684 vessels with federal permits for summer flounder, scup and/or black sea bass have home ports in Massachusetts, New York, New Jersey, Rhode Island, and North Carolina. The principal ports of landing for these vessels are mainly located in Massachusetts, New York, New Jersey, Rhode Island, and North Carolina New York as well (Table 26).

Although the summer flounder quota is allocated to the individual states, vessels are not necessarily constrained to land in their home state. It is useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. Thus, of the various states home-porting vessels projected to have revenue reductions in the ≥ 5 percent range, vessels in those states are likely to land in their home port state (66-100 percent; Table 26). This information is important because impacts will occur both in the community of residence and in the community where the vessel's catch is landed and sold.

The largest vessels are found in Connecticut, Massachusetts, North Carolina, New Jersey, Pennsylvania, and Virginia (Table 26). Larger vessels often have more options than smaller vessels, due to increased range and more deck space for alternative gear configurations. This can help them to respond to cuts in quota in particular states. They also, however, need larger volumes to remain profitable.

Most commercial vessels showing revenue reductions in the ≥ 5 percent range are concentrated in Massachusetts, New York, New Jersey, Rhode Island, and North Carolina (Table 27). Within these states, the most impacted counties are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Suffolk and New York City counties in New York; Ocean, Cape May, and Monmouth counties in New Jersey; Washington and Newport counties in Rhode Island; and

Pamlico, Dare, and Carteret counties in North Carolina. Some individual ports with large numbers of impacted vessels (10 or more) in these counties are: New Bedford and Fairhaven (Bristol county), Boston (Suffolk county), and Chatham (Barnstable county) in Massachusetts; New York (New York City county) and Montauk (Suffolk county) in New York; Cape May (Cape May county), Barnegat Light (Ocean county), Belford (Monmouth county), and Point Pleasant (Ocean county) in New Jersey; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; and Wanchese (Dare county), Beaufort (Carteret county), and Oriental (Pamlico county) in North Carolina. Other ports with a large number of impacted vessels (10 or more) are: Stonington (New London county in CT), Ocean City (Worcester county in Maryland); Other (Suffolk county in NY); Norfolk and Newport News (City of Norfolk and City of Newport News counties, respectively, in VA). If communities having larger numbers of impacted vessels also have a larger total numbers of vessels, the proportion that may be impacted thus may be lower. This effect may mitigate the impacts on the community as a whole.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles were constructed. The profile is based on impacts under the most restrictive possible alternative. Since Alterative 2 is the most restrictive alternative, impacts of other alternatives will be less than the impacts under this alternative (section 5.1.2 of the RIR/IRFA). The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Reported statistics including demographic statistics, employment, and wages for these counties is presented in section 6.1 of the RIR/IRFA. In addition, a description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent landings patterns among ports are examined in section 6.5.1.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bas --$1.54/lb), the 2006 quotas associated with alternative 2 would approximately decrease summer flounder, scup, and black sea bass ex-vessel revenues by approximately $6.28 million, $2.75 million, and $0.31 million relative to the quota implemented in 2005, respectively.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with alternative 2 is distributed equally between the 765 vessels that landed summer flounder in 2004, the average decrease in revenue associated with the decrease in summer flounder quota is $8,209/vessel. Assuming the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally between the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in scup quota is $6,366/vessel. Finally, if the

decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally between the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is $545/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2006, relative to 2005, is approximately $9.34 million (assuming 2004 ex-vessel prices) under alternative 2. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2004, the average decrease in revenue is approximately $10,309/vessel. The changes in gross revenues associated with the potential changes in quotas in 2006 versus 2005 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

Recreational Impacts

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend for the 1990 to 2004 time period. On average, for the 1990-2004 period, approximately 22 million marine recreational fishing trips (all modes combined) were taken in the North Atlantic and Mid-Atlantic subregions combined. For that period, marine recreational trips ranged from 18 million trips in 1992 to 30 million trips in 2001. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2004 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. On average, for the 1990-2004 period, 1.7 million party/charter marine fishing trips were taken in the North Atlantic and Mid-Atlantic sub-regions combined. In 2002, 2003, and 2004 1.3, 1.5, and 1.6 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined, respectively.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures may lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely that these measures will result in any substantive decreases in the demand for party/charter boat trips. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder, scup, or black sea bass they are allowed to catch (section 5.1.2 of the RIR/IRFA).

Other Impacts

The impacts of non-quota management measures described in alternative 1 above (section 7.5.6) also apply here.

Combined socioeconomic impacts of alternative 3 (least restrictive)

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

The least restrictive quotas for summer flounder, scup, and black sea bass for year 2006 (adjusted for overages and research set-aside) are approximately <1 percent higher for summer flounder and <1 lower for scup and black sea bass relative to the quotas specified (adjusted quotas) for those species in 2005. In addition, adjusted recreational limits for year 2006 are near identical to the limit implemented in 2005 for that species. In addition, scup and black sea bass recreational limits are <1 percent lower and 6 percent higher, respectively, when compared to the recreational limits implemented in 2005. Even though the overall 2006 commercial TALs for summer flounder, scup, and black sea bass under this alternative are the same as in 2005, the adjusted commercial quotas and recreational harvest limits are slightly different than the allocations implemented in 2005 mainly due to differences in the research set-aside used to derived adjusted allocations during those two time periods.

Commercial Impacts

Vessels affected under the least restrictive alternative (alternative 3)

The result of the analysis for this alternative indicates that across all vessel classes, a total of 372 vessels were projected to be impacted by revenue increase (relative to 2005). In addition, 30 vessels were projected to incur revenue losses of more than 5 percent and 504 vessels were projected to incur revenue losses of less than 5 percent relative to 2005 (section 5.1.3 of the RIR/IRFA). All vessels projected to incur revenue losses of more than percent had landed summer flounder only, or a combination of summer flounder with the other two species.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bass -- $1.54/lb), the 2006 quotas associated with alternative 3 would increase summer flounder revenue by $0.11 and decrease in scup and black sea bass revenues by $0.07 million and $0.06 million, respectively, relative to the quota implemented in 2005.

Assuming the increase in summer flounder total ex-vessel gross revenues associated with alternative 3 is distributed equally between the 765 vessels that landed summer flounder in 2004, the average increase in revenue associated with the increase in summer flounder quota is $144/vessel. Assuming the decrease in scup total gross revenues associated with this alternative is distributed equally between the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in scup quota is $162/vessel. Finally, if the decrease in black sea bass total gross revenues associated with this alternative is distributed equally between the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is $105/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2006, relative to 2005, is approximately $0.02 million (assuming 2004 ex-vessel prices) under alternative 3. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2004, the average decrease in revenue is approximately $22/vessel. The changes in gross revenues associated with the potential changes in quotas in 2006 versus 2005 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

Recreational Impacts

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. Given that the proposed management measures under this alternative are not expected to restrict the recreational summer flounder, scup, or black sea bass fisheries for 2006 relative to 2005, it is not anticipated that restrictive measures would be required under this alternative. It is not anticipated that these measures will result in decrease in the demand for party/charter boat trips or affect angler participation in a negative manner (section 5.1.3 of the RIR/IRFA).

Other Impacts

The impacts of non-quota management measures described in alternative 1 above (section 7.5.6) also apply here.

8.0 ESSENTIAL FISH HABITAT ASSESSMENT

Summer flounder, scup and black sea bass have EFH designated in many of the same bottom habitats that have been designated as EFH for most of the MAFMC managed species. Such MAFMC-managed species include 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 EFH 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.

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

However, the actions proposed in this EA are necessary to achieve target exploitation rates for summer flounder in 2006, 2007, and 2008 and scup and black sea bass in 2006, and other commercial management measures. The impacts of the actions proposed in this EA, on EFH, are described in detail in section 7.0.

In summary, the 2006, 2007, and 2008 summer flounder commercial quotas and 2006 black sea bass commercial quotas are lower than those specified for 2005. A change in quota is not necessarily directly proportional to a change in fishing effort. As discussed in section 7.0, with improving stock abundance, fishermen may be able to catch more fish with less or constant effort. Conversely, fishing effort could decrease as vessels take fewer, or shorter trips, to land the lower quota. Tables 11-13 present the range of potential habitat impacts that could occur under each of the various quota alternatives for each of the three species. Therefore, the measures proposed in this specification package may have adverse effects to EFH that range from impacts remaining the same to impacts that are less than existing impacts. The non-quota setting specifications associated with this action will not have an adverse effect on EFH. Since the change in the quota for each species is a balance of meeting the FMP objectives of improving yield while ensuring that overfishing does not occur, and due to the lack of direct evidence to suggest that fishing effort on bottom habitats will actually increase due to this action, it is expected that this action minimizes the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305(a)(7) of the Magnuson-Stevens Fishery Conservation and Management Act.

9.0 OTHER APPLICABLE LAWS

9.1 NEPA

National Oceanic and Atmospheric Administration Administrative Order 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality regulations at 40 C.F.R. '1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

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

None of the proposed specifications presented in this document are expected to jeopardize the sustainability of any target species affected by the action. The preferred quota specifications for each species are consistent with the FMP objectives. The preferred summer flounder TAL of 26.00 million lb for 2006, 2007, and 2008 would result in rebuilding to the biomass target (Bmsy) of 204 million lb by January 1, 2010, the target end date for stock rebuilding. The 2006 summer flounder TAL under will have about a 25 percent probability of achieving the F target in 2006, assuming the TAL and discard level in 2005 are not exceeded. However, it is expected to have a 60 and 90 percent probability of achieving the F target in 2007 and 2008, respectively. As such, over the three year time period, the summer flounder TAL average probability of achieving the F target would be about 58%. The proposed scup and black sea bass quotas are consistent

with the FMP overfishing definitions. The revised overfishing definitions for these species are based primarily on maintaining fishing mortality levels below the levels which are sustainable in the long-term.

The proposed pot/trap gear modifications in the commercial black sea bass fishery should have a positive biological impact. An increase in the size of the circle vents and an additional vent in the parlor portion of a black sea bass trap may allow for increased escapement of undersized black sea bass, as well as other non-target species. In addition, the proposed changes in the Winter II trip limits in the scup fishery allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. Since this alternative allows for more flexibility to land scup, small positive impacts on other fisheries could occur. The proposed actions will ensure the long-term sustainability of harvests from the summer flounder, scup, and black sea bass stocks.

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

None of the proposed specifications presented in this document are expected to jeopardize the sustainability of any non-target species. The proposed measures are not expected to alter fishing methods or activities. In addition, none of the proposed specifications are expected to increase fishing effort.

In fact, the proposed pot/trap gear modifications in the commercial black sea bass fishery should have a positive biological impact. An increase in the size of the circle vents and an additional vent in the parlor portion of a black sea bass trap may allow for increased escapement of undersized black sea bass, as well as other non-target species.

In addition, the proposed changes in the Winter II trip limits in the scup fishery allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery. Given the mixed species nature of the scup fishery, incidental catch of other species does occur. Since this alternative allows for more flexibility to land scup, small positive impacts on other fisheries could occur.

3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?

The proposed action as described in section 7.0 of the EA is not expected to cause damage to the ocean, coastal habitats, and/or EFH as defined under the Magnuson-Stevens Act and identified in the FMP. In general, bottom-tending mobile gear, primarily otter trawls, have the potential to adversely affect EFH for the species detailed in section 6.2 of the EA. Overall, the measures proposed in this action are expected to have effects ranging from a reduction in adverse effects to

no more than minimal adverse impacts to any EFH associated with the fishing activities managed under the FMP.

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

None of the measures alters the manner in which the industry conducts fishing activities for the target species. Therefore, no changes in fishing behavior that would affect safety are anticipated. The overall effect of the proposed actions on these fisheries, including the communities in which they operate, will not impact adversely public health or safety. NMFS will consider comments received concerning safety and public health issues.

5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

None of the specifications are expected to alter fishing methods or activities. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, this action is not expected to affect endangered or threatened species or critical habitat in any manner not considered in previous consultations on the fisheries. It has been determined that fishing activities conducted under this proposed rule will have no adverse impacts on endangered or threatened species, marine mammals, or their critical habitat.

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

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. This action merely revises the proposed annual commercial quotas and other management measures for 2006, 2007, and 2008 for summer flounder, and 2006 for scup and black sea bass fisheries. None of the specifications are expected to alter fishing methods or activities. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort.

7) Are significant social or economic impacts interrelated with natural or physical environmental effects?

The proposed action is not expected to have a substantial impact on the natural or physical environment. Commercial capture of summer flounder occurs predominately in the Mid-Atlantic mixed trawl fishery; in the Mid-Atlantic mixed trawl, pot/trap, and hock and line fisheries for scup; and in the pot/trap, Mid-Atlantic mixed trawl, and hock and line fisheries for black sea bass. Bottom other trawls have a potential to impact bottom habitat. In addition, a number of non-target species are taken incidentally in the prosecution of these fisheries. However, none of

the specifications are expected to alter fishing methods or activities, or are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, there are no social or economic impacts interrelated with significant natural or physical environmental effects.

8) Are the effects on the quality of the human environment likely to be highly controversial?

The impacts of the proposed measures on the human environment are described in section 7.0 of the EA. The proposed action merely revises the proposed annual commercial quotas and other management measures for the summer flounder (2006, 2007, and 2008), scup (2006), and black sea bass (2006) fisheries. The proposed action is based on measures contained in the FMP which have been in place for many years. In addition, the scientific information upon which the annual quotas are based has been peer reviewed and is the most recent information available. The measures contained in this action are not expected to be highly controversial.

9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

This action merely revises the proposed annual commercial quotas and other management measures for the summer flounder (2006, 2007, and 2008), scup (2006), and black sea bass (2006) fisheries. These fisheries are not known to be prosecuted in any unique areas such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas. Therefore, the proposed action is not expected to have a substantial impact on any of these areas.

10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The impacts of the proposed measures on the human environment are described in section 7.1.4 of the EA. The proposed action merely revises the annual commercial quota, recreational harvest limit, and other management measures for the summer flounder (2006, 2007, and 2008), scup (2006), and black sea bass (2006) fisheries. None of the proposed specifications are expected to alter fishing methods or activities, or are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The measures contained in this action are not expected to have highly uncertain, unique, or unknown risks on the human environment.

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

As discussed in section 7.5, the proposed action is not expected to have individually insignificant, but cumulatively significant impacts. The synergistic interaction of improvements in the efficiency of the fishery are expected to generate positive impacts overall. The proposed

actions, together with past and future actions are not expected to result in significant cumulative impacts on the biological, physical, and human components of the environment.

12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

The impacts of the proposed measures on the human environment are described in section 7.1.4 of the EA. The proposed action merely revises the annual commercial quota, recreational harvest limit, and other management measures for the summer flounder (2006, 2007, and 2008), scup (2006), and black sea bass (2006) fisheries. These summer flounder, scup, and black sea bass fisheries are not known to be prosecuted in any areas that might affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause the loss or destruction of significant scientific, cultural or historical resources. Therefore, the proposed action is not expected to affect on any of these areas.

13) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

This action proposes a commercial quota, a recreational harvest limit, and other management measures for the summer flounder (2006, 2007, and 2008), scup (2006), and black sea bass (2006) fisheries. There is no evidence or indication that these fisheries have ever resulted in the introduction or spread of nonindigenous species. None of the specifications are expected to alter fishing methods or activities. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed specifications would be expected to result in the introduction or spread of a non-indigenous species.

14) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

This action merely revises the proposed annual commercial quotas and other management measures for the summer flounder (2006, 2007, and 2008), scup (2006), and black sea bass (2006) fisheries. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. When new stock assessment or other biological information about these species becomes available in the future, then the annual specifications will be adjusted according to the overfishing definitions contained in the FMP. None of these specification result in significant effects, nor do they represent a decision in principle about a future consideration.

15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

This action proposes a commercial quota, a recreational harvest limit, and other management measures for the summer flounder (2006, 2007, and 2008), scup (2006), and black sea bass (2006) fisheries. None of the specifications are expected to alter fishing methods or activities such that they threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. In fact, the proposed measures have been found to be consistent with other applicable laws (see sections 9.2 - 9.9 below).

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

The impacts of the preferred alternatives on the biological, physical, and human environment are described in section 7.0. The cumulative effects of the proposed action on target and non-target species are detailed in section 7.5 of the EA. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The synergistic interaction of improvements in the efficiency of the fishery through implementation of annual quotas based on the overfishing definitions contained in the FMP are expected to generate positive impacts overall.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for the 2006, 2007, and 2008 summer flounder and 2006 scup and black sea bass fisheries specifications, it is hereby determined that the proposed actions in this specification package will not significantly impact the quality of the human environment as described above and in the Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

_____ _____

Assistant Administrator for Fisheries, NOAA *Date*

9.2 Endangered Species Act

Sections 6.3 and 7.5.4 of the EA should be referenced for an assessment of the impacts of the proposed action on endangered species and protected resources. None of the specifications proposed in this document are expected to alter fishing methods or activities. Therefore, this action is not expected to affect endangered or threatened species or critical habitat in any manner not considered in previous consultations on the fisheries.

9.3 Marine Mammal Protection Act

Sections 6.3 and 7.5.4 of the EA should be referenced for an assessment of the impacts of the proposed action on marine mammals. None of the specifications proposed in this document are expected to alter fishing methods or activities. Therefore, this action is not expected to affect marine mammals or critical habitat in any manner not considered in previous consultations on the fisheries.

9.4 Coastal Zone Management Act

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 Council's 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 Council determined that the action in this specifications package is consistent to the maximum extent practicable with the enforceable provisions of the approved coastal management programs as understood by the Council. This determination was submitted for review by the responsible state agencies on October 11, 2005 under section 307 of the Coastal Zone Management Act. Letters were sent to each of the following states (point of contact in parentheses) within the management unit reviewing the consistency of the proposed action relative to each state's Coastal Zone Management Program: Maine (Kathleen Leyden), New Hampshire (Brian Mazerski), Massachusetts (Joe Pelzarski), Rhode Island (Grover Fugate), Connecticut (Charles Evans), New York (William Barton), New Jersey (Mark Mauriello), Pennsylvania (Lawrence Toth), Delaware (Sarah Cooksey), Maryland (Gwynne Schultz), Virginia (Silvia Gazzera), and North Carolina (Steven Benton).

9.5 Administrative Procedure Act

Sections 551-553 of the Federal Administrative Procedure Act establish procedural requirements applicable to informal rulemaking by federal agencies. The purpose is to ensure public access to the federal rulemaking process and to give the public notice and an opportunity to comment before the agency promulgates new regulations.

The Administrative Procedure Act requires solicitation and review of public comments on actions taken in the development of a fishery management plan and subsequent amendments and framework adjustments. Development of this specifications document provided many opportunities for public review, input, and access to the rulemaking process. This proposed specifications document was developed as a result of a multi-stage process that involved review of the source document (2006 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 Meeting held on July 28, 2005 and during the MAFMC meeting held on August 8-10, 2005 in Philadelphia, Pennsylvania. In addition, the public will have further opportunity to comment on this specifications package once NMFS publishes a request for comments notice in the Federal Register (FR).

9.6 Section 515 (Data Quality Act)

Utility of Information Product

The proposed document includes: A description of the 2006 specifications, the proposed changes to the implementing regulations of the FMP, description of the alternatives considered, and the reasons for selecting the proposed management measures. This action proposes commercial quotas and other management measures for summer flounder, scup, and black sea bass in 2006. This proposed specifications document implements the FMP's conservation and management goals consistent with the Magnuson-Stevens Fishery Conservation and Management Act (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 (2006 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 Meeting held on July 28, 2005 and during the MAFMC meeting held on August 8-10, 2005 in Philadelphia, Pennsylvania.

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 specifications documents, the Council must comply with the requirements of the Magnuson-Stevens Act, the National Environmental Policy Act, the Regulatory Flexibility Act, the Administrative Procedure 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 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas).

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 dealer weighout data for 2004, which was used to characterize the economic impacts of the management proposals. These data, as well as the NMFS Observer program database, were used to characterize historic landings, species co-occurrence in the summer flounder, scup, and black sea bass catch, and discarding. 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. Marine Recreational Fisheries Statistical Survey (MRFSS) data were used to characterize the recreational fishery for these species.

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 in previous specifications and/or FMPs as specified in this document.

The review process for this specifications package involves the Mid-Atlantic Fishery Management Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries headquarters. The Center'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.

9.7 Paperwork Reduction Act

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 businesses, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government. There are no changes to the existing reporting requirements previously approved under this FMP for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

9.8 Impacts of the Plan Relative to Federalism/EO 13132

This specifications document does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order (EO) 13132.

9.9 Environmental Justice/EO 12898

This EO provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." EO 12898 directs each Federal agency to analyze the environmental effects, including human health, economic, and social effects of Federal actions on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA. Agencies are further directed to "identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices."

The proposed actions are not expected to affect participation in the summer flounder, scup, and black sea bass fisheries. Since the proposed action represents no change relative to the current level of participation in these fisheries, no negative economic or social effects are anticipated as a result (section 7.0). Therefore, the proposed action under the preferred alternatives is not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Indian tribes.

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11.0 LIST OF PREPARERS OF THE ENVIRONMENTAL ASSESSMENT

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, Jessica Coakley, and Kathy Collins. Dr. Eric Thunberg (NEFSC) assisted in documenting the analysis of permit data. Scott Steinbeck assisted in documenting demographic/economic information presented in Table 35.

12.0 LIST OF AGENCIES AND PERSONS CONSULTED

In preparing this specifications document, the Council consulted with the NMFS, New England and South Atlantic Fishery Management Councils, Fish and Wildlife Service, and the states of Maine through North Carolina through their membership on the Mid-Atlantic and New England Fishery Management Councils. In addition, states that are members within the management unit were be consulted through the Coastal Zone Management Program consistency process. Letters were sent to each of the following states (point of contact in parentheses) within the management unit reviewing the consistency of the proposed action relative to each state's Coastal Zone Management Program: Maine (Kathleen Leyden), New Hampshire (Chris Williams), Massachusetts (Susan Carter-Snow), Rhode Island (Grover Fugate), Connecticut (Charles Evans), New York (George Stafford), New Jersey (Mark Mauriello), Pennsylvania (Andrew Zemba), Delaware (Sarah Cooksey), Maryland (Gwynne Schultz), Virginia (Charles Ellis), and North Carolina (Stephen Rynas).

In order to ensure compliance with NMFS formatting requirements, the advice of NMFS Northeast Region personnel, including Sarah Thompson, Sarah McLaughlin, Michael Pentony, and Jennifer Anderson was relied upon during document preparation.

REGULATORY IMPACT REVIEW/INITIAL REGULATORY FLEXIBILITY ANALYSIS

1.0 INTRODUCTION

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

the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problems. The purpose of this analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. This RIR addresses many items in the regulatory philosophy and principles of Executive Order (E.O.) 12866.

Also included is an Initial Regulatory Flexibility Analysis (IRFA) to evaluate the economic impacts of the alternatives on small business entities. This analysis is undertaken in support of a more thorough analysis for the commercial specifications for summer flounder, scup, and black sea bass for 2006. The economic analyses presented for the various alternatives are principally for the commercial fishery. While general statements regarding potential changes in the recreational fishery due to changes in recreational harvest limits for summer flounder, scup, and black sea bass are made in this document, the effects of specific recreational management measures (i.e., bag limits, size limits, seasonal closures) will be analyzed when the Council and Board submit recommendations for 2006 recreational measures. The Council and the Board will meet in December 2005 to adopt 2006 recreational management measures, when more complete data regarding 2005 recreational landings are available. A comprehensive document for the recreational specifications for summer flounder, scup, and black sea bass will be prepared after the December Council meeting.

2.0 EVALUATION OF E.O. 12866 SIGNIFICANCE

2.1 Description of the Management Objectives

A complete description of the purpose and need and objectives of this proposed rule is found under section 4.0 of the EA. This action is taken under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and regulations at 50 CFR part 648.

2.2 Description of the Fishery

A description of the summer flounder, scup, and black sea bass fisheries is presented in section 6.0 of the EA. A description of ports and communities that are dependent on summer flounder, scup, and black sea bass is found in section 3.4.2 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent landing patterns among ports are examined in section 6.5.1 of the EA. An analysis of permit data is found in section 6.5.2 of the EA.

2.3 A Statement of the Problem

A statement of the problem for resolution is presented under section 4.0 of the EA.

2.4 A Description of Each Alternative

A full description of the alternatives analyzed in this section and the TAL derivation process is presented in sections 4.0 and 5.0 of the EA. A brief description of each alternative is presented below for reference purposes.

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

The economic benefits of the summer flounder, scup and black sea bass FMP have been evaluated periodically as amendments to the FMP have been implemented to either change the effort reduction schedule or as new species have been added. These analyses have been conducted at the time a major amendment is developed and interim actions (framework adjustments or quota specifications) may be presumed to leave the conclusions reached in the initial benefit-cost analyses unchanged provided the original conservation and economic objectives of the plan are being met. The summer flounder coastwide quota has been implemented since 1993. While in some years overages have occurred in the commercial/and or recreational sectors (section 7.5 of the EA), adjustments have been made to bring overall landings within the quota specifications. Preliminary assessment of the 2005 fishing season indicates that overages will not occur if current landings patterns continue. The fishing mortality rate estimated for 2004 is 0.40, a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.26. In addition, total stock biomass has increased substantially since 1989 to 121 million lb (55 million kg) in 2004, slightly above the current biomass threshold of 117 million lb (53 million kg). Spawning stock biomass has increased each year since 1993 to 85 million lb (39 million kg) in 2004, the highest value in the time series. (1981-2004; section 6.1.2.1 of the EA).

The economic effects of the scup effort reductions were evaluated at the time scup was added to the FMP through Amendment 8. The expected economic benefits and costs for the scup effort reduction were also described in qualitative terms. The scup coastwide quota has been implemented since 1997. While in some years overages have occurred in the commercial/and or recreational sectors (section 7.5 of the EA), adjustments have been made to bring overall landings within the quota specifications. A preliminary assessment of the 2005 fishing season indicates that overages will not occur this year (assuming that overages will not occur in the Summer or Winter II periods). At this time, the plan objectives appear to be met so there is a reasonable expectation that the expected economic benefits of managing scup will not be compromised. The most recent assessment on scup was completed in June, 2002 (35th SARC or Stock Assessment Review Committee). 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 surveys indicated an increase in stock abundance since the mid to late 90's, however,

NEFSC spring survey results indicate that spawning stock has decreased in 2004. Biomass estimates are based on a 3-year average, and the estimate for 2004 is 0.69 kg/tow. This is below the biomass threshold value of 2.77 kg/tow. Therefore, the stock is considered overfished. The spring survey index increased significantly in 2004 to 1.85 kg/tow relative to the low value of 0.15 kg/tow derived in 2003. The 2004 index is the highest value in the spring survey since 1978, excluding the high value in 2002. In 2005, the spring index dropped to 0.10 kg/tow. The winter trawl survey exhibited a similar trend increasing from 0.49 kg/tow in 2003 to 3.82 kg/tow in 2004, and then decreasing in 2005 to 1.96 kg/tow. In 2002 and 2003, the Council and Commission discussed the uncertainty associated with the spring survey estimate for 2002 and decided not to use it in setting the TAC. 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 (section 6.1.2.2 of the EA).

The economic effects of the black sea bass effort reductions were evaluated at the time black sea bass was added to the FMP through Amendment 9. The economic analysis presented at that time was largely qualitative in nature. The coastwide black sea bass quota has only been implemented from 1998 to 2005. While in some years overages have occurred in the commercial/and or recreational sectors (section 7.5 of the EA), adjustments have been made to bring overall landings within the quota specifications. Preliminary assessment of the 2005 fishing season indicates that overages will not occur if current landings patterns continue. At this time, the plan objectives appear to be met so there is a reasonable expectation that the expected economic benefits of managing black sea bass will not be compromised. Because of the potential influence of an 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. In fact, the index for 2002 of 0.799 kg/tow is the highest value in the time series (1968-2002). Although the biomass index declined to 0.493 kg/tow in 2003 and again in 2004 to 0.321 kg/tow, it increased to 0.374 kg/tow in 2005. The 2004 and 2005 indices were above average. The three point moving average based on these survey results for the recent time period has steadily increased from a low of 0.093 kg/tow in 1997 to 0.538 kg/tow in 2003. However, lower survey results in 2004 and 2005 resulted in a three year average value for 2004 of 0.396 kg/tow. The spring survey can also be used as an index of recruitment. The survey, an indicator of age-1 fish, indicates good year classes were produced in 1987, 1989 through 1991, and 1994 and poor year classes in 1992, 1993, and 1995 through 1997. Results for 2000 indicate a strong year class was produced in 1999; the index is 0.661 kg/tow, the highest in the time series. The 2001 year class was good; the index was about four times the average for the period and the third largest value since 1968. Preliminary results indicate an above average year class was produced in 2004. 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 2004 relative to 1996 and 1997 levels. Based on tag recapture models, the F estimated for 2003 was less than 0.26; exploitation rates for 2003 ranged from 15-20%.

However, preliminary F estimates for June 2003 to March 2004 ranged from 0.24 to 0.3 and the SARC working group indicated that "uncertainty remains in the tag reporting rates and may result in under estimated exploitation rates. Also, discard losses in the commercial fisheries were not estimated and remain an uncertain component of the fishery" (section 6.1.2.3 of the EA).

2.6 Analysis of Alternatives

In order to conduct a more thorough socioeconomic analysis, overall impacts of the three species combined were examined. The analyses conducted for all three alternatives examined the measures recommended by the Council for each of the three species combined. For example, for 2006, quota alternative 1 (preferred alternative) would include the three preferred alternatives for summer flounder, scup, and black sea bass combined; quota alternative 2 (most restrictive alternative) would include the three most restrictive alternatives for summer flounder, scup, and black sea bass combined; and quota alternative 3 (least restrictive alternative) would include the three most restrictive alternatives for summer flounder, scup, and black sea bass combined. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries.

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

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

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

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

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

Methodology

For purposes of this analysis, all alternatives will be evaluated under the assumption that the primary measure for achieving the conservation objectives will be through changes in quota levels. All alternatives will be evaluated against a base line. The base line condition provides the standard against which all other alternative actions are compared. In this analysis, the base line condition are the adjusted quotas for 2005. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative versus the fishing opportunities that were in place in 2005. Aggregate changes in fishing opportunities in 2006 (quotas adjusted for overages and research set-asides) versus adjusted quotas for 2005 are shown in Table 28. Overages were determined and deducted appropriately from the upcoming fishing year's quota, e.g., by state for summer flounder, period for scup, or coastwide for black sea bass. In addition, 2006 quotas were also adjusted to account for research set-asides and/or overages for those species. A detailed description of this process is presented in sections 4.3 and 5.0 of the EA. The information presented in Table 28 was used to determine potential changes in landings (i.e., fishing opportunities) associated with the proposed quota levels associated with each of the alternatives evaluated in this analysis.

2.6.1 Quota Alternatives for 2006

2.6.1.1 Quota Alternative 1 (Preferred Alternative)

In this specifications package all management alternatives for scup and black sea bass were analyzed for 2006. Since the Council adopted multi-year specifications for summer flounder alternative 1 (preferred), i.e., a TAL of 26.00 million lb for 2006-2008, this section considers 2007 and 2008 as well. Summer flounder alternatives 2 and 3 only consider single year specifications (2006).

Under alternative 1, the preferred management measures are analyzed for summer flounder, scup, and black sea bass. The assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under the methodology section above also apply here.

Landings - Under the preferred alternative, aggregate landings for summer flounder, scup, and black sea bass are expected to be approximately 14, 2, and 3 percent lower in 2006 relative to 2005 adjusted quota, respectively.

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

Consumer Surplus - Assuming the potential increase in the price of summer flounder, scup, and black sea bass, it is expected that CS associated with these fisheries may decrease.

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

Producer Surplus - If there is a change in the price of summer flounder, scup, and black sea bass, there will be associated changes in PS. The magnitude of the PS change will be associated with the price elasticity of demand for the species in question.

The law of demand states that price and quantity demanded are inversely related. Given a demand curve for a commodity (good or service), the elasticity of demand is a measure of the responsiveness of the quantity that will be taken by consumers giving changes in the price of that commodity (while holding other variables constant). There are several major factors that influence the elasticity for a specific commodity. These factors largely determine whether demand for a commodity is price elastic or inelastic[3]: 1) the number and closeness of substitutes for the commodity under consideration, 2) the number of uses to which the commodity can be put; and 3) the price of the commodity relative to the consumer's purchasing power (income). There are other factors that may also determine the elasticity of demand but are not mention here because they are beyond the scope of this discussion. As the number and closeness of substitutes and/or the number of uses for a specific commodity increase, the demand for the specific commodity will tend to be more elastic. Demand for commodities that take a large amount of the consumer's income is likely to be elastic compared to services with low prices relative to the consumer's income. It is argued that the availability of substitutes is the most important of the factors listed in determining the elasticity of demand for a specific commodity (Leftwich 1973; Awk 1988). Seafood demand in general appears to be elastic. In fact, for most species, product groups, and product forms, demand is elastic (Asche and Bjørndal).

[3] Price elasticity of demand is elastic when a change in quantity demanded is large relative to the change in price. Price elasticity of demand is inelastic when a change in quantity demanded is small relative to the change in price. Price elasticity of demand is unitary when when a change in quantity demanded and price are the same.

For example, an increase in the ex-vessel price of summer flounder may increase PS. A decrease in the ex-vessel price of summer flounder may also increase PS if we assumed that the demand for summer flounder is moderate to highly elastic. However, the magnitude of these changes cannot be entirely assessed without knowing the exact shape of the market demand curve for this species. In all, a decrease in the ex-vessel price of summer flounder, scup, and black sea bass may increase PS if we assumed that the demand for these species is moderate to highly elastic.

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

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

Combined socioeconomic impacts in 2007 and 2008

Assuming that the condition of the scup and black sea bass fisheries do not significantly change in 2007 and 2008 as compared to 2006, then the impacts of the summer flounder quotas in 2007 and 2008 will be similar to those described above.

2.6.1.2 Quota Alternative 2 (Most Restrictive)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under the methodology section also apply here. This alternative evaluates the overall quotas that are most restrictive for summer flounder, scup, and black sea bass among all quotas evaluated.

Landings - Under the most restrictive alternative, aggregate landings for summer flounder, scup, and black sea bass are expected to be approximately 22, 37, and 9 percent lower in 2006 relative to 2005 adjusted quota, respectively.

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

Consumer Surplus - Assuming the potential increase in the price of summer flounder, scup, and black sea bass, it is expected that CS associated with these fisheries may decrease.

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

Producer Surplus - The discussion regarding the effects of elasticity of demand on PS given price changes presented under alternative 1 also applies here. A decrease in the ex-vessel price of summer flounder, scup, and black sea bass may increase PS if we assumed that the demand for these species is moderate to highly elastic.

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

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

2.6.1.3 Quota Alternative 3 (Status Quo/Least Restrictive)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under the methodology section also apply here. This alternative evaluates the overall quotas that are least restrictive for summer flounder, scup, and black sea bass among all quotas evaluated. The overall quotas for these species under this alternative are also the status quo measures.

Landings - Under the least restrictive alternative, aggregate landings for summer flounder are expected to be approximately < 1 percent higher in 2006 relative to 2005. Scup and black sea bass landings are expected to be approximately 1 percent lower in 2006 relative to 2005. Note that even though the summer flounder, scup, and black sea bass quotas are the status quo measure, the 2006 adjusted commercial quotas for these species are slightly different than the adjusted quotas implemented in 2005 due to due to the fat that different research set-asides used to derived the quotas between those two time periods (and/or other adjustments due to overages).

Prices - Given the likelihood that this alternative will result in small changes in landings for these species, it is assumed that there will not be a change in the price for these species.

Consumer Surplus - Assuming that prices behave as stated above, it is expected that there will not be a change in the CS associated with these fisheries.

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

Producer Surplus - Assuming that prices behave as stated above, it is expected that there will not be a change in the PS associated with these fisheries.

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

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

2.6.2 Other Management Measures

In addition to the quota alternatives discussed above, other non-quota management measures are also proposed by the Council and Commission under this specifications package. These measures are fully described in sections 5.0 and 7.0 of the EA. A brief description of the other non-quota preferred alternatives is presented below for reference purposes.

For the summer flounder fishery no changes to the current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will be made for 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery relative to 2005.

For the scup fishery no changes to the current minimum fish size, minimum vent size, minimum mesh size, summer period minimum mesh threshold, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures will be made for 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery relative to 2005. An alternative measure addressing preferred changes in the Winter II possession limit (alternative 4.2a) is discussed below.

For the black sea bass fishery no changes to the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will be made for 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery relative to 2005. An alternative measure addressing preferred changes in the minimum vent size regulations (alternative 4.2b) is discussed below.

Under alternative 4.2a (preferred alternative) the Council and Commission recommended to increase the current Winter II possession limit to 2,000 lb per week. The implementation of this alternative allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery. It is expected that the proposed Winter II possession limit under this alternative will benefit fishermen as it allows for scup that would normally be discarded to be landed, thereby making scup trips more economically viable. In addition, the proposed limit under this alternative (i.e., 2,000 lb per week) will not affect the equitable distribution of the quota over the period compared to the existing possession limit (i.e., 1,500 lb per week). In fact the existing 1,500 lb per week Winter II trip limit constrained the fishery to land approximately 80 and 72 percent of the overall Winter II quota in 2003 and 2004, respectively. The proposed limit under this alternative was chosen as an appropriate balance between the economic concerns of the industry, i.e., landing enough scup to make the trip economically viable and ensuring that the quota extends over the period.

In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 1,500 pound intervals (compared to the current 500 pound intervals) for every 500,000 pounds of scup transferred, i.e., if a million pounds is transferred then the limit should increase by 3,000 pounds. This will allow fishermen for a greater flexibility to land larger amounts of scup when transfer are made from Winter I to Winter II while reducing bycatch and improving the efficiency of the commercial scup fishery. The Winter I landings limit will remain unchanged i.e., 30,000 lb possession limit until 80% of the landings are reached and then the possession limit would drop to 1,000 pounds. This alternative is expected to result in positive economic and social changes compared to the current Winter II possession limit.

Under alternative 4.2b (preferred alternative) the Council and Commission recommended to increase the minimum circle vent size requirements for black sea bass pots/traps would increase to 2 1/2"; requirements of 1 3/8" x 5 3/4" for rectangular vents and 2" for square vents remain unchanged. In addition, 2 vents would be required in the parlor portion of the pot/trap. These requirements would become effective January 1, 2007. Therefore, fishermen would convert their gear over time throughout 2006.

Pots/traps account for a substantial amount of the black sea bass landings. For example, according to VTR data pots/tarps accounted for approximately 36 percent of the total commercial landings for 2004. This gear is fixed at varying depths and hauled to the surface quickly with hydraulic or electric hauler. As a result, fish may experience internal trauma due to changes in pressure and a significant portion may not survive (Rogers *et. al*. 1986). Although many pot/trap fishermen use sorters on deck to release nonmarketable fish, the escape of these fish from traps before they are hauled will significantly increase survival. The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen.

The cost of making the modifications proposed under this alternative will vary depending on the type of pot/trap (e.g., wooden, wire) and the existing features that this type of gear may already have. More specifically, the cost of a 2 1/2" circular vent ranges between $0.40 (Wagner, pers. comm.) to $0.56 (Scott, pers. comm.) per vent. In addition to this, there is an additional labor cost associated with changing vents or adding an additional escape vent. For example, replacing an existing vent in a wire pot/trap will take approximately 10 minutes per pot/trap (Mark Hodges, pers. comm.; Mike Scott, pers. comm.; and Wagner, pers. comm.).

Based on the inputs described above and mean average wage value of $16.09/hour[4], the cost of replacing a circular vent is likely to range between $3.08 and $3.24 for each wire pot/trap. The cost of removing traps from the water to make these modifications is not included here as it is

[4] Private industry mean average earnings for 2003, ME to VA. Source: U.S. Department of Labor Bureau of Labor Statistics National Compensation Survey - Wages http://www.bls.gov/ncs/ocs/compub.htm

assumed that fishermen will make these modifications as they pull traps out of water to conduct customary repairs and maintenance e.g., clean, paint, replace trap components due to wear and tear. It is important to mention that the proposed regulations will become effective January 1, 2007. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of replacing the circular vent is approximately between $1.54 and $1.62 for each wire pot/trap.

On the other hand, fishermen using wood pots/traps typically employ rectangular or square vents (circular vents do not wok well in wood pots/traps because the gear loses integrity), therefore, in order to add an additional vent to comply with the 2 vents requirement under this alternative it will take approximately 10 to 20 minutes per pot/trap. Based on the inputs described above mean average wage value of $16.09/hour, the cost of making the required modifications is likely to be approximately between $2.68 and $5.36 for each wood pot/trap. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of adding an additional trap to a wood pot/trap is approximately between $1.34 and $2.68 for each pot/trap.

It is not possible to calculate how the proposed gear changes will affect the total cost of production for black sea bass pot/trap fishermen for several reasons. First, there is no cost data for pot/trap fishermen available (Andrew Kitts, pers. comm.). Therefore, it is not possible to estimate with certainty how the costs associated with the proposed modifications will affect the overall production cost. Second, many black sea bass pot/trap fishermen use both wire and wood pots/traps and we have no detail data on the number of each type of pot/trap currently in use. Third, many black sea bass fishermen are also fishing for lobster and they already have a circular vent size larger than the one proposed under these measures therefore are not required to make any changes to their pots/traps. Lastly, many fishermen using wood pots/traps build their own gear. The costs associated with constructing wood pots/traps vary from fishermen to fishermen and average construction estimates are not available. However, given that the cost of a wire pot/trap can be in the $60-$65 range per unit, the estimated cost of replacing a circular vent is likely to increase the cost of each wire trap by about 5%. Therefore, if all production costs are considered, the proposed regulations are likely to increase the total production cost by less than 5%. It is also expected that when all production costs are considered, the proposed regulations may increase the production cost for fishermen using wood pots/traps by less than 5%. It is important to mention that the proposed regulations would become effective January 1, 2007. Therefore the annualized costs associated with the proposed regulations are lower than those estimated above. That is, the annualized cost of replacing the circular vent is approximately between $1.54 and $1.62 for each wire pot/trap and the annualized cost of adding an additional vent to each wood pot/trap is approximately between $1.34 to $2.68. This alternative will provide positive economic and social impacts in the long-term as sublegal mortality will be reduced increasing yields and the mature fish in the stock.

Summary of Impacts of Alternatives

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

The impact of each of the regulatory quota alternatives relative to the base year is summarized in Table 29. A "-1" indicates that the level of the given feature would be reduced given the action as compared to the base year. A "+1" indicates that the level of the given feature would increase relative to the base year and a "0" indicates no change. In this analysis, the base line condition is the adjusted quotas for 2005. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative in 2006 versus the fishing opportunities that were in place in 2005.

Quota alternatives for 2006 - The preferred alternative (alternative 1) and the most restrictive alternative (alternative 3) may be expected to have similar overall directional impacts for summer flounder, scup, and black sea bass. However, the magnitude of impacts is expected to be higher under alternative 2 than alternative 1. These alternatives show a potential decrease in the ex-vessel price for summer flounder, scup, and black sea bass, and thus potential decrease in consumer surplus in 2006 relative to the 2005 base year. It is also possible that producer surplus may increase if the demand for these species is moderate to highly elastic. No significant changes in summer flounder, scup, or black sea bass landings are expected under alternative 3. Thus, no changes in prices, producer surplus or consumer surplus are expected under the least restrictive alternative (alternative 3).

In total, no changes in the competitive nature of these fisheries are expected to occur if any of these management measures are implemented in 2006. All the alternatives would maintain the competitive structure of the fishery, that is, there are no changes in the manner the quotas are allocated by region, period, or state from the base year. However, large reductions in quota levels from year to year may affect vessels differently due to their capability to adjust to quota changes.

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

Since empirical models describing the elasticities of supply and demand for these species is not available, we cannot determine with certainty the impact of changes in landings on prices, consumer surplus, or producer surplus. Therefore, in order to assess the potential net benefits of each of the combined quota alternatives, changes in ex-vessel gross revenues associated with each alternative were estimated. More specifically, combined changes in landings for summer

flounder, scup, and black sea bass in 2006 relative to the 2005 base year were derived to assess the potential changes in fishing opportunities between these two time periods. Potential changes in landings (i.e., fishing opportunities) for summer flounder, scup, and black sea bass were then multiplied by the overall 2004 ex-vessel price for each species to derive changes in net revenues which are used as a proxy for changes in net benefits. NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. The ex-vessel price for summer flounder, scup, and black sea bass in 2004 was estimated at $1.59/lb, $0.60/lb, and $1.54/lb, respectively. The aggregate percent change in landings in 2006 for summer flounder, scup, and black sea bass relative to the base year is presented in Table 28. The overall change in gross revenue in 2006 relative to 2005 is an approximate reduction of $4.37, $9.34, and $0.02 under alternatives 1, 2, and 3, respectively. These changes in revenues assume that the overall quota for each species will be taken in 2006, the constant ex-vessel price (static prices) for each species presented above, and that the overall quota for summer flounder, scup, and black sea bass will be taken in 2005. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

The changes in gross revenues indicate that in alternative 3 will provide the smallest net benefit loss followed by alternatives 1 and 2 in 2006. While alternative 3 provides the largest net benefits among all the evaluated alternative, it was not chosen as the preferred alternative because it does not meet the overall recovery objectives of the FMP. Alternative 1 (preferred) on the other hand establishes required commercial landings limits that address the general goals of the FMP. It is important to mention that the estimated benefits derived above are likely to correspond to the upper/lower limits due to the fact that in deriving those values it was assumed that all available commercial TALs would be harvested and constant 2004 ex-vessel prices.

It is important to mention that although the commercial measures that are evaluated in this specification package are for 2006 only, these measures could have potential cumulative impacts. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages. Section 7.5 of the EA has a detailed description or historical account or cumulative impacts of the measures established in previous years. This information is important because it allows for the evaluation of projected results from the implementation of specific management measures versus actual results.

The current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations for summer flounder; the current minimum fish size, minimum vent size, minimum mesh size, summer period minimum mesh threshold, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures for scup; and the current minimum fish size, minimum mesh regulations, and minimum mesh threshold for black sea bass will remain unchanged. As such,

these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2006 relative to 2005. However, in addition to the suite of preferred commercial quota alternatives, an increase in the Winter II possession limit for scup and an increase in the vent size for black sea bass are also being considered.

The preferred Winter II possession limit will increase the current Winter II possession limit from 1,500 lb per week to 2,000 lb per week. The implementation of this alternative allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and making scup trips more economically viable. In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 1,500 pound intervals (compared to the current 500 pound intervals) for every 500,000 pounds of scup transferred, i.e., if a million pounds is transferred then the limit should increase by 3,000 pounds. This will allow fishermen for a greater flexibility to land larger amounts of scup when transfer are made from Winter I to Winter II while reducing bycatch and improving the efficiency of the commercial scup fishery.

The preferred vent size alternative for black sea bass would increase the current circular vent size for pots/traps from 2 3/8" in diameter to 2 1/2" in diameter (requirements for rectangular and square vents remain unchanged). In addition, 2 vents would be required in the parlor portion of the pot/trap. These requirements would become effective January 1, 2007. The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen. The cost of replacing a circular vent is likely to range between $3.08 and $3.24 for each wire pot/trap. It is important to mention that the proposed regulations will become effective January 1, 2007. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of replacing the circular vent is approximately between $1.54 and $1.62 for each wire pot/trap. The cost of making modifications (adding an additional vent) to wood pots/traps is likely to be approximately between $2.68 and $5.36 for each wood pot/trap. The annualized cost of adding an additional trap to a wood pot/trap is approximately between $1.34 and $2.68 for each wire pot/trap. As previously stated, it is not possible to calculate how the proposed gear changes will affect the total cost of production for black sea bass pot/trap fishermen. However, it is possible that estimated cost of making the required vent modification is likely to increase the production costs by less than 5%. Furthermore, this alternative would allow for a reduction in the discard of undersized fish thus improving the efficiency of the commercial scup fishery relative to the status quo minimum mesh.

The proposed action does not constitute a significant regulatory action under E.O. 12866 for the following reasons. First, it will not have an annual effect on the economy of more than $100 million. The total value of all commercial landings of these species combined is approximately $39.0 million. Based on preliminary unpublished NMFS dealer data from Maine to Virginia, and South Atlantic unpublished General Canvass for North Carolina, the 2004 total commercial value for summer flounder was estimated at $27.4 million from Maine to North Carolina, and at $5.4 million and $6.2 million for scup and black sea bass from Maine to Cape Hatteras, NC,

respectively. As estimated above, assuming 2004 ex-vessel prices and the potential change in landings due to the adjusted quotas in 2006 relative to the adjusted 2005 quotas, the overall reduction in gross revenue under the preferred alternative would be $4.37 million in 2006 relative to 2005. The preferred alternative, and other non-quota measures, being considered by this action are necessary to advance the recovery of summer flounder, scup and black sea bass stocks, and to establish the harvest of these species at sustainable levels. The action benefits in a material way the economy, productivity, competition and jobs. The action will not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. Second, the action will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the summer flounder, scup or black sea bass fisheries in the EEZ. Third, the actions will not materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of their participants. And, fourth, the actions do not raise novel, legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

3.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

3.1 Introduction and Methods

The Regulatory Flexibility Act (RFA) requires the federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. In reviewing the potential impacts of proposed regulations, the agency must either certify that the rule "will not, if promulgated, have a significant economic impact on a substantial number of small entities." A determination of substantial depends on the context of the proposed action, the problem to be addressed, and the structure of the regulated industry. Standards for determining significance are discussed below. Negative economic impacts are anticipated as a result of this action due to quota decrease in the summer flounder (14 percent), scup (2 percent) and black sea bass (3 percent) fisheries contained in the preferred alternative. An IRFA was prepared to further evaluate the economic impacts of the three quota alternatives and other non-quota measures (i.e., gear requirements and possession limits) on small business entities. This analysis is undertaken in support of a more thorough analysis for the 2006 commercial specifications for fishing for summer flounder, scup, and black sea bass.

3.1.1 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 4.0 of the EA. A statement of the problem for resolution is presented under section 4.0 of the EA.

3.1.2 The Objectives and legal basis of the Proposed Rule

A complete description of the objectives of this proposed rule is found under section 4.0 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.

3.1.3 Estimate of the Number of Small Entities

The potential number of small entities that may be affected by the proposed rule is presented below.

3.1.4 Reporting Requirements

There are no changes to the existing reporting requirements previously approved under this FMP for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

3.1.5 Conflict with Other Federal Rules

This action does not duplicate, overlap, or conflict with other federal rules.

A description of the summer flounder, scup, and black sea bass fisheries is presented in section 6.0 of the EA and section 3.0 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. A description of ports and communities that are dependent on summer flounder, scup, and black sea bass is found in section 3.4.2 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. An analysis of permit data is found in section 6.5.2 of the EA. A full description of the alternatives analyzed in this section and the TAL derivation process is presented in sections 4.0 and 5.0 of the EA. A brief description of each alternative is presented below for reference purposes.

The Small Business Administration (SBA) defines a small business in the commercial fishing and recreational fishing activity, as a firm with receipts (gross revenues) of up to $3.0 and $5.0 million, respectively. The proposed measures regarding the 2006 summer flounder, scup, and black sea bass quotas could affect any vessel holding an active federal permit for summer flounder, scup, or black sea bass as well as vessels that fish for any one of these species in state waters. Data from the Northeast permit application database shows that in 2004 there were 2,162 vessels that were permitted to take part in the summer flounder, scup, and/or black sea bass fisheries (both commercial and charter/party sectors). These permitted vessels may be further categorized depending upon which permits or combinations of permits that were held (section 6.5.2 of the EA). Table 5 reports the number of vessels for all possible combinations of permits. For example, the proposed possession limits for scup could potentially affect all scup permit holders. However, active participants are more likely to be affected in the near term. All permitted vessels readily fall within the definition of small business.

Since all permit holders may not actually land any of the three species the more immediate impact of the rule may be felt by the 906 commercial vessels that are actively participating in these fisheries (Table 30). An active participant was defined as being any vessel that reported having landed one or more pounds of any one of the three species in the Northeast dealer data during calendar year 2004. The dealer data covers activity by unique vessels that hold a federal permit of any kind and provides summary data for vessels that fish exclusively in state waters. This means that an active vessel may be a vessel that holds a valid federal summer flounder, scup, or black sea bass permit; a vessel that holds a valid federal permit but no summer flounder, scup or black bass permit; a vessel that holds a federal permit other than summer flounder, scup, or black sea bass and fishes for those species exclusively in state waters; or may be vessel that holds no federal permit of any kind. Of the four possibilities the number of vessels in the latter two categories cannot be estimated because the dealer data provides only summary information for state waters vessels and because the vessels in the last category do not have to report landings. Of the active vessels reported in Table 30, about 221 commercial vessels did not hold a valid federal permit for summer flounder, scup, or black sea bass during calendar year 2004. Note that in a manner similar to that of Table 5 these active vessels are also reported by all possible combinations of reported landings.

In this IRFA, the primary unit of observation for purposes of performing a threshold analysis is vessels that participated in any one or more of the three fisheries (summer flounder, scup, and black sea bass) during calendar year 2004, irrespective of their current permit status. Not all landings and revenues reported through the federal dealer data can be attributed to a specific vessel. Vessels without federal permits are not subject to any federal reporting requirements with which to corroborate the dealer reports. Similarly, dealers that buy exclusively from state waters only vessels and have no federal permits, are also not subject to federal reporting requirements. Thus, it is possible that some vessel activity cannot be tracked with the landings and revenue data that are available. Thus, these vessels cannot be included in the threshold analysis, unless each state was to report individual vessel activity through some additional reporting system - which currently does not exist. This problem has two consequences for performing threshold analyses. First, the stated number of entities subject to the regulation is a lower bound estimate, since vessels that operate strictly within state waters and sell exclusively to non-federally permitted dealers cannot be counted. Second, the portion of activity by these uncounted vessels may cause the estimated economic impacts to be over- or underestimated.

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

In order to conduct a more thorough socioeconomic analysis, overall impacts of the three species combined were examined. The analyses conducted for all three alternatives examined the measures recommended by the Council for each of the three species combined. For example, for 2006, quota alternative 1 (preferred alternative) would include the three preferred alternatives for summer flounder, scup, and black sea bass combined; quota alternative 2 (most restrictive alternative) would include the three most restrictive alternatives for summer flounder, scup, and black sea bass combined; and quota alternative 3 (least restrictive alternative) would include the three most restrictive alternatives for summer flounder, scup, and black sea bass combined. Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the vessels active in these fisheries participate in more than one or even all three of these fisheries.

Procedurally, the economic effects of the quota alternatives were estimated using five steps. First, the Northeast dealer data were queried to identify all vessels that landed at least one or more pounds of summer flounder, scup, or black sea bass in calendar year 2004. The fact that individual owners' business organization may differ from one another is reflected in the different combinations of species landed by these vessels. Thus, for purposes of the threshold analysis, active vessels were grouped into seven classes or tiers (Table 30) based on combinations of summer flounder, scup and black sea bass landings. In this manner, the original universe of vessels is treated as seven distinct "sub-universes" with a separate threshold analysis conducted for each. Note that the States of Connecticut and Delaware report canvas (summary) data to NMFS, so landings and revenues by individual vessels cannot be included. Thus, vessels that land exclusively in those states cannot be analyzed. Vessels that land in these, plus other states, are analyzed - but landings and revenues represent only that portion of business conducted in states other than Connecticut and Delaware. It is presumed that the impacts on vessels that cannot be identified will be similar to the participating vessels that are analyzed herein.

The second step was to estimate total revenues from all species landed by each vessel during calendar year 2004. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since 2004 is the last full year from which data are available (partial year data could miss seasonal fisheries), it was chosen as the base year for the analysis. That is, partial landings data for 2005 were not used in this analysis because the year is not complete. As such, 2004 data were used as a proxy for 2005.

The third step was to deduct or add, as appropriate, the expected change in vessel revenues depending upon which of the three quota alternatives were evaluated. This was accomplished by estimating proportional reductions or increases in the three quota alternatives for 2006 for all three species versus the base quota year 2005. Landings to date, overages, and research set-aside estimates were employed to adjust the 2006 quotas. For the purpose of estimating the 2006 quotas and revenue changes, the following assumptions were made: a) that the states with overages at the time of the analysis will harvest no additional summer flounder, and that the industry will fully harvest, and not exceed, the remaining 2005 state allocations; b) that no additional summer flounder overages will occur in 2005; c) that the black sea bass and scup

quotas will be fully harvested and not to exceed the 2005 allocation; and d) that the entire summer flounder, scup, and black sea bass quota allocations will be taken in 2006. Detailed description of the 2006 quota derivation process (accounting for overages and research set-asides) is presented in sections 4.0 and 5.0 of the EA.

The fourth step was to compare the estimated 2006 revenues from all species to the 2005 base revenues for every vessel in each of the classes to assess potential changes. For each quota alternative a summary table was constructed that report the results of the threshold analysis by class when necessary. These results were further summarized by home state as defined by permit application data when appropriate.

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

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

Based on these criteria, a total of 27 counties were identified to be impacted in 2006: New London, CT; Sussex, DE; Worcester, MD; Barnstable, Bristol, Dukes, and Suffolk, MA; Cape May, Monmouth, and Ocean, NJ; Nassau, New York, and Suffolk, NY; Beaufort, Carteret, Craven, Dare, Hyde, and Pamlico, NC; Pennsylvania, PA; Newport, and Washington, RI; Accomac, City of Hampton, City of Newport News, Virginia Beach City, and City of Norfolk, VA. Counties not included in this analysis (e.g., Essex and Nantucket, MA; Atlantic, NJ; Poquoson City, VA) did not have enough impacted vessels to meet the criteria specified, i.e., there were less than 4 impacted vessels per county, or all impacted vessels in a state were not home ported within the same county.

It should be noted that the county profiles are intended to characterize the relative importance of commercial fishing and fishing related industries in the home-counties. As such, the county profiles provide a link to the social impacts described in the socioeconomic impacts sections in section 7.5.6 of the EA, but are not intended to be a substitute for that analysis. The target counties were identified based on the county associated with the vessels homeport as listed in the owner's 2004 permit application.

Counties are typically selected as the unit of observation because a variety of secondary economic and demographic statistical data were available from several different sources. Limited data are available for place names (i.e., by town or city name) but in most instances reporting is too aggregated or is not reported due to confidentiality requirements. Reported statistics include demographic statistics, employment, and wages. In addition, a description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in section 3.4.2 of Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent landings patterns among ports is examined in section 6.5.1 of the EA.

4.0 DESCRIPTION OF QUOTA ALTERNATIVES

All quota alternatives considered in this IRFA are based on three harvest levels for each of the species (a high, medium, and low level of harvest). Aggregate changes in fishing opportunities in 2006 (quotas adjusted for overages and research set-asides) versus adjusted quotas for 2005 are shown in Table 28). A full description of the alternatives analyzed in this section and the TAL derivation process is presented in sections 4.0 and 5.0 of the EA.

4.1 Quota and Non-Quota Alternatives for 2006

Under this section, the summer flounder, scup, and black sea bass quota alternatives for 2006 are analyzed.

Alternative 1 includes the harvest levels recommended for summer flounder, scup, and black sea bass on vessels that are permitted to catch any of these three species. Harvest levels were recommended to achieve the target fishing mortality or exploitation rates specified in the rebuilding schedule for each species. In addition to the proposed TALs for summer flounder, scup, and black sea bass, the Council and Board approved the continuation of the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations; the continuations of the current minimum fish size, minimum vent size, minimum mesh size, summer period minimum mesh threshold, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures for scup; and the continuation of the current minimum fish size, minimum mesh regulations, and minimum mesh threshold for black sea bass for 2006.

For the scup fishery, an alternative measure addressing preferred changes in the Winter II possession limit (alternative 4.2a) was approved by the Council and Board for 2006. In addition,

an alternative measure addressing preferred changes in the black sea bass minimum vent size regulations (alternative 4.2b) was also approved for 2006.

A detailed description of all of these measures (quota and non-quota measures) for the three species was presented under section 5.0 of the EA. A brief discussion and impact of these measures is presented in section 5.1 below. Under alternative 1, the summer flounder and scup TALs selected by the Council and Commission are identical to the TALs recommended by the monitoring committee.

Alternative 2 includes the most restrictive possible harvest levels, i.e., those that would result in the greatest reductions in landings (relative to 2005) for summer flounder, scup, and black sea bass. This alternative includes non-selected alternatives for all three species.

Alternative 3 includes the least restrictive possible harvest levels, i.e., those that would result in the least reductions (or greatest increases) in landings (relative to 2005) for all species. The quotas under this alternative are the status quo quotas for all three species. These limits resulted in the highest possible landings for 2006, regardless of their probability of achieving the biological targets. This alternative includes non-selected alternatives for all three species.

5.0 ANALYSES OF IMPACTS OF ALTERNATIVES

For the purpose of analysis of the following alternatives, several assumptions must be made. First, average revenue changes noted in this analysis are made using 2004 dealer data and participation. In addition to this, 2004 permit files were used to describe permit holders in these fisheries. It is important to mention that revenue changes for 2006 are dependent upon previous landings and overages. Overages were determined and deducted appropriately from the upcoming fishing year's quota, e.g., by state for summer flounder, period for scup, or coastwide for black sea bass. In addition, 2006 quotas were also adjusted to account for research set-asides. A detailed description of this process is presented in sections 4.3 and 5.0 of the EA.

For the analyses themselves, reductions are estimated by examining the total revenue earned by an individual vessel in 2004, and comparing it to its potential revenue in 2006, given the changes in fishing opportunity (harvest levels) from 2005 to 2006. Generally, the percent of a vessel's revenue reduction varies considerably based on the permits it holds (i.e., based on the fisheries in which it was able to participate) and species it landed. Diversity in the fleet helps to balance loss in one fishery with revenue generated from other fisheries. Lastly, it is important to keep in mind that while the analyses are based on landings for federally permitted vessels only, those vessels may be permitted to, and frequently do, fish in state waters for a species of fish for which it does not hold a federal permit.

5.1 Quota and Non-Quota Alternatives for 2006

In this section management the 2006 measures for summer flounder, scup, and black sea bass are discussed.

5.1.1 Quota Alternative 1 (Preferred)

In this specifications package all management alternatives for scup and black sea bass were analyzed for 2006. Since the Council adopted multi-year specifications for summer flounder alternative 1 (preferred), i.e., a TAL of 26.00 million lb for 2006-2008, this section considers 2007 and 2008 as well. Summer flounder alternatives 2 and 3 only consider single year specifications (2006).

This alternative examines the impacts on industry that would result from the preferred harvest levels for summer flounder, scup, and black sea bass. To analyze the economic effects of this alternative, the total harvest levels specified under section 5.0 of the EA were employed. Alternative 1 contains adjusted commercial quotas of 15.38, 11.94, 3.83 million lb for summer flounder, scup, and black sea bass, respectively. This alternative also specifies adjusted recreational landings limits of 10.26, 4.14, and 3.99 million lb for flounder, scup, and black sea bass, respectively.

Under this alternative, the summer flounder specifications would result in an aggregate 14 percent decrease in both allowable commercial landings and harvest limit relative to the 2005 allocations (Tables 27 and 31). The scup specifications would result in an aggregate 2 percent decrease in allowable commercial landings and a 5 percent increase in the recreational harvest limit relative to the 2005 allocations (Tables 27 and 32). The black sea bass specifications would result in an aggregate 3 percent decrease in both allowable commercial landings and recreational harvest limit relative to the 2005 allocations (Tables 27 and 33).

5.1.1.1 Commercial Impacts

The results of the threshold analysis are presented in Table 16. The analysis of the harvest levels under this alternative indicate that the economic impacts ranged from expected revenue losses in the order of < 5 percent for 208 vessels that landed all combinations of summer flounder, scup, and/or black sea bass (except fluke only) to ≥ 50 percent for 2 vessels that landed fluke only (Table 16). In total, 698 vessels are projected to incur revenue reduction of ≥ 5 percent. More specifically, 108 vessels are projected to incur revenue reductions in the order of 5-9 percent; 573 vessels are projected to incur revenue reductions in the order of 10-19 percent; 13 vessels are projected to incur revenue reductions in the order of 20-29 percent; 3 vessels are projected to incur revenue reductions in the order of 40-49 percent; and 2 vessels are projected to incur revenue reductions in the order of ≥ 50 percent.

Given that a large number of vessels are projected to incur large revenue reduction under the analysis conducted above, Council staff further examined the level of ex-vessel revenues for the impacted vessel to assess further impacts. For example, according to dealer data, it was estimated that 100 percent of the vessels (5 vessels) projected to incur revenue reductions of ≥ 40 percent had total gross sales (all possible species combined not just summer flounder, scup, and black sea bass) of less than $1,000. Further more, 22% (24 vessels) of the 108 vessels projected to incur revenue losses of 5-9 percent had total gross sales of approximately $1,000 or less; 31% (176 vessels) of the 573 vessels projected to incur revenue losses of 10-19 percent had total gross sales of approximately $1,000 or less; and 17% (2 vessels) of the 12 vessels projected to incur revenue losses of 20-29 percent had total gross sales of approximately $1,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (698) are likely to be impacted with revenue reductions of more than 5 percent, a large proportion of those vessels (207 or 30 percent) had small gross sales (less than 1,000), thus likely indicating that the dependence on fishing is very small.

Impacts of the quotas provisions were examined relative to a vessel's home state as reported on the vessel's permit application (Table 17). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of < 5 percent by home state ranged from none in New Hampshire, to 25 in both New York and New Jersey. The number of vessels with revenue reduction of > 5 percent, ranged from 2 vessels in Delaware to 157 vessels in Massachusetts.

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

The majority of the revenue losses of 5 percent or higher are attributed to quota reductions associated with the summer flounder fishery. Most vessels with revenue losses of 5 percent or higher had landed summer flounder only, or a combination of summer flounder with the other two species. Since there is a number of vessels that could experience large revenue reductions under this alternative, additional analysis regarding these vessels is presented below (e.g., evaluation of permit status, geographic distribution of permitted vessel).

Of the 698 vessels showing revenue reduction of ≥ 5 percent, 558 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 558 vessels holding various combinations of summer flounder, scup, and black sea bass permits are described in Table 18. It is most common for vessels to have permits for all 3 species and summer flounder only permits.

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

The majority of the 558 vessels with federal permits for summer flounder, scup and/or black sea bass have home ports in Massachusetts, Rhode Island, New York, New Jersey, and North Carolina. The principal ports of landing for these vessels are mainly located in Massachusetts, Rhode Island, New York, New Jersey, and North Carolina as well (Table 20).

Although the summer flounder quota is allocated to the individual states, vessels are not necessarily constrained to land in their home state. It is useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. Thus, of the various states home-porting vessels projected to have revenue reductions in the ≥ 5 percent range, vessels in those states are likely to land in their home port state (50-100 percent, excluding Pennsylvania; Table 20). This information is important because impacts will occur both in the community of residence and in the community where the vessel's catch is landed and sold.

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

Most commercial vessels showing revenue reductions in the ≥ 5 percent range are concentrated in Massachusetts, Rhode Island, New York, New Jersey, and North Carolina (Table 21). Within these states, the most impacted counties are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Washington and Newport counties in Rhode Island; Suffolk and New York City counties in New York; Ocean, Cape May, and Monmouth counties in New Jersey; and Pamlico, Carteret, and Dare counties in North Carolina. Some individual ports with large numbers of impacted vessels (10 or more) in these counties are: New Bedford (Bristol county) and Boston (Suffolk county) in Massachusetts; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; Montauk (Suffolk county) and New York (New York City county) in New York; Barnegat Light (Ocean county), Cape May (Cape May county), and Belford (Monmouth county) in New Jersey; and Beaufort (Carteret county), Wanchese (Dare county), and Oriental (Pamlico county) in North Carolina. Other ports with a large number of impacted

vessels (10 or more) are: Stonington (New London county in CT), Fairhaven (Bristol county in MA); Other (Suffolk county in NY); Newport News and Norfolk (City of Newport News and City of Norfolk counties, respectively, in VA). If communities having larger numbers of impacted vessels also have a larger total numbers of vessels, the proportion that may be impacted thus may be lower. This effect may mitigate the impacts on the community as a whole.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles were constructed. The profile is based on impacts under the most restrictive possible alternative. It is important to mention that since alternative alterative 2 is the most restrictive alternative, impacts of other alternatives will be less than the impacts under this alternative. The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Reported statistics including demographic statistics, employment, and wages for these counties is presented in section 6.1 of the RIR/IRFA. In addition, a description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent landing patterns among ports are examined in section 6.5.1 of the EA.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bass -- $1.54/lb), the 2006 quotas associated with the preferred alternative would decrease summer flounder, scup, and black sea bass revenues by approximately $3.98, $0.17, and $0.22 million, respectively, relative to the quota implemented in 2005.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with the preferred alternative is distributed equally among the 765 vessels that landed summer flounder in 2004, the average decrease in revenue associated with the decrease in summer flounder quota is approximately $5,203/vessel. Assuming the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally among the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in the scup quota is approximately $394/vessel. Finally, if the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally among the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is approximately $387/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2006 relative to quotas implemented in 2005 is approximately $4.37 million (assuming 2004 ex-vessel prices) under the preferred alternative. If this is distributed among the 906 vessels that

landed summer flounder, scup, and black sea bass in 2004, the average decrease in revenue is approximately $4,823/vessel. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2006 versus 2005 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

Overall, the projected decrease in landings in 2006 under this alternative will likely result in revenue reduction for these species. However, it is possible that given the potential decrease in summer flounder, scup, and black sea bass, price for these species may increase holding all other factors constant. If this occurs, an increase in the price for summer flounder, scup, and black sea bass may mitigate some of the revenue reductions associated with lower quantities of quota availability under this alternative.

It is important to stress that these changes as well as those described under the other alternatives represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to possession limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2005 for quota overages in 2005 that were not accounted for here.

5.1.1.2 Recreational Impacts

Landing statistics from the last several years show that recreational summer flounder landings have generally exceeded the recreational harvest limits, ranging from 5 percent in 1993 to 122 percent in 2000. In 1994, 1995, summer flounder landings were below the recreational harvest limit by approximately 20 percent for both years combined. In 2002 recreational landings were approximately 8 percent (1.71 million lb) below the limit for that year. In 2003, recreational landings were 11.64 million lb, exceeding the limit for that year by approximately 2.4 million lb (25 percent). In 2004, recreational landings were 0.45 million lb (4 percent) below the limit for that year (Table 31).

Under this alternative, the summer flounder 2006 recreational harvest limit (adjusted for research set-aside) is 10.26 million lb. Thus, the harvest limit in 2005 would represent a decrease of approximately 14 percent (1.72 million lb) from the 2005 limit. If recreational landings are the same in 2005 as in 2004 (10.76 million lb), the adjusted recreational harvest limits will not constrain recreational landings in 2006. As such, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) be required to prevent anglers from exceeding the recreational harvest limit in 2006. Specific recreational management measures will be determined in December when recreational landings for 2005 are more complete. Such measures may result in a decrease in recreational satisfaction relative to 2005. At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer

flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures may lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely that these measures will result in any substantive decreases in the demand for party/charter boat trips. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch.

Scup recreational landings have declined over 89 percent for the period 1991 to 1998, then increased by 517 percent from 1998 to 2000 (Table 32). The number of fishing trips has also declined over 86 percent from 1991 to 1998, and then increased by 316 percent from 1998 to 2000. The decrease in the recreational fishery in the 1990s occurred both with and without any recreational harvest limits, and it is perhaps a result of the stock being over-exploited and at a low biomass level during that period. 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 in the 1990s. Recreational landings decreased from 5.44 million lb in 2000 to 3.62 million lb in 2002 (e.g., a 33 percent decrease). In 2003, recreational landings increased to 9.33 million lb (158 percent) and then decreased to 4.38 million lb (53 percent) in 2004. Under this alternative, the scup 2006 recreational harvest limit (adjusted for research set-aside) is 4.14 million lb. Thus, the harvest limit in 2006 would represent an increase of approximately 5 percent from the 2005 recreational limit.

Black sea bass recreational fishing trips have shown a slight upward trend from the early to Mid-1990's (Table 33). Black sea bass recreational landings have also shown a slight upward trend from 1991 to 1997. However, landings decreased considerably from 1995-1996 to 1998-1999, but then substantially increased in 2000 to 4.01 million lb. In 2001, 2002, 2003, and 2004 recreational landings were 3.42, 4.35, 3.29, and 1.94 million lb, respectively. Under this alternative, the black sea bass 2006 recreational harvest limit (adjusted for research set-aside) is 3.99 million lb. Thus, the harvest limit in 2005 would represent a decrease of 3 percent from the 2005 recreational harvest limit. If 2005 landings are the same as the 2004 or 2003 landings (1.94 and 3.29 million lb, respectively), more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) are not necessary to prevent anglers from exceeding this recreational harvest limit in 2006.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend for the 1990 to 2004 time period. On average, for the 1990-2004 period, approximately 22 million marine

recreational fishing trips (all modes combined) were taken in the North Atlantic and Mid-Atlantic subregions combined. For that period, marine recreational trips ranged from 18 million trips in 1992 to 30 million trips in 2001. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2004 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. On average, for the 1990-2004 period, 1.7 million party/charter marine fishing trips were taken in the North Atlantic and Mid-Atlantic sub-regions combined. In 2002, 2003, and 2004 1.3, 1.5, and 1.6 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined, respectively.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed summer flounder management measures may restrict the recreational fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season), there is no indication that any of these measures may lead to a decline in the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. It is unlikely that these measures will result in any substantive decreases in the demand for party/charter boat trips. It is likely that party/charter anglers will target other species when faced with potential reductions in the amount of summer flounder that they are allowed to catch.

As indicated in the introduction to the RIR/IRFA, the effects of the specific recreational management measures (i.e., bag limits, size limits, seasonal closures) for summer flounder, scup, and black sea bass will be analyzed when the Council and Board submit recommendations for 2006 recreational measures. The Council and the Board will meet in December 2005 to adopt 2006 recreational management measures, when more complete data regarding 2005 recreational landings are available. A comprehensive document for the recreational specifications for summer flounder, scup, and black sea bass will be prepared after the December Council meeting.

5.1.1.3 Other Impacts

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

For the summer flounder fishery no changes to the current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will be made for 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery relative to 2005.

For the scup fishery no changes to the current minimum fish size, minimum vent size, minimum mesh size, summer period minimum mesh threshold, Winter I possession limit, the transfer of

unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures will be made for 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery relative to 2005.

For the black sea bass fishery no changes to the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will be made for 2006. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery relative to 2005.

Effects of the proposed scup Winter II possession limit

Under alternative 4.2a (preferred alternative), the Council and Commission recommended to change the current Winter II possession limits in the scup fishery from 1,500 lb per week to a possession limit of 2,000 lb. It is expected that the proposed Winter II possession limit under this alternative will benefit fishermen as it allows for scup that would normally be discarded to be landed, thereby making scup trips more economically viable. This measure is likely to result in positive biological and socioeconomic impacts to the stock as it allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery. A description of the impacts of the preferred scup Winter II possession limit is presented in section 7.2.5 of the EA.

Effects of the proposed black sea bass vent size regulations

Under alternative 4.2b (preferred alternative), the Council and Commission recommended to increase the minimum circle vent size requirements for black sea bass pots/traps to 2 1/2"; requirements of 1 3/8" x 5 3/4" for rectangular vents and 2" for square vents remain unchanged. In addition, 2 vents would be required in the parlor portion of the pot/trap. These requirements would become effective January 1, 2007. Therefore, fishermen would convert their gear over time throughout 2006. A description of the impacts of the preferred black sea bass vent size regulations is presented in section 7.3.5 of the EA.

The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen.

The cost of making the modifications proposed under this alternative will vary depending on the type of pot/trap (e.g., wooden, wire) and the existing features that this type of gear may already have. As it was indicated in section 7.3.5, the cost of replacing a circular vent is likely to range between $3.08 and $3.24 for each wire pot/trap. It is important to mention that the proposed regulations will become effective January 1, 2007. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the

annualized cost of replacing the circular vent is approximately between $1.54 and $1.62 for each wire pot/trap.

On the other hand, for fishermen using wood pots/traps, the cost of making the required modifications is likely to be approximately between $2.68 and $5.36 for each wood pot/trap. As such, if a fisherman makes modifications to half of his/her pots/traps this year (2005) and to the remaining other half next year (2006), the annualized cost of adding an additional trap to a wood pot/trap is approximately between $1.34 and $2.68 for each wire pot/trap.

As it was extensively discussed in section 7.3.5**,** it is not possible to calculate how the proposed gear changes will affect the total cost of production for black sea bass pot/trap fishermen. However, given the assumptions described in section 7.3.5**,** if all production costs are considered, the proposed regulations are likely to increase the total production cost by a less than 5%.

This alternative will provide positive economic and social impacts in the long-term as sublegal mortality will be reduced increasing yields and the mature fish in the stock.

Effects of the research set-aside

Under this program, successful applicants receive a share of the annual quota for the purpose of conducting scientific research. The Nation receives a benefit in that data or other information about that fishery are obtained for management or stock assessment purposes. In fisheries where the entire quota is taken and the fishery is prematurely closed (i.e., the quota is constraining), the economic and social costs of the program are shared among the non research set-aside participants in the fishery. That is, each participant in a fishery that utilizes a resource that is limited by the annual quota relinquishes a share of the amount of quota retained in the research set-aside quota.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.1, 7.2.1, and 7.3.1 were based on adjusted commercial quotas accounting for the research set-aside proposed under this alternative. More specifically, a maximum research set-aside of 355,762 lb (213,457 lb commercial and 142,305 lb recreational), 184,690 lb (137,084 lb commercial and 49,422 lb recreational), and 178,956 lb (87,688 lb commercial and 91,268 lb recreational) for summer flounder, scup, and black sea bass, respectively, were assumed. A summary of the scope of work for 2006 Mid-Atlantic research set-aside projects is presented in Appendix C. This description includes project name, description and duration, amount of set-aside requested, and gear to be used to conduct the various projects.

Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bass -- $1.54/lb), the 2006 research set-aside for the commercial component of the fishery could be worth as much as $339,397 for summer flounder, $82,250 for scup, and $135,040 for black sea bass. As such, the research set-asides could result in a potential decrease in revenue of approximately $444, $190, and $237 per individual vessel in the summer flounder, scup, and

black sea bass fishery, respectively, relative to commercial quotas without RSA in place. These values assume an equal decrease in revenue among all active vessels in 2004, i.e., 765, 432, and 569 commercial vessels that landed summer flounder, scup, and black sea bass, respectively. The adjusted commercial quotas analyzed in section 7.1, 7.2, and 7.3 account for the research set-asides (as described in sections 4.3 and 5.0 of the EA). If research set-asides are not used the landings would be put back into the overall TAL for each fishery. As such, the estimated economic impacts would be smaller than those estimated under each alternative.

Changes in the recreational harvest limit will be insignificant; the limit changes from 10.40 to 10.26 million lb (a 1.3 percent decrease) in for summer flounder; from 4.19 million lb to 4.14 million lb (a 1.2 percent decrease) for scup; and from 4.08 million lb to 3.99 million lb (a 2.2 percent decrease) for black sea bass in 2006 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this research set-aside, and there will be no negative impacts.

In addition, it is possible that the vessels that will be used by researchers will not be vessels that have traditionally fished for summer flounder, scup, and/or black sea bass. As such, permit holders that land these species during a period where the quota has been reached and the fishery closed could be disadvantaged.

Research set-aside Impacts on GRAs for Scup, Black Sea Bass, and Loligo

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

NMFS implemented the current GRAs in 2001 based on a recommendation of the Council and Commission. These GRAs regulate the use of otter trawls with codend mesh less than 4.5" in areas and times that were identified as having high scup discards. Current specific areas and times include a northern GRA from November 1 to December 31 and a southern GRA from January 1 to March 15 (Appendix B). The Council proposed to continue the GRAs in 2006. Current regulations prohibit fishing for *Loligo* squid, black sea bass, and silver hake in the GRAs using mesh smaller than 4.5" during the effective times.

Analyses conducted to support these GRAs, indicate that these areas and times were associated with high levels of scup discards. As such, fishing with small mesh in these areas could mitigate the effects of the GRAs, thereby increasing the discards of scup relative to quotas without research set-aside. However, given the level of the research set-aside, the effects on scup discards and mortality should be minimal. In addition, because landings of the regulated species count against the overall quotas for each species, the overall mortality level does not change relative to the no action alternative.

The social and economic impacts of this research should be minimal. The set-aside could be worth as much as $182,250, $135,040, and $205,768 dockside for scup, black sea bass and *Loligo* squid based on 2004 prices, respectively. Assuming an equal reduction among all active vessels (i.e., 432, 569, and 340 commercial vessels that landed scup, black sea bass, and *Loligo* in 2004, respectively), this may mean a reduction of $190, $237, and $605 per individual vessel, for scup, black sea bass, and *Loligo*, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. It is also possible that the vessels used by researchers to conduct the research are vessels that have not traditionally fished for these species. As such, some minimal distributive effects may result as permit holders that would have landed these species could be disadvantaged. If research set-asides are not used and are put back into the overall TAL for each fishery, then the estimated economic impacts would be smaller than those estimated in threshold analyses presented in this section.

Combined socioeconomic impacts in 2007 and 2008

Assuming that the condition of the scup and black sea bass fisheries do not significantly change in 2007 and 2008 as compared to 2006, then the impacts of the summer flounder quotas in 2007 and 2008 will be similar to those described above.

5.1.1.4 Summary of Impacts

In sum, the proposed 2006 adjusted commercial quotas in preferred alternative 1 for summer flounder, scup, and black sea bass for the year 2006 are 14, 2, and 3 percent lower, respectively, relative to the adjusted quotas for year 2005. The recreational harvest limits (adjusted for research set-asides) in preferred alternative 1 for summer flounder, scup, and black sea bass for the year 2006 are 14 percent lower, 5 percent higher, and 3 percent lower relative to the adjusted recreational harvest limits for year 2005. The commercial quotas and recreational harvest limits selected as the preferred alternative were chosen because they provide for the maximum level of commercial and recreational landings, yet still achieve the fishing mortality and exploitation rates specified in the FMP.

The analysis of the harvest levels under this alternative indicate that the economic impacts ranged from expected revenue losses in the order of < 5 percent for 208 vessels that landed all combinations of summer flounder, scup, and/or black sea bass (except fluke only) to 698 vessels that are projected to incur revenue reduction of ≥ 5 percent. While in relative terms a large number of vessels (698) are likely to be impacted with revenue reductions of more than 5 percent, a large proportion of those vessels (207 or 30 percent) had small gross sales (less than 1,000), thus likely indicating that the dependence on fishing is very small.

Assuming 2004 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2006 versus 2005, the 2006 quotas in alternative 1 (after overages and research set-aside have been applied) would decrease summer flounder, scup, and black sea bass revenues by

approximately $3.98, $0.17, and $0.22 million, respectively, relative to the quota implemented in 2005.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with the preferred alternative is distributed equally among the 765 vessels that landed summer flounder in 2004, the average decrease in revenue associated with the decrease in summer flounder quota is approximately $5,203/vessel. Assuming the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally among the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in the scup quota is approximately $394/vessel. Finally, if the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally among the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is approximately $387/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2006 relative to quotas implemented in 2005 is approximately $4.37 million (assuming 2004 ex-vessel prices) under the preferred alternative. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2004, the average decrease in revenue is approximately $4,823/vessel. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2006 versus 2005 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

It is important to stress that these are potential changes, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to possession limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2006 for quota overages that were not accounted for here. These commercial quotas were identified as the preferred alternative because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize commercial landings to the extent practicable.

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. The recreational harvest limits chosen under alternative 1 were selected by the Council and Commission because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding objectives specified in the FMP for summer flounder, scup and black sea bass, and because they maximize recreational landings to the extent practicable. These limits are not expected to produce a decline in the demand for party/charter boat trips or affect angler participation in a negative manner.

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations for summer flounder; the current minimum fish size, minimum vent size, minimum mesh size, summer period minimum mesh threshold, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures for scup; and the current minimum fish size, minimum mesh regulations, and minimum mesh threshold for black sea bass will remain unchanged. As such, these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2006 relative to 2005.

The proposed Winter II possession limit is expected to benefit fishermen as it allows for scup that would normally be discarded to be landed, thereby making scup trips more economically viable. This measure is likely to result in positive biological and socioeconomic impacts to the stock as it allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery.

The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen. The cost of making the modifications proposed under this alternative will vary depending on the type of pot/trap (e.g., wooden, wire) and the existing features that this type of gear may already have. However, if all production costs are considered, the proposed regulations are likely to increase the total production cost by a less than 5%.

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

Alternative 1 was selected as the preferred alternative because it provides harvest levels that will attain the rebuilding objectives specified in the FMP. This alternative is projected to minimize the negative economic impacts upon small entities when compared to alternative 2 while meeting the rebuilding objectives of the FMP.

5.1.2 Quota Alternative 2 (Most Restrictive)

This alternative examines the impacts on industry that would result from the most restrictive harvest levels for summer flounder, scup, and black sea bass. To analyze the economic effects of this alternative, the total harvest levels specified under section 5.0 of the EA were employed.
Alternative 2 contains adjusted commercial quotas of 13.94, 7.65, 3.59 million lb for summer flounder, scup, and black sea bass, respectively. This alternative also specifies adjusted recreational landings limits of 9.30, 2.93, and 3.73 million lb for flounder, scup, and black sea bass, respectively.

Under this alternative, the summer flounder specifications would result in an aggregate 22 percent decrease in both allowable commercial landings and harvest limit relative to the 2005 allocations (Tables 27 and 31). The scup specifications would result in an aggregate 37 percent decrease in allowable commercial landings and a 26 percent decrease in the recreational harvest limit relative to the 2005 allocations (Tables 27 and 32). The black sea bass specifications would result in an aggregate 3 percent decrease in both allowable commercial landings and recreational harvest limit relative to the 2005 allocations (Tables 27 and 33). Again, this alternative makes the same assumptions about landings as are made in the previous analyses.

5.1.2.1 Commercial Impacts

The results of the threshold analysis are reported in Table 22. The analysis of the harvest levels under this alternative indicate that all vessels will incur in revenue losses of ≥ 5 percent. Since Alterative 2 is the most restrictive alternative, impacts of other alternatives will be less than the impacts under this alternative.

As with cumulative impacts under alternative 1 (section 7.5.6), it is likely that a large proportion of the impacted vessels are likely to have small gross sales (less than $1,000), thus indicating that their dependence in fishing is likely very small.

Impacts of the quotas provisions were examined relative to a vessel's home state as reported on the vessel's permit application (Table 23). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of > 5 percent by home state ranged from 3 in New Hampshire to 180 in Massachusetts.

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

Of the 906 vessels showing revenue reduction of ≥ 5 percent, 684 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 684 vessels holding various combinations of summer flounder, scup, and black sea bass permits are described in Table 24. It is most common for vessels to have permits for all 3 species and summer flounder only.

Many of the vessels projected to have revenue reductions of ≥ 5 percent hold permits in other fisheries (Table 25). In particular, most vessels have bluefish, dogfish, squid-mackerel-butterfish, and skate. As a result, they have access to some alternative fisheries, although some like multispecies, dogfish, and scallops, are already under heavy regulation and likely to have increasingly stringent catch limits for the near future.

The majority of the 684 vessels with federal permits for summer flounder, scup and/or black sea bass have home ports in Massachusetts, New York, New Jersey, Rhode Island, and North Carolina. The principal ports of landing for these vessels are mainly located in Massachusetts, New York, New Jersey, Rhode Island, and North Carolina New York as well (Table 26).

Although the summer flounder quota is allocated to the individual states, vessels are not necessarily constrained to land in their home state. It is useful, therefore, to examine the degree to which vessels from different states make it a practice to land in states other than their home state. Thus, of the various states home-porting vessels projected to have revenue reductions in the ≥ 5 percent range, vessels in those states are likely to land in their home port state (66-100 percent; Table 26). This information is important because impacts will occur both in the community of residence and in the community where the vessel's catch is landed and sold.

The largest vessels are found in Connecticut, Massachusetts, North Carolina, New Jersey, Pennsylvania, and Virginia (Table 26). Larger vessels often have more options than smaller vessels, due to increased range and more deck space for alternative gear configurations. This can help them to respond to cuts in quota in particular states. They also, however, need larger volumes to remain profitable.

Most commercial vessels showing revenue reductions in the ≥ 5 percent range are concentrated in Massachusetts, New York, New Jersey, Rhode Island, and North Carolina (Table 27). Within these states, the most impacted counties are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Suffolk and New York City counties in New York; Ocean, Cape May, and Monmouth counties in New Jersey; Washington and Newport counties in Rhode Island; and Pamlico, Dare, and Carteret counties in North Carolina. Some individual ports with large numbers of impacted vessels (10 or more) in these counties are: New Bedford and Fairhaven (Bristol county), Boston (Suffolk county), and Chatham (Barnstable county) in Massachusetts; New York (New York City county) and Montauk (Suffolk county) in New York; Cape May (Cape May county), Barnegat Light (Ocean county), Belford (Monmouth county), and Point Pleasant (Ocean county) in New Jersey; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; and Wanchese (Dare county), Beaufort (Carteret county), and Oriental (Pamlico county) in North Carolina. Other ports with a large number of impacted vessels (10 or more) are: Stonington (New London county in CT), Ocean City (Worcester county in Maryland); Other (Suffolk county in NY); Norfolk and Newport News (City of Norfolk and City of Newport News counties, respectively, in VA). If communities having larger numbers of impacted vessels also have a larger total numbers of vessels, the proportion that may be impacted thus may be lower. This effect may mitigate the impacts on the community as a whole.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles were constructed. The profile is based on impacts under the most restrictive possible alternative. The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Reported statistics including demographic statistics, employment, and wages for these counties is presented in section 6.1 of the RIR/IRFA. In addition, a description of important ports and communities to the summer flounder, scup, and black sea bass fisheries is presented in Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass FMP. Recent landings patterns among ports is examined in section 6.5.1 of the EA.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bas --$1.54/lb), the 2006 quotas associated with alternative 2 would approximately decrease summer flounder, scup, and black sea bass ex-vessel revenues by approximately $6.28 million, $2.75 million, and $0.31 million relative to the quota implemented in 2005, respectively.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with alternative 2 is distributed equally between the 765 vessels that landed summer flounder in 2004, the average decrease in revenue associated with the decrease in summer flounder quota is $8,209/vessel. Assuming the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally between the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in scup quota is $6,366/vessel. Finally, if the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally between the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is $545/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2006, relative to 2005, is approximately $9.34 million (assuming 2004 ex-vessel prices) under alternative 2. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2004, the average decrease in revenue is approximately $10,309/vessel. The changes in gross revenues associated with the potential changes in quotas in 2006 versus 2005 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

5.1.2.2 Recreational Impacts

Under this alternative, the summer flounder recreational harvest limit (adjusted for research set-aside) is 9.30 million lb. This limit represents a 22 percent decrease from the 2005 recreational harvest limit (Table 31). The scup recreational harvest limit (adjusted for research set-aside) for 2006 would be set equal to 2.93 million lb. This is a 26 percent decrease over the 2005 recreational harvest limit (Table 32). Finally, this alternative would set the black sea bass recreational harvest limit (adjusted for research set-aside) for 2005 at 3.73 million lb. This level represents a 10 percent decrease from the 2005 recreational harvest limit (Table 33).

Recreational landings for all three fisheries have fluctuated over the past several years. The number of trips targeting a given species in any given year is quite variable. In the aggregate, total number of recreational trips (all modes combined) in the North Atlantic and Mid-Atlantic subregions combined have remained relatively stable with a slight downward trend for the 1990 to 2004 time period. On average, for the 1990-2004 period, approximately 22 million marine recreational fishing trips (all modes combined) were taken in the North Atlantic and Mid-Atlantic subregions combined. For that period, marine recreational trips ranged from 18 million trips in 1992 to 30 million trips in 2001. In addition, the number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined have fluctuated throughout the 1990-2004 period, ranging from 2.6 million trips in 1993 to 1.1 million trips in 1999. On average, for the 1990-2004 period, 1.7 million party/charter marine fishing trips were taken in the North Atlantic and Mid-Atlantic sub-regions combined. In 2002, 2003, and 2004 1.3, 1.5, and 1.6 million party/charter boat trips were taken in the North Atlantic and Mid-Atlantic subregions combined, respectively.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. In the summer flounder, scup, and black sea bass fisheries, there is no mechanism to deduct overages directly from the recreational harvest limit. Any overages must be addressed by way of adjustments to the management measures. While it is likely that proposed management measures may restrict the recreational fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season) compared alternative 1.

5.1.2.3 Other Impacts

The impacts of non-quota management measures described in section 5.1.1.3 above also apply here.

5.1.2.4 Summary of Impacts

Alternative 2 allows commercial fishermen to land significantly lower quantities of summer flounder, scup, and black sea bass in 2006 versus 2005. Recreational harvest limits would also be significantly reduced relative to the 2005 limits.

The analysis of the harvest levels under this alternative indicate that all vessels will incur in revenue losses of ≥ 5 percent.

Assuming 2004 ex-vessel prices and the effect of potential changes in prices due to changes in landings in 2006 versus 2005, the 2006 quotas in alternative 2 (after overages and research set-aside have been applied) would decrease summer flounder, scup, and black sea bass ex-vessel revenues by approximately $6.28 million, $2.75 million, and $0.31 million relative to the quota implemented in 2005, respectively.

If the decrease in summer flounder total ex-vessel gross revenues associated with alternative 2 is distributed equally between the 765 vessels that landed summer flounder in 2004, the average decrease in revenue associated with the decrease in summer flounder quota is $8,209/vessel. If the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally between the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in scup quota is $6,366/vessel. If the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally between the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is $545/vessel. However, it is important to mention that the changes in gross revenues associated with the potential changes in landings in 2006 versus 2005 assumed static prices (i.e., 2004) for summer flounder, scup, and black sea bass.

The total harvest levels for summer flounder, scup, and black sea bass analyzed under this alternative is more conservative than those presented in alternative 1 (preferred). More specifically, the commercial summer flounder, scup, and black sea bass harvest levels (after overages and research set-aside have been applied) under this alternative are approximately 1.4, 4.3, and 0.2 million lb lower than the limits specified under alternative 1, respectively. While these measures may present an improved probability of attaining the rebuilding objectives specified in the FMP, the negative economic impacts upon small entities are significantly higher than under alternative 1. Therefore, this alternative was not selected because of the potential adverse economic impacts associated with it.

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations for summer flounder; the current minimum fish size, minimum vent size, minimum mesh size, summer period minimum mesh threshold, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures for scup; and the current minimum fish size, minimum mesh regulations, and minimum mesh threshold for black sea bass will remain unchanged. As such, these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2006 relative to 2005.

The proposed Winter II possession limit is expected to benefit fishermen as it allows for scup that would normally be discarded to be landed, thereby making scup trips more economically

viable. This measure is likely to result in positive biological and socioeconomic impacts to the stock as it allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery.

The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen. The cost of making the modifications proposed under this alternative will vary depending on the type of pot/trap (e.g., wooden, wire) and the existing features that this type of gear may already have. However, if all production costs are considered, the proposed regulations are likely to increase the total production cost by a less than 5%.

Recreational landings for all three fisheries under this alternative are substantially lower than those implemented in 2005. It is possible that the proposed limits under this alternative will restrict the fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season) compared alternative 1.

The social and economic impacts of research set-asides should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. However, given the substantial decrease in the quotas in 2006 relative to 2005 for all three species, the cost of any premature closure of the fishery (pounds of summer flounder, scup, and black sea bass allocated for set-aside) would be shared among the non research set-aside participants in the fishery.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to possession limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2006 for quota overages in 2005 that were not accounted for here.

5.1.3 Quota Alternative 3 (Status Quo/Least Restrictive)

This alternative examines the impacts on industry that would result from the least restrictive harvest levels for summer flounder, scup and black sea bass. The harvest levels under this alternative are status quo harvest levels. To analyze the economic effects of this alternative, the total harvest levels specified under section 5.0 of the EA were employed. Alternative 3 contains adjusted commercial quotas of 17.96, 12.12, 3.93 million lb for summer flounder, scup, and black sea bass, respectively. This alternative also specifies adjusted recreational landings limits of 11.98, 4.20, and 4.09 million lb for flounder, scup, and black sea bass, respectively.

Under this alternative, the summer flounder specifications would result in a <1 percent increase in allowable commercial landings and near identical recreational harvest limit relative to the 2005 allocations (Tables 27 and 31). The scup specifications would result in an aggregate < 1

percent decrease in allowable commercial landings relative to the 2005 quota and a 6 percent increase in recreational harvest relative to the 2005 limit (Tables 27 and 32). The black sea bass specifications would result in an aggregate 1 percent decrease in both allowable commercial landings and recreational harvest limit relative to the measures specified for 2005 (Tables 27 and 33). Again, this alternative makes the same assumptions about landings as are made in the previous analyses.

Even though the overall 2006 TAL for summer flounder, scup, and black sea bass under this alternative are the same as in 2005, the adjusted commercial quotas and recreational harvest limits are slightly different than the allocations implemented in 2005 mainly due to differences in the research set-asides used to derive adjusted allocations during those two time periods.

5.1.3.1 Commercial Impacts

The result of the analysis for this alternative indicates that across all vessel classes, a total of 372 vessels were projected to be impacted by revenue increase (relative to 2005). In addition, 30 vessels were projected to incur revenue losses of more than 5 percent and 504 vessels were projected to incur revenue losses of less than 5 percent relative to 2005 (Table 34). All vessels projected to incur revenue losses of more than percent had landed summer flounder only, or a combination of summer flounder with the other two species.

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. NMFS dealer data from Maine to Virginia and NMFS general canvass data for North Carolina were used to derive the ex-vessel price for summer flounder from Maine to North Carolina, and for scup and black sea bass from Maine to Cape Hatteras, North Carolina. Assuming 2004 ex-vessel prices (summer flounder -- $1.59/lb; scup -- $0.60/lb; and black sea bass -- $1.54/lb), the 2006 quotas associated with alternative 3 would increase summer flounder revenue by $0.11 and decrease in scup and black sea bass revenues by $0.07 million and $0.06 million, respectively, relative to the quota implemented in 2005.

Assuming the increase in summer flounder total ex-vessel gross revenues associated with alternative 3 is distributed equally between the 765 vessels that landed summer flounder in 2004, the average increase in revenue associated with the increase in summer flounder quota is $144/vessel. Assuming the decrease in scup total gross revenues associated with this alternative is distributed equally between the 432 vessels that landed scup in 2004, the average decrease in revenue associated with the decrease in scup quota is $162/vessel. Finally, if the decrease in black sea bass total gross revenues associated with this alternative is distributed equally between the 569 vessels that landed black sea bass in 2004, the average decrease in revenue associated with the decrease in black sea bass quota is $105/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2006, relative to 2005, is approximately $0.02 million (assuming 2004 ex-vessel prices) under

alternative 3. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2004, the average decrease in revenue is approximately $22/vessel. The changes in gross revenues associated with the potential changes in quotas in 2006 versus 2005 assumed static prices for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

The projected decrease in ex-vessel gross revenues associated with this alternative is lower than those associated with alternative 1 (preferred) and 2 (most restrictive). While this alternative is projected to minimize the negative economic impacts upon small entities when compared to alternatives 1 and 2, the commercial quotas are not as restrictive as necessary to achieve the 2006 target exploitation rates for these species.

5.1.3.2 Recreational Impacts

As indicated above, the summer flounder and black sea bass recreational limits for 2006 are almost identical to the limits implemented in 2005. For scup, the 2006 limits are approximately 6 percent higher than the limit implemented in 2005 for that species.

At the present time, there is neither behavioral nor demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. Given that the proposed management measures under this alternative are not expected to restrict the recreational summer flounder, scup, or black sea bass fisheries for 2006 relative to 2005, it is not anticipated that restrictive measures would be required under this alternative. It is not anticipated that these measures will result in decrease in the demand for party/charter boat trips or affect angler participation in a negative manner.

5.1.3.3 Other Impacts

The impacts of non-quota management measures described in section 5.1.1.3 above also apply here.

5.1.3.4 Summary of Impacts

Alternative 3 allows commercial fishermen to land more summer flounder, scup, and black sea bass than alternatives 1 (preferred) and 2 (most restrictive). Recreational limits for summer flounder and black sea bass are near identical to the limits implemented in 2005 and the scup recreational limits is approximately 6 percent higher than the 2005 limit for that species.

The threshold analysis indicates that total of 372 vessels were projected to be impacted by revenue increase (relative to 2005), that 30 vessels were projected to incur revenue losses of more than 5 percent; and that 504 vessels were projected to incur revenue losses of less than 5

percent. All vessels projected to incur revenue losses of more than percent had landed summer flounder only, or a combination of summer flounder with the other two species.

Assuming 2004 x-vessel prices and the effect of potential changes in quotas in 2006 versus 2005 the 2006 quotas in alternative 3 (after overages and research set-aside have been applied) would increase summer flounder by $0.11 million and decrease scup and black sea bass ex-vessel revenues by $0.07 and $0.06 million, respectively, for a total net revenue decrease of $0.02 million.

If the change (increase or decrease) in total ex-vessel gross revenues associated with alternative 3 is distributed equally among the vessels landed these species in 2004, the average increase in revenue in the summer flounder fishery is $144/vessel and the average decrease in revenues in the scup and black sea bass fisheries are $162 and $105/vessel, respectively. However, it is important to mention that the changes in gross revenues associated with the potential changes in landings in 2006 versus 2005 assumed static prices (i.e., 2004) for summer flounder, scup, and black sea bass. However, if prices for these species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated above.

These measures under this alternative would allow for significant larger overall harvest levels for summer flounder, scup, and black sea bass when compared to alternatives 1 (preferred) and 2 (most restrictive). The harvest levels under this alternative have a lower probability of achieving the rebuilding goals of the FMP when compared to alternatives 1 and 2. Therefore, while this alternative may mitigate the impacts on small entities, it does not comport with the fishing mortality and exploitation rates specified in the FMP. While the economic benefits associated from this alternative are higher than those described under the preferred alternative, it was not chosen because it does not meet the overall recovery objectives of the FMP.

Under this alternative, the current minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations for summer flounder; the current minimum fish size, minimum vent size, minimum mesh size, summer period minimum mesh threshold, Winter I possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures for scup; and the current minimum fish size, minimum mesh regulations, and minimum mesh threshold for black sea bass will remain unchanged. As such, these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2006 relative to 2005.

The proposed Winter II possession limit is expected to benefit fishermen as it allows for scup that would normally be discarded to be landed, thereby making scup trips more economically viable. This measure is likely to result in positive biological and socioeconomic impacts to the stock as it allows for regulatory discards of scup to be converted into landings, thus reducing bycatch and improving the efficiency of the commercial scup fishery.

The proposed vent regulations under this alternative will likely allow to increase escapement of sub-legal fish and thus, reducing the number of undersized fish that are killed by pot/trap fishermen. The cost of making the modifications proposed under this alternative will vary depending on the type of pot/trap (e.g., wooden, wire) and the existing features that this type of gear may already have. However, if all production costs are considered, the proposed regulations are likely to increase the total production cost by a less than 5%.

Recreational landings for all three fisheries under this alternative are not substantially lower than those implemented in 2005. It is not expected that the proposed limits under this alternative will restrict the fishery for 2006, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season) when compared to 2005.

The social and economic impacts of research set-asides should be minimal. The research set-asides are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the research set-asides are expected to yield important long-term benefits associated with improved data upon which to base management decisions. However, given the substantial decrease in the quotas in 2006 relative to 2005 for all three species, the cost of any premature closure of the fishery (pounds of summer flounder, scup, and black sea bass allocated for set-aside) would be shared among the non research set-aside participants in the fishery.

It is important to stress that these changes represent merely the potential, i.e., based on available data. Actual changes in revenue will likely vary. This variation would occur for several reasons, including impacts undetermined for unidentifiable vessels, revenues earned or lost due to possession limits and seasons set by a state to manage sub-allocations of quota, and unanticipated reductions in 2006 for quota overages in 2005 that were not accounted for here.

The proposed TAL under this alternative would result in the greatest short-term economic benefic relative to alternatives 1 and 2. However, the TAL under this alternative are not realistic. As such, it they result in an exploitation rate that most likely will exceed the targets for 2006. If these targets are exceeded, the rebuilding of these stocks would be slowed.

6.0 OTHER IMPACTS

6.1 County Impacts

For the reasons specified in section 3.1 of this RIR/IRFA, the economic impacts on vessels of a specified home port were analyzed on a county wide basis. As stated in section 3.1, this profile of impacted counties was based on impacts under various alternatives evaluated. Counties included in the profile had to meet the following criteria:
- the number of vessels with revenue loss exceeding 5 percent per county was either greater than 4, or
- all vessels with revenue loss exceeding 5 percent in a given state were from the same home county.

The results of these analyses are summarized below. The most restrictive alternative (alternative 2) in 2006 was used to assess impacted counties. A total of 27 counties were identified to be impacted in 2006: New London, CT; Sussex, DE; Worcester, MD; Barnstable, Bristol, Dukes, and Suffolk, MA; Cape May, Monmouth, and Ocean, NJ; Nassau, New York, and Suffolk, NY; Beaufort, Carteret, Craven, Dare, Hyde, and Pamlico, NC; Pennsylvania, PA; Newport, and Washington, RI; Accomac, City of Hampton, City of Newport News, Virginia Beach City, and City of Norfolk, VA. Counties not included in this analysis (e.g., Essex and Nantucket, MA; Atlantic, NJ; Poquoson City, VA) did not have enough impacted vessels to meet the criteria specified, i.e., there were less than 4 impacted vessels per county, or all impacted vessels in a state were not home ported within the same county.

Table 35 details population, employment personal income and the contribution of commercial fishing and sea food processing to total personal income for selected counties (counties impacted under alternative 2 in 2006). Counties presented in Table 36 correspond to the counties identified as impacted (>= 4 vessels with revenue loss exceeding 5 percent per county) due to the management measures evaluated (i.e., as described in the above paragraph). Data presented in Table 35 were obtained from data bases supplied by the Minnesota IMPLAN Group for the calendar year 2001.

Of the counties identified in Table 36, the percentage of total personal income derived from commercial fishing sales and from seafood processing was less than 1% for all counties. These data indicate that each of the identified counties in Table 36 is not substantially dependent upon sales of commercial fishing products to sustain the county economies. Population in these counties ranged from 6 thousand in Hyde County to 1.5 million in New York County.

TABLES

Table 1. Statistical areas that accounted for at least 5 percent of the summer flounder, scup, or black sea bass catch in 2004, NMFS VTR data (A map showing the location of these statistical areas is presented in Figure 1).

Statistical Area	Summer Flounder (percent)	Scup (percent)	Black Sea Bass (percent)
622	17.45	16.32	22.69
626	14.02	1.59	9.88
616	10.92	24.43	8.43
537	10.42	5.00	2.32
612	8.42	2.79	1.27
621	7.38	1.61	16.84
613	5.85	11.85	5.27
539	4.56	11.63	3.11
611	3.57	13.37	2.64
538	2.78	4.39	6.65

Table 2. Statistical areas that accounted for at least 5 percent of the summer flounder, scup, or black sea bass trips in 2004, NMFS VTR data (A map showing the location of these statistical areas is presented in Figure 1).

Statistical Area	Summer Flounder (percent)	Scup (percent)	Black Sea Bass (percent)
611	19.66	46.74	18.08
613	16.51	14.74	15.20
539	14.10	15.65	17.54
612	12.80	3.40	9.30
538	8.11	10.23	9.00
537	8.05	3.54	6.11
621	4.06	0.14	6.03
616	3.63	2.42	5.17

Table 3. Top ports of landing (in pounds) for summer flounder (FLK), scup (SCP), and black sea bass (BSB), based on NMFS 2004 dealer data. Since this table includes only the "top ports," it may not include all of the landings for the year. Note: C = Confidential

Port	Landings of FLK (lb)	# FLK Vessels	Landings of SCP (lb)	# SCP Vessels	Landings of BSB (lb)	# BSB Vessels
PT. JUDITH, RI	2,028,088	123	1,072,318	109	173,027	115
HAMPTON, VA	1,753,228	52	179,437	17	69,567	27
WANCHESE, NC	1,351,637	50	303,825	18	125,515	33
PT. PLEASANT, NJ	1,290,715	29	705,582	23	86,432	29
BEAUFORT, NC	1,152,796	23	8,290	6	25,529	17
NEWPORT NEWS, VA	1,008,189	38	106,052	9	63,609	13
ENGELHARD, NC	911,723	16	152,134	5	79,936	13
CHINCOTEAGUE, VA	910,378	44	133,878	9	55,158	15
BELFORD, NJ	876,151	22	125,519	11	7,968	22
ORIENTAL, NC	860,187	19	17,174	3	17,581	12
NEW BEDFORD, MA	707,699	130	341,988	40	53,429	34
MONTAUK, NY	662,560	54	789,057	31	60,751	50
HAMPTON BAY, NY	598,005	41	260,269	34	72,281	43
CAPE MAY, NJ	520,924	66	806,993	23	284,282	32
NEWPORT, RI	286,528	38	638,862	30	39,317	33
OCEAN CITY, MD	267,817	19	47,200	4	245,868	18
STONINGTON, CT	202,562	21	153,344	17	4,639	14
VANDEMERE, NC	177,378	5	0	0	C	1
NANTUCKET, MA	138,394	12	25,185	12	353	4
OTHER PAMLICO, NC	110,620	3	C	1	3,370	3
WOODS HOLE, MA	109,708	21	20,127	16	6,234	15
OTHER BARNSTABLE, MA	105,065	13	100,482	12	46,389	10
AMMAGANSETT, NY	65,622	6	122,130	5	1,392	4
LITTLE COMPTON, RI	60,910	14	1,002,837	15	45,987	10
CHATHAM, MA	23,255	15	136,423	15	17,243	16
BAYBORO, NC	C	2	0	0	0	0

Table 4. MRFSS preliminary estimates of 2004 recreational harvest (numbers of fish kept) and total catch (numbers of fish) for summer flounder (FLK), scup (SCP) and black sea bass (BSB).

State	FLK Harvest (# of fish kept)	FLK Catch (# of fish caught)	SCP Harvest (# of fish kept)	SCP Catch (# of fish caught)	BSB Harvest (# of fish kept)	BSB Catch (# of fish caught)
NH	0	193	0	0	0	346
MA	284,302	673,367	1,796,765	2,696,933	101,236	159,654
CT	217,872	584,416	554,348	936,379	14,987	26,180
RI	286,478	578,597	870,897	1,366,982	51,573	89,938
NY	941,997	3,607,654	1,564,902	4,060,919	102,071	593,207
NJ	1,803,289	8,816,922	112,132	353,349	1,017,549	3,576,235
DE	120,588	958,573	1,129	4,183	109,299	548,066
MD	67,856	1,045,063	6,951	29,747	185,383	855,904
VA	571,951	4,072,604	8,942	79,360	54,954	1,376,894
NC	172,716	172,716	1,929	2,383	262,831	1,269,643

Table 5. Summary of number of vessels holding federal commercial and/or recreational permit combinations for summer flounder (FLK), scup (SCP) and black sea bass (BSB), 2004.

Comm. Permit Combinations	Recreational Permit Combinations								
	No Rec. Permit	FLK Only	SCP Only	BSB Only	FLK/ SCP	FLK/ BSB	SCP/ BSB	FLK/ SCP/ BSB	Row Total
No Comm. Permit	0	41	11	19	21	65	23	507	687
FLK Only	328	3	3	1	0	1	1	4	341
SCP Only	64	0	0	1	1	2	0	9	77
BSB Only	161	4	0	2	3	6	2	14	192
FLK/ SCP	109	0	0	0	0	0	0	2	111
FLK/ BSB	47	0	0	0	0	3	0	1	51
SCP/ BSB	163	5	0	0	0	2	1	26	197
FLK/ SCP/ BSB	487	3	0	0	2	0	0	14	506
Column Total	1,359	56	14	23	27	79	27	577	2,162

Table 6. Federal northeast region permits held by summer flounder, scup, and black sea bass commercial and recreational vessels, 2004.

	Commercial Only (n= 1,359)		Party/Charter Only (n= 687)		Commercial and Party/Charter (n= 116)	
Northeast Permits	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**
Surfclam	788	57.98	142	20.67	25	21.55
Ocean Quahog	745	54.82	131	19.07	23	19.83
Scallop	298	21.93	0	0.00	3	2.59
Non-trap Lobster	741	54.53	21	3.06	18	15.52
Lobster Trap	410	30.17	54	7.86	21	18.10
Party/ Charter Lobster	3	0.22	23	3.35	6	5.17
Party/ Charter Multi-Species	395	29.07	549	79.91	57	49.14
Comm. Multi-species	725	53.35	67	9.75	36	31.03
Party/ Charter Squid/ Mackerel/ Butterfish	4	0.29	535	77.87	78	67.24
Comm. Squid/ Mackerel/ Butterfish	1,199	88.23	324	47.16	87	75.00
Comm. Bluefish	1,242	91.39	369	53.71	105	90.52
Party/ Charter Bluefish	12	0.88	628	91.41	97	83.62
Tier 1 Tilefish	1	0.07	0	0.00	0	0.00
Tier 2 Tilefish	2	0.15	0	0.00	0	0.00

Table 6 (Continued). Federal northeast region permits held by summer flounder, scup, and black sea bass commercial and recreational vessels, 2004.

	Commercial Only (n= 1,359)		Party/Charter Only (n= 687)		Commercial and Party/Charter (n= 116)	
Northeast Permits	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**
Part-time Tilefish	12	0.88	0	0.00	1	0.86
Incidental Tilefish	891	65.56	314	45.71	64	55.17
Herring VMS	66	4.86	1	0.15	0	0.00
Herring Non-VMS	851	62.62	333	48.47	72	62.07
Spiny Dogfish	1,186	87.27	421	61.28	86	74.14
Monkfish	544	40.03	6	0.87	9	7.76
Incidental Monkfish	671	49.37	371	54.00	73	62.93
Skate	1,032	75.94	253	36.83	71	61.21
Red Crab Incidental	628	46.21	108	15.72	34	29.31
Red Crab 75,000 lb trip limit	0	0.00	0	0.00	0	0.00
Red Crab 125,000 lb trip limit	0	0.00	0	0.00	0	0.00

Table 7. Descriptive data from northeast region permit files for commercial vessels, 2004.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	GA	Other
No. of Permits by Mailing Address State	30	12	2	437	20	67	132	22	203	155	3	154	117	2	2
No. of Permits by Home Port State	26	13	6	473	19	59	123	18	191	171	9	130	118	0	3
No. of Permits by Principal Port State	30	9	2	448	20	63	123	20	200	162	1	154	126	1	1
Average Length by Principal Port	60	41	58	57	49	42	64	44	56	41	64	56	63	65	NA
Average Tonnage by Principal Port	83	20	73	78	33	45	85	37	70	34	109	69	94	48	NA
Average Horse Power by Principal Port	574	395	537	478	347	311	457	325	488	329	850	454	526	500	NA
Percent Home Port Equal Principal Port	85	78	75	83	70	72	63	74	79	72	100	62	60	0	NA

Table 8. Descriptive data from northeast region permit files for party/charter vessels, 2004.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	Other
No. of Permits by Mailing Address State	27	10	8	198	11	30	21	27	159	108	6	42	37	3
No. of Permits by Home Port State	20	10	5	202	11	29	24	28	142	119	14	44	38	1
No. of Permits by Principal Port State	26	9	2	196	12	35	22	26	163	105	2	48	40	1
Average Length by Principal Port	44	54	48	35	46	36	41	33	44	44	54	34	38	NA
Average Tonnage by Principal Port	25	42	45	17	35	19	24	14	30	29	46	17	20	NA
Average Horse Power by Principal Port	648	752	975	429	610	447	671	378	633	592	760	412	618	NA
Percent Home Port Equals Principal Port	60	88	70	75	64	74	83	79	75	70	71	52	76	NA

Table 9. Descriptive data from northeast region permit files for combination commercial/recreational vessels, 2004.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA
No. of Permits By Mailing Address State	3	6	2	15	0	1	7	1	17	40	1	10	13
No. of Permits By Home Port State	1	5	2	20	1	1	8	1	16	41	2	6	12
No. of Permits by Principal Port State	2	5	1	15	1	1	8	1	18	40	1	11	12
Average Length by Principal Port	40	48	34	39	57	48	40	42	47	38	69	42	41
Average Tonnage by Principal Port	15	32	7	27	57	28	20	5	33	24	94	30	22
Average Horse Power by Principal Port	455	765	500	349	400	1100	415	357	512	426	800	607	456
Percent Home Port Equal Principal Port	67	67	50	73	0	100	86	100	65	68	100	30	69

Table 10. Dealers reporting buying summer flounder, scup, and/or black sea bass, by state (from NMFS commercial landings database) in 2004.

	MA	NJ	NY	NC	RI	VA	MD	CT	DE	ME	Other
Number of Dealers	48	35	66	28	37	30	6	10	5	4	3

Table 11. Comparison of habitat impacts and considerations for selecting summer flounder alternatives.

Alternative	Quota in mill lb	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
Preferred Alternative 1	**26.00**	Based upon species abundance, impacts associated with effort may remain the same as existing, or may decrease. An increase in abundance and increased CPUE will tend to lead toward stable or decreased impacts to habitat. The potential impacts to habitat are less than alternative 3.	Maximizes landings while achieving the rebuilding target by 2010, no to slightly decreased habitat impacts, potential for negative short-term financial impacts (except alternative 3) but long-term financial benefits to industry.
Alternative 2	**23.59**	Impacts may range from maintaining existing level of effort to a decrease. The potential for maintaining or decreasing impacts is greatest with this alternative.	Does not maximize landings, reduced short-term yields, no to slightly decreased habitat impacts, decrease in short-term financial benefit to industry.
Alternative 3 (Status Quo)	**30.30**	Based upon species abundance, impacts associated with effort may remain the same as existing. If abundance increases, increased CPUE will tend to lead toward stable impacts to habitat. This alternative has the potential for similar habitat impacts compared to 2005.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, similar habitat impacts compared to 2005, short-term benefit to industry.

Table 12. Comparison of habitat impacts and considerations for selecting scup alternatives.

Alternative	Quota in mill lb	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
Preferred Alternative 1	16.27	Based upon species abundance, impacts may remain the same or slightly decrease. An increase in abundance with possession limits and increased CPUE will tend to lead toward stable or decreased impacts to habitat. This alternative is more likely to decrease habitat impacts than alternative 3.	Maximizes landings while achieving the target exploitation rate, no expected negative habitat impacts, financial benefit to industry may range from no change to slightly negative.
Alternative 2	10.77	Impacts may range from maintaining existing level to decreases. The potential for maintaining or decreasing impacts is greatest with this alternative.	Does not maximize landings, reduced short-term yields; potential decreased impacts on habitat, decrease in short-term financial benefit to industry.
Alternative 3 (Status Quo)	16.50	Based upon species abundance, impacts may remain the same as existing or decrease. Habitat impacts are expected to be similar to 2005 under this alternative.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, similar habitat impacts, potential for slight negative short-term financial impacts to industry.

Table 13. Comparison of habitat impacts and considerations for selecting black sea bass alternatives.

Alternative	Quota in mill lb	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
Preferred Alternative 1	8.00	Impacts may range from maintaining existing levels to decreasing impacts. The potential impacts to habitat are more than alternative 2 but less than alternative 3.	Maximizes landings while achieving the target exploitation rate, minimal to no increased habitat impacts, similar to slightly negative short-term financial benefits to industry.
Alternative 2	7.50	Impacts may range from maintaining existing level to decreasing impacts. The potential for maintaining or decreasing habitat impacts is greatest with this alternative.	Does not maximize landings, reduced short-term yields, potential decreased impacts on habitat, decrease in short-term financial benefit to industry.
Alternative 3 (Status Quo)	8.20	Impacts may remain the same as existing, or may decrease. Habitat impacts are expected to be similar to 2005 under this alternative.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, similar habitat impacts to 2005, potential for highest short-term financial benefits to industry.

Table 14. Status of stock for non-target species for all proposed 2006 Mid-Atlantic research set-aside projects (Table provided by Sarah Thompson of NMFS/NERO).

Species	Status of Stock
American Lobster	Overfishing
Atlantic Cod	GOM-Overfishing, overfished GB-Overfishing, overfished
Atlantic Herring	-
Atlantic Mackerel	-
Barndoor Skate	Overfished
Clearnose Skate	-
Haddock	GOM-Overfished GB-Overfished
Little Skate	-
Monkfish	Northern-Overfishing Southern-Overfishing
Offshore Hake	-
Rosette Skate	-
Silver Hake	-
Smooth Skate	-
Spiny Dogfish	Overfished
Thorny Skate	Overfished
Weakfish	-
Winter Flounder	SNE/MA-Overfishing, Overfished
Yellowtail Flounder	SNE/MA-Overfishing, Overfished CC/GOM-Overfishing, Overfished

CC – Cape Cod; GB – Georges Bank; GOM – Gulf of Maine; MA – Mid-Atlantic; SNE – Southern New England

Table 15. Estimated expected catch and status of stock for non-target species for all proposed research set-aside projects in 2006 (Table provided by Sarah Thompson of NMFS/NERO).

Species	Total Estimated Catch (lb)	Status of Stock
American Lobster	349.86	Overfishing
Atlantic Cod	1.54	GOM-Overfishing, overfished GB-Overfishing, overfished
Atlantic Herring	7443.37	-
Atlantic Mackerel	15803.63	-
Barndoor Skate	398.3	Overfished
Clearnose Skate	339.36	-
Haddock	13.16	GOM-Overfished; GB-Overfished
Little Skate	4226.04	-
Monkfish	11029.45	Northern-Overfishing; Southern-Overfishing
Offshore Hake	16046.66	-
Rosette Skate	1475.60	-
Silver Hake	26045.31	-
Smooth Skate	65.24	-
Spiny Dogfish	69741.12	Overfished
Thorny Skate	217.28	Overfished
Weakfish	119.05	-
Winter Flounder	0.00	SNE-Overfishing, Overfished
Yellowtail Flounder	0.22	SNE/MA-Overfished GC/GOM-Overfishing, Overfished

CC-Cape Cod; GB-George's Bank; GOM-Gulf of Maine; MA-Mid-Atlantic; SNE-Southern New England

Table 16. Threshold analysis of revenue impacts for participating vessels associated with the 2006 combined summer flounder, scup, and black sea bass quota under alternative 1 (preferred). "FLK" is summer flounder, "BSB" is black sea bass, and "SCP" is scup.

Quota Alternative 1 (Preferred)				Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Class	Landings Combination	Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	≥50
1	SCP Only	12	0	0	0	12	0	0	0	0	0	0
2	BSB Only	74	0	0	0	74	0	0	0	0	0	0
3	FLK ONLY	298	298	0	0	0	21	268	4	0	3	2
4	SCP/BSB	55	0	0	0	55	0	0	0	0	0	0
5	SCP/FLK	27	26	0	0	1	0	22	4	0	0	0
6	BSB/FLK	102	76	0	0	26	22	54	0	0	0	0
7	SCP/BSB/FLK	338	298	0	0	40	65	229	4	0	0	0
	Totals	906	698	0	0	208	108	573	12	0	3	2

Table 17. Review of revenue impacts under quota alternative 1 (preferred; associated with the 2006 combined summer flounder, scup, and black sea bass quotas), by home port state.

State	Participating Vessels	Number of Vessels Impacted ≥5 percent	Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (percent)						
					<5	5-9	10-19	20-29	30-39	40-49	≥50
CT	14	13	0	0	1	0	6	7	0	0	0
DE	7	2	0	0	5	0	1	0	0	0	1
MA	180	157	0	0	23	12	145	0	0	0	0
MD	13	7	0	0	6	1	6	0	0	0	0
ME	4	3	0	0	1	0	3	0	0	0	0
NC	87	76	0	0	11	24	52	0	0	0	0
NH	3	3	0	0	0	0	3	0	0	0	0
NJ	101	76	0	0	25	11	65	0	0	0	0
NY	107	82	0	0	25	10	70	2	0	0	0
PA	4	3	0	0	1	2	1	0	0	0	0
RI	97	85	0	0	12	20	65	0	0	0	0
VA	65	49	0	0	16	6	43	0	0	0	0
OTHER[a]	3	3	0	0	0	0	2	0	0	0	1
NOT KNOWN[b]	221	139	0	0	82	22	111	3	0	3	0
Total	906	698	0	0	208	108	573	12	0	3	2

[a]States with fewer than 3 vessels were aggregated.

[b]Vessels have shown landings of either of those three species in 2004, but did not hold any of the requisite federal permits in 2004. These vessels may be fishing exclusively in state waters fisheries for those species, and landings are indicated because of reporting requirements for their other federal permits or they do not hold a federal permit to participate in these fisheries any longer.

Table 18. Combinations of 2004 summer flounder (FLK), scup (SCP), and black sea bass (BSB) permits held by commercial vessels projected to have revenue reductions in the 5 percent or more range under alternative 1 (preferred).

	All 3	FLK only	BSB only	SCP only	SCP/ BSB	SCP/ FLK	BSB/ FLK	None*
Commercial	329	96	16	11	26	54	26	140

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

Table 19. Other 2004 permits held by the 558 vessels holding summer flounder, scup and black sea bass permits projected to have revenue reductions in the 5 percent or more range under alternative 1 (preferred) in 2006.

	Northeast Region Permit Status	Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	374	67
	Surfclam	343	61
	Scallop	113	20
	Lobster, trap gear	129	23
	Lobster, non-trap gear	384	69
	Squid/Mackerel/Butterfish	527	94
	Quahog	323	58
	Bluefish	533	96
	Dogfish	516	92
	Tilefish (part-time)	3	<1
	Tilefish Incidental	411	74
	Herring VMS	18	3
	Herring non-VMS	403	72
	Atl. Deep-Sea Red Crab (Incidental)	277	50
	Skate	472	85
	Monkfish (Limited Access)	271	49
	Monkfish (Open Access)	263	47
Recreational	Multispecies	129	23
	Squid/Mackerel/Butterfish	11	2
	Bluefish	15	3
	Lobster	3	<1

Table 20. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2006) based on 2004 descriptive data from NMFS permit files under alternative 1 (preferred). No vessel characteristics data are reported for states with fewer than 3 permits.

	CT	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	Other
# Permits by Home Port State	13	157	7	3	76	3	76	82	3	85	49	4
# Permits by Principal Port State	16	145	8	2	74	5	75	77	1	98	54	3
# Permits by Mailing Address State	16	141	6	2	80	6	80	76	0	97	49	5
Avg. Length in Feet by Principal Port	66	63	60	70	70	44	59	48	69	60	73	NA
Avg. GRT by Principal Port	97	91	53	112	103	33	74	49	94	80	123	NA
Avg. Vessel Horsepower	570	465	366	415	490	301	457	375	800	463	566	NA
% of Vessels where Home Port State = Principal Port State	81	97	100	50	80	67	87	98	0	83	81	NA

Table 21. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 1 (preferred; in 2006; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2004 NMFS permit files - home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

State	County	Home port	Number of Vessels
Connecticut	New London	Stonington	10
		Other	3
Maryland	Worcester	Ocean City	6
Massachusetts	Barnstable	Chatham	7
		Provincetown	5
		Sandwich	3
		Woods Hole	3
		Other	5
	Bristol	Fairhaven	9
		New Bedford	74
	Dukes	Menemsha	3
	Essex	Gloucester	3
	Plymouth	Plymouth	4
		Other	3
	Suffolk	Boston	32
Pennsylvania	Philadelphia	Philadelphia	3
New Jersey	Cape May	Cape May	18
		Wildwood	4
		Other	4
	Monmouth	Belford	16
	Ocean	Barnegat Light	19
		Pt. Pleasant	8
		Other	6

Table 21 (Continued). Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 1 (preferred; in 2006; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2004 NMFS permit files - home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

State	County	Home port	Number of Vessels
New York	Nassau	Other	5
	New York City	New York	26
	Suffolk	Greenport	4
		Montauk	27
		Shinnecock	8
		Other	11
New Hampshire	Rockingham	Other	3
North Carolina	Beaufort	Belhaven	6
	Carteret	Atlantic	4
		Beaufort	12
	Craven	New Bern	5
	Dare	Wanchese	12
	Hyde	Other	6
	Pamlico	Bayboro	4
		Lowland	5
		Oriental	12
		Other	3
Rhode Island	Newport	Newport	13
		Sakonnet Point	3
		Other	6
	Washington	Narragansett	8
		Point Judith	43
		Wakefield	4
		Other	6

Table 21 (Continued). Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 1 (preferred; in 2006; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2004 NMFS permit files - home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

State	County	Home port	Number of Vessels
Virginia	Accomac	Other	4
	City of Hampton	Hampton	4
	City of Newport News	Newport News	10
	City of Norfolk	Norfolk	20

Table 22. Threshold analysis of revenue impacts for participating vessels associated with the 2006 combined summer flounder, scup, and black sea bass quota under alternative 2 (most restrictive). "FLK" is summer flounder, "BSB" is black sea bass, and "SCP" is scup.

Quota Alternative 2 (Most Restrictive)				Increased Revenue (number)	Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Class	Landings Combination	Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	≥50
1	SCP Only	12	12	0	0	0	0	0	0	12	0	0
2	BSB Only	74	74	0	0	0	74	0	0	0	0	0
3	FLK Only	298	298	0	0	0	0	24	265	4	3	2
4	SCP/BSB	55	55	0	0	0	18	26	5	6	0	0
5	SCP/FLK	27	27	0	0	0	0	0	22	5	0	0
6	BSB/FLK	102	102	0	0	0	20	34	48	0	0	0
7	SCP/BSB/FLK	338	338	0	0	0	2	58	257	21	0	0
	Totals	906	906	0	0	0	114	142	597	48	3	2

Table 23. Review of revenue impacts under quota alternative 2 (most restrictive; associated with the 2006 combined summer flounder, scup, and black sea bass quotas), by home port state.

State	Participating Vessels	Number of Vessels Impacted ≥5 percent	Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (percent)						
					<5	5-9	10-19	20-29	30-39	40-49	≥50
CT	14	14	0	0	0	0	0	3	11	0	0
DE	7	7	0	0	0	5	0	1	0	0	1
MA	180	180	0	0	0	8	11	155	6	0	0
MD	13	13	0	0	0	6	1	6	0	0	0
ME	4	4	0	0	0	1	0	3	0	0	0
NC	87	87	0	0	0	7	32	48	0	0	0
NH	3	3	0	0	0	0	0	3	0	0	0
NJ	101	101	0	0	0	16	12	72	1	0	0
NY	107	107	0	0	0	12	12	75	8	0	0
PA	4	4	0	0	0	1	1	2	0	0	0
RI	97	97	0	0	0	5	14	74	4	0	0
VA	65	65	0	0	0	15	9	41	0	0	0
OTHER[a]	2	2	0	0	0	0	0	2	0	0	0
NOT KNOWN[b]	222	222	0	0	0	38	50	112	18	3	1
Total	906	906	0	0	0	114	142	597	48	3	2

[a]States with fewer than 3 vessels were aggregated.

[b]Vessels have shown landings of either of those three species in 2004, but did not hold any of the requisite federal permits in 2004. These vessels may be fishing exclusively in state waters fisheries for those species, and landings are indicated because of reporting requirements for their other federal permits or they do not hold a federal permit to participate in these fisheries any longer.

Table 24. Combinations of 2004 summer flounder (FLK), scup (SCP), and black sea bass (BSB) permits held by commercial vessels projected to have revenue reductions in the 5 percent or more range under alternative 2 (most restrictive).

	All 3	FLK only	BSB only	SCP only	SCP/ BSB	SCP/ FLK	BSB/ FLK	None*
Commercial	354	98	67	14	68	55	28	222

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

Table 25. Other 2004 permits held by the 684 vessels holding summer flounder, scup and black sea bass permits projected to have revenue reductions in the 5 percent or more range under alternative 2 (most restrictive) in 2006.

	Northeast Region Permit Status	Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	406	59
	Surfclam	372	54
	Scallop	120	18
	Lobster, trap gear	192	28
	Lobster, non-trap gear	404	59
	Squid/Mackerel/Butterfish	625	91
	Quahog	347	51
	Bluefish	651	95
	Dogfish	616	90
	Tilefish (part-time)	4	1
	Tilefish Incidental	484	71
	Herring VMS	26	4
	Herring non-VMS	464	68
	Atl. Deep-Sea Red Crab (Incidental)	321	47
	Skate	551	81
	Monkfish (Limited Access)	286	42
	Monkfish (Open Access)	337	49
Recreational	Multispecies	168	25
	Squid/Mackerel/Butterfish	24	4
	Bluefish	31	5
	Lobster	3	<1

Table 26. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2006) based on 2004 descriptive data from NMFS permit files under alternative 2 (most restrictive). No vessel characteristics data are reported for states with fewer than 3 permits.

	CT	DE	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	Other
# Permits by Home Port State	14	7	180	13	4	87	3	101	107	4	97	65	2
# Permits by Principal Port State	17	7	162	14	3	83	5	102	101	1	117	71	1
# Permits by Mailing Address State	17	8	158	13	3	89	6	105	100	1	116	66	2
Avg. Length in Feet by Principal Port	64	39	61	54	59	67	44	57	45	69	58	65	NA
Avg. GRT by Principal Port	92	16	86	41	79	95	33	69	42	94	74	98	NA
Avg. Vessel Horsepower	563	506	452	373	376	482	301	469	356	800	455	549	NA
% of Vessels where Home Port State = Principal Port State	82	100	98	92	66	73	66	85	99	100	80	83	NA

Table 27. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 2 (most restrictive; in 2006; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2004 NMFS permit files - home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

State	County	Home port	Number of Vessels
Connecticut	New London	Stonington	10
		Other	4
Delaware	Sussex	Other	6
Maryland	Worcester	Ocean City	11
Massachusetts	Barnstable	Chatham	10
		Provincetown	5
		Sandwich	3
		Woods Hole	3
		Other	5
	Bristol	Fairhaven	11
		New Bedford	78
		Other	4
	Dukes	Chilmark	3
		Menemsha	3
	Essex	Gloucester	3

Table 27 (Continued). Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 2 (most restrictive; in 2006; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2004 NMFS permit files - home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

State	County	Home port	Number of Vessels
Massachusetts	Suffolk	Boston	39
	Nantucket	Nantucket	3
New Jersey	Atlantic	Atlantic City	3
	Cape May	Cape May	28
		Wildwood	4
		Other	6
	Monmouth	Belford	16
		Other	3
	Ocean	Barnegat Light	20
		Point Pleasant	11
		Other	8
New York	Nassau	Freeport	3
		Other	6
	New York	New York	35
	Suffolk	Greenport	4
		Montauk	34
		Shinnecock	9
		Other	14
North Carolina	Beaufort	Belhaven	6
	Carteret	Atlantic	4
		Beaufort	12
	Craven	New Bern	5
	Dare	Manteo	3
		Wanchese	18
		Other	3

Table 27 (Continued). Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 2 (most restrictive; in 2006; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2004 NMFS permit files - home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

State	County	Home port	Number of Vessels
North Carolina	Hyde	Other	6
	Pamlico	Bayboro	4
		Lowland	5
		Oriental	12
		Other	3
Pennsylvania	Philadelphia	Philadelphia	4
Rhode Island	Newport	Newport	15
		Sakonnet	4
		Tiverton	3
		Other	3
	Washington	Galilee	3
		Narragansett	8
		Point Judith	50
		Wakefield	4
		Other	4
Virginia	Accomac	Chincoteague	4
		Other	3
	City of Hampton	Hampton	4
	City of Newport News	Newport News	10
	Poquoson City	Poquoson	3
	Virginia Beach City	Virginia Beach	7
		Other	3

Table 28. Percentage changes associated with allowable commercial landings for various alternatives in 2006 (adjusted for overages and RSA) relative to the adjusted quotas for 2005.

	Total Change Including Overages and RSA		
Geographic Area or Time Period	**Quota Alternative 1 (Preferred)**	**Quota Alternative 2 (Most Restrictive)**	**Quota Alternative 3* (Least Restrictive)**
		Summer Flounder	
States other than ME & DE	-14%	-22%	< +1%
Delaware[a]	-100%	-100%	-100%
Aggregate Change	-14%	-22%	< -1%
		Scup	
Aggregate Change[b]	-2%	-37%	< -1%
		Black Sea Bass	
Aggregate Change	-3%	-9%	-1 %

*Denotes status quo management measures.
[a]Delaware has no quota allocation in 2006.
[b]Quota changes by period (i.e., Winter I, Summer, and Winter II) are the same as those under the aggregate change.

Table 29. Qualitative comparative summary of economic effects of 2006 regulatory alternatives relative to the base line "adjusted quotas for 2005".

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

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

Table 30. Numbers of vessels landing scup, black sea bass and/or summer flounder in 2004.

Landings Class	Landings Combinations	Commercial Vessels (#)
1	Scup Only	12
2	Black Sea Bass Only	73
3	Summer Flounder Only	301
4	Scup/Black Sea Bass	52
5	Scup/Summer Flounder	29
6	Black Sea Bass/Summer Flounder	113
7	Scup/Black Sea Bass/Summer Flounder	327
	Total	907

Data from Northeast Region dealer data.

Table 31. Number of summer flounder recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2006.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of Summer Flounder (million lb)[b]
1991	4,645,993	None	7.96
1992	3,751,815	None	7.15
1993	4,829,252	8.38	8.83
1994	5,761,918	10.67	9.33
1995	4,699,292	7.76	5.42
1996	4,857,952	7.04	9.82
1997	5,620,640	7.41	11.87
1998	5,296,982	7.41	12.48
1999	4,230,627	7.41	8.37
2000	5,772,585	7.41	16.47
2001	6,146,798	7.16	11.64
2002	4,566,580	9.72	8.01
2003	5,755,870	9.28[c]	11.64
2004	N/A	11.21[C]	10.76
2005	N/A	11.98[C]	N/A
2006	-	10.26[c]	-

[a]Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species sought was summer flounder, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.
[b]From Maine to North Carolina.
[c]Adjusted for research set-aside.
N/A = Data not available.

Table 32. Number of scup recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2006.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of Scup (million lb)[b]
1991	763,284	None	8.09
1992	495,201	None	4.41
1993	252,017	None	3.20
1994	221,074	None	2.63
1995	155,039	None	1.34
1996	147,161	None	2.16
1997	118,286	1.95	1.20
1998	105,283	1.55	0.88
1999	133,703	1.24	1.89
2000	459,598	1.24	5.44
2001	253,698	1.77	4.26
2002	476,008	2.71[c]	3.62
2003	566,373	4.01[c]	9.33
2004	N/A	4.01[C]	4.38
2005	N/A	3.96[C]	N/A
2006	-	4.20[c]	-

[a]Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species sought was scup, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.
[b]From Maine to North Carolina.
[c]Adjusted for research set-aside.
N/A = Data not available.

Table 33. Number of black sea bass recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2006.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (million lb)	Recreational Landings of BSB (million lb)[b]
1991	N/A	None	4.19
1992	218,700	None	2.71
1993	296,370	None	4.84
1994	265,402	None	2.95
1995	317,608	None	6.21
1996	207,058	None	4.00
1997	313,095	None	4.27
1998	N/A	3.15	1.15
1999	N/A	3.15	1.70
2000	228,135	3.15	4.01
2001	268,248	3.15	3.42
2002	258,513	3.43[c]	4.35
2003	268,022	3.43[c]	3.29
2004	N/A	4.01[C]	1.94
2005	N/A	4.13[C]	N/A
2006	-	3.99[C]	-

[a]Number of fishing trips as reported by anglers in the intercept survey indicating that the primary species group sought was black sea bass, North Atlantic, Mid-Atlantic, and South Atlantic regions combined. Estimates are not expanded. Source: MRFSS.
[b]From Maine to Cape Hatteras, North Carolina.
[c]Adjusted for research set-aside.
N/A = Data not available.

Table 34. Threshold analysis of revenue impacts for participating vessels associated with the 2006 combined summer flounder, scup, and black sea bass quota under alternative 3 (least restrictive/status quo). "FLK" is summer flounder, "BSB" is black sea bass, and "SCP" is scup.

Quota Alternative 3 (Least Restrictive/Status Quo)				Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Class	Landings Combination	Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	≥50
1	SCP Only	12	0	0	0	12	0	0	0	0	0	0
2	BSB Only	74	0	0	0	74	0	0	0	0	0	0
3	FLK ONLY	298	12	160	0	126	3	4	0	3	0	2
4	SCP/BSB	55	0	0	0	55	0	0	0	0	0	0
5	SCP/FLK	27	4	16	0	7	0	4	0	0	0	0
6	BSB/FLK	102	3	38	0	61	3	0	0	0	0	0
7	SCP/BSB/FLK	338	11	158	0	169	8	3	0	0	0	0
	Totals	906	30	372	0	504	14	11	0	3	0	2

Table 35. Counties identified as having >= 4 commercial vessels showing revenue reductions of 5 percent or more as a consequence of the most restrictive 2006 alternative (alternative 2) evaluated in this document (section 3.1 the RIR/FRFA).

State	County[a]	Population[b]	Employment[c]	Total Personal Income[d] (million of $'s)	Commercial Fishing Employment	Percent of Personal Income Derived From Comm. Fishing	Fresh and Frozen Seafood Processing Employment	Percent of Personal Income derived From Seafood Processing
CT	New London	259,065	163,257	8,634.74	122	.01%	0	0%
DE	Sussex	161,270	85,726	3,733.21	*	*	248	.20%
MD	Worcester	48,084	32,443	1,306.08	405	.14%	46	.09%
MA	Barnstable	226,809	132,491	8,159.31	793	.08%	0	.0008%
MA	Bristol	540,360	269,977	15,730.40	3,232	.64%	917	.19%
MA	Dukes	15,402	12,349	560.503	15	.05%	0	0%
MA	Suffolk	682,062	703,540	29,633.35	447	.07%	494	.09%
NJ	Cape May	102,352	55,562	3,209.74	796	.34%	294	.30%
NJ	Monmouth	622,977	326,491	26,192.23	52	.01%	23	.002%
NJ	Ocean	527,207	187,627	15,742.25	166	.04%	0	0%
NY	Nassau	1,334,648	761,530	63,524.34	198	.0039%	84	.0029%
NY	New York	1,541,150	2,768,774	144,033.30	0	0%	23	.0013%
NY	Suffolk	1,438,973	752,834	52,116.44	1,111	.01%	0	0%
NC	Beaufort	45,224	23,503	1,022.68	15	.08%	245	.34%
NC	Carteret	59,901	32,131	1,603.17	431	.08%	64	.14%
NC	Craven	91,316	59,316	2,382.08	0	0%	*	*
NC	Dare	31,168	25,453	830.10	77	.08%	17	.01%
NC	Hyde	5,703	3,135	117.10	126	.56%	129	1.8%
NC	Pamlico	12,929	4,396	295.07	173	.50%	150	.83%
RI	New Port	85,218	52,334	3,009.40	239	.14%	0	0%
RI	Washington	125,991	62,870	4,212.16	793	.46%	96	.11%
VA	Accomack	38,414	18,444	708.07	93	.18%	281	.93%
VA	City of Hampton	145,665	88,495	3,273.93	0	0%	98	.25%
VA	City of Newport News	180,305	114,024	4,248.24	0	0%	548	.41%
VA	Virginia Beach City	426,931	245,384	13,767.66	157	.03%	*	*
VA	City of Norfolk	233,147	236,953	5,479.15	0	0%	52	.04%

* = < 10 observations.

a = Data obtained from the Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 2001.

b = Year-round population.

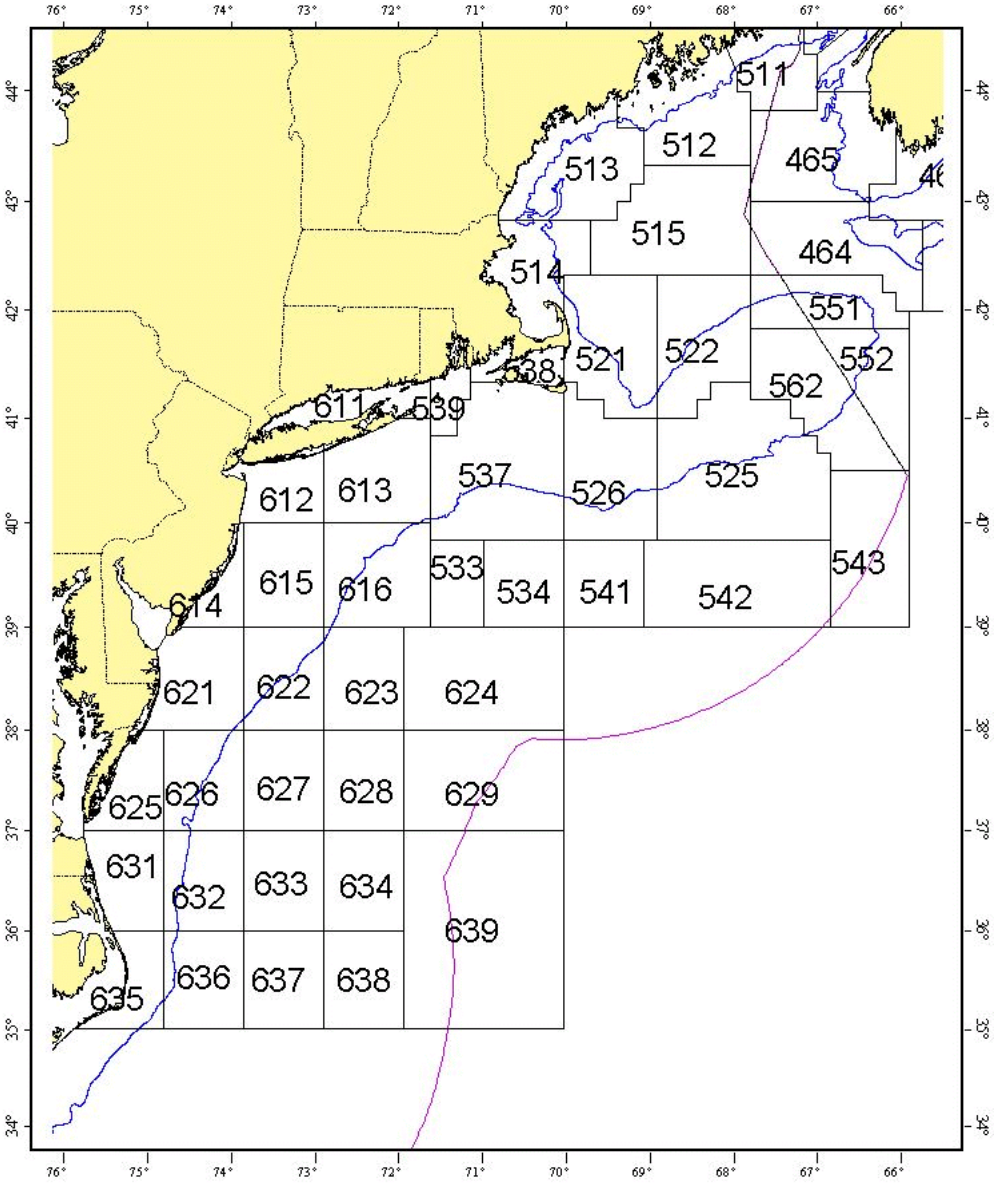
c = Includes both full-time and part-time workers.

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

Source: Scott Steinback (NEFSC).

FIGURES

Figure 1. NMFS Northeast statistical areas.



APPENDIX A

Potential increase in Winter II possession limits based on the amount of scup rolled over from Winter I to Winter II period under the a) current, non-preferred regulations (alternative 4.1) and the b) preferred proposed regulations (alternative 4.2).

a. non-preferred (current)

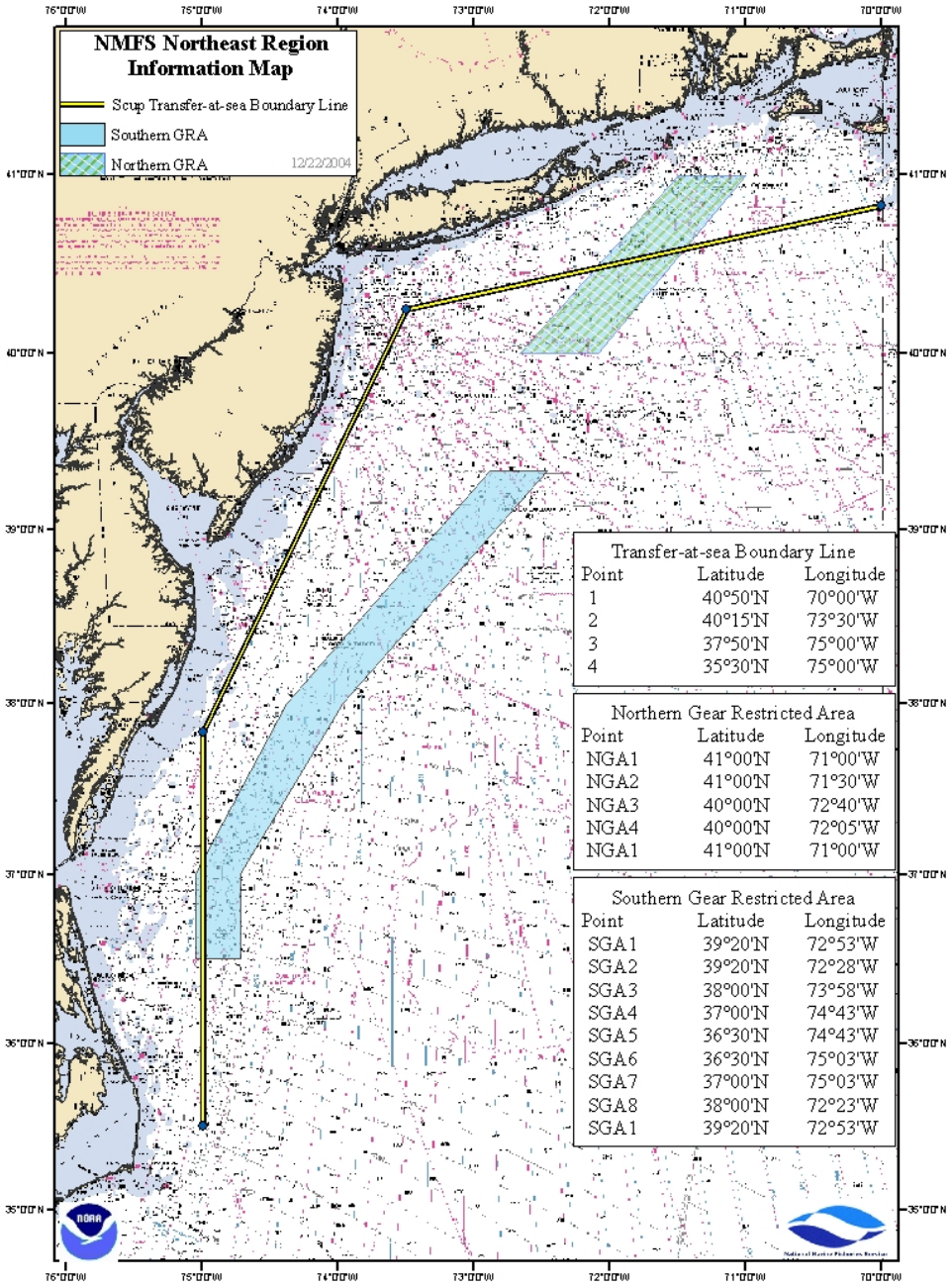
Original Winter II possession limit (pounds)	Rollover from Winter I to Winter II period (pounds)	Increase in Original Winter II possession limit (pounds)	Final Winter II possession limit after roll over from Winter I to Winter II (pounds)
1,500	0-499,999	0	1,500
1,500	500,000-999,999	500	2,000
1,500	1,000,000-1,499,999	1,000	2,500
1,500	1,500,000-1,999,999	1,500	3,000
1,500	2,000,000-2,500,000	2,000	3,500

b. preferred (proposed)

Original Winter II possession limit (pounds)	Rollover from Winter I to Winter II period (pounds)	Increase in Original Winter II possession limit (pounds)	Final Winter II possession limit after roll over from Winter I to Winter II (pounds)
2,000	0-499,999	0	2,000
2,000	500,000-999,999	1,500	3,500
2,000	1,000,000-1,499,999	3,000	5,000
2,000	1,500,000-1,999,999	4,500	6,500
2,000	2,000,000-2,500,000	6,000	8,000

APPENDIX B

Figure A. Northern and Southern gear restricted areas (GRAs).



APPENDIX C

[This information was provided by Paul Perra, NMFS/NERO]

Scope of Work for 2006 Mid-Atlantic Research Set-Aside (RSA) Projects

05-RSA-007 - National Fisheries Institute, Inc. (NFI) and Rutgers, The State University of New Jersey (Rutgers), "Development of a Supplemental Finfish Survey Targeting Mid-Atlantic Migratory Species." Principal Investigator – Eric N. Powell

Project Abstract: To obtain fourth 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 from the study would supplement the National Marine Fisheries Service (NMFS) finfish survey databases and will include development of methods to better evaluate how seasonal migration of fish in the Mid-Atlantic influences stock abundance estimates.

> **RSA Amount:** 223,140 lbs (101,215 kg) Summer Flounder, 123,750 lbs (56,132 kg) Scup, 61,500 lbs (27,896 kg) Black Sea Bass, 281,089 lbs (127, 089 kg) *Loligo,* 363,677 lbs (164, 961 kg) Bluefish

Project Description: This project will conduct a trawl survey that involves collaborative efforts from NFI, Rutgers, and the NMFS Northeast Fisheries Science Center (NEFSC). The field work will be carried out by up to two research vessels conducting a trawl survey along up to 8 offshore transects in January, March, May, and November (Figure 1). The transects will include 6 fixed offshore transects, one each near Alvin, Hudson, Baltimore, Poor Man's, Washington, and Norfolk Canyons, and 2 to 3 adaptive transects positioned within the Mid-Atlantic area based on a pre-cruise meeting with NFI, Rutgers, and the NEFSC. The 2006 field work will primarily on focus on sampling fixed transects oriented just north of Baltimore Canyon (38° 20' N) and East of Hudson Canyon (72° W) on all cruises. The Transect sampling will be expanded to include Alvin and poor Man's transects as sea time permits. An additional 2-3 other transects within the range of described transects may be selected for sampling during pre-cruise meetings 2 weeks prior to sampling based on industry input on target species concentrations, and near term information on temperature gradients.

Sampling will be conducted along transects at depths near 40 (73 m), 50 (91m), 60 (110 m), 80 (183 m), 100 (183 m), 125 (229 m), 150 (247 m), 200 (366 m), 225 (411 m), and 250 fm (457 m), with up to five additional trawl sites added along each of the transects based on the catches of the target species. Primary target species will be summer flounder, scup, black sea bass, monkfish, silver hake, *Loligo* squid, offshore hake, and spiny dogfish, and secondary target species will be skates, yellowtail flounder, winter flounder, and lobster. One tow will be conducted at each station over a fixed distance of 1 nautical mile (1.8 km), with a tow speed of 3 to 3.2 knots (5.8 to 5.9 km/hr). Careful records will be kept of all gear descriptions so that subsequent surveys can use consistent gear. A 4-seam box net will be used with a 2.4-inch (6-cm) mesh codend. Sampling protocol for handling the catch from the trawl survey will follow standard NOAA Fisheries survey methods. Every effort will be made to weigh the entire catch, or to put in baskets the entire catch and weigh a subsample of the baskets. Lengths will be

obtained for target species. If time does not permit sampling between tows, fish sorted for length measurement will be placed in labeled containers and stored until processing can occur. Temperature and depth profiles will be taken for each tow. Pre- and post-cruise meetings will be held to confirm study logistics and conduct retrospective analysis of cruise activities. Scientific research personnel will be on board the vessel at all times when the survey is conducted.

The project will involve one or two vessels in the 75 to 100 ft (23 to 30 m) size range conducting approximately 180, 15 to 30 minute, research bottom tows. The research vessel/vessels will need exemptions from closed areas, seasonal and gear restrictions, and minimum size restrictions.

Additionally, approximately 25 more vessels will be harvesting the RSA amounts allocated to the project. These vessels will need exemptions to closed seasons and trip limits for the RSA species listed under the project. The most likely ports for landings will be in Rhode Island, New York, New Jersey, and Virginia.

EFH Concerns
The area affected by the proposed action has been identified as EFH for species managed by the following FMPs: Northeast Multispecies; Summer Flounder, Scup, and Black Sea Bass; Squid, Atlantic Mackerel, and Butterfish; Atlantic Surf Clam and Ocean Quahog; Atlantic Herring; Atlantic Bluefish; and Atlantic Tunas, Swordfish, and Sharks. The action in the context of the fishery as a whole should not be substantial.

Endangered species
This action should not adversely affect endangered and threatened species or their critical habitat.

Marine Mammals
Fishing activities conducted under this project should have no adverse impact on marine mammals.

<u>05-RSA-003</u> – Charles Borden, "2006 Fishery Independent Scup Survey of Selected Areas in Southern New England " Principal Investigator – Laura Skrobe, University of Rhode Island.

<u>Project Abstract:</u> To conduct a third year 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 from May through November at 10 rocky bottom study sites that are located offshore, where there is a minimal scup pot fishery and no active trawl fishery (Table 1). Study results will expand the current understanding of the scup resource in areas where the resource is otherwise unavailable to existing survey gear.

RSA Amount: 2000 lbs (907 kg) Summer Flounder, 40,940 lbs (18,570 kg) Scup, 29,000 lbs (13,154 kg) Black Sea Bass

Table 1. Scup Survey Research Sites

Western Sampling Sites:

Site 1 - south of Sakonnet Point, RI, (near Mayo or Elisha Ledge)

Site 2 - western end of Buzzards Bay (near Old Cock Rock or Buzzards Bay Tower)

Site 3 - west or south of Normans Island

Site 4 - on Brown's Ledge (approximately six miles west of site 3 in Federal waters)

Site 5 - South of Newport Rhode Island

Eastern Sampling Sites:

Site 1 - Horseshoe Shoals

Site 2 - Cape Pogue

Site 3 - Hart Haven/East Chop

Site 4 - Mink Meadows/West Chop

Site 5 - Cedar Tree/Norton Rock

Spawning Sampling Sites - Eastern Zone (All eastern sites are east of Oak Bluffs, Martha's Vineyard)

Site 1 - Collier's Ledge

Site 2 - Bishops and Clercks

05-RSA-005, Fisheries Conservation Trust, "Evaluating Size and Bag Limits in the Summer Flounder Recreational Fishery", Principal Investigator ~ Eric Powell, Eleanor Bochenek and John Quinlan (HSRL)

Project Abstract: To model experimental fisheries, and study angler behavior. Some data needs will be met by accessing published literature, NOAA-NEFSC survey data, MRFSS data, and recent stock assessments for summer flounder. Other important information will be

generated from observation of private anglers that catch summer flounder with rod and reel and from for-hire vessels sailing from docks in New Jersey, or New York.

> **RSA Amount:** 130,622 lb (59,249kg) Summer Flounder, 20,000 lb (9,071kg) Scup, 50,000 lbs (22,680 kg) Black Sea Bass, 1,000 lb (454 kg) additional Summer Flounder RSA required to safe guard against mortality of harvest of sub-legal size summer flounder).

Project Description: This project involves modeling summer flounder recreational fishery data and conducting studies on angler behavior under different summer flounder bag limit scenarios. Field work will be conducted by up to 4 Recreational Fishing Party Boats providing summer flounder fishing trips off of New York (southern long Island) and/or New Jersey (Monument, Ocean, Atlantic, and Cape May Counties). Four scenarios will be tested using 3 replicate sampling days per boat, equaling up to 48 full day vessel trips. Field trips will likely be conducted in state and Federal waters during the mid-Atlantic summer flounder fishing season May-November. Each vessel will participate in angler hook and line fishing studies for 3 days using normal fishing practices (2006 NY and NJ fishing regulations), 3 days using a slot size limit that permits 25% of the fish retained to fall between 14 inches and the 2006 minimum landing size for NY or NJ, and 3 days where the cumulative length total landed for each angler will not exceed 132 inches. During these trips data will be collected on the number of fishing rods, hours fished, the number of summer flounder discarded and landed, and the lengths of both discards and landings. Lengths will be measured to the nearest millimeter using MRFSS protocols. Weights will be obtained from length-weight regressions. Data collected will be angler specific. At the end of the trip, anglers will fill out a questionnaire on the number flounder caught and discarded, and on angler preferences on different size limits. A numerical modeling exercise will be conducted prior to the field program to help define key processes of the field component. Also, using the MRFSS, data will be modeled to determine how various categories of catch and landings information will change with various assumptions of angler behavior.

The project will involve 4 recreational for-hire fishing vessels in the 75 to 100 ft (23 to 30 m) size range conducting angler behavior studies. Angler behavior will be observed and recorded under different fishing scenarios. The vessels will not need Federal exemptions, but will need exemptions from state summer flounder seasonal restrictions, bag, and size limits.

Additionally, approximately 25 more vessels will be harvesting the RSA amounts allocated to the project. These vessels will need exemptions to closed seasons and trip limits for the RSA species listed under the project. The most likely ports for landings will be in Rhode Island, New York, New Jersey, and Virginia. For summer flounder the set-aside for harvest is 129,622 lb (58,795 kg), and an additional non harvest of 1,000 lb (454 kg) of summer flounder RSA is also allocated to this project to safe guard against any unplanned additional mortality that the project may cause by its exemption to harvest sub-legal size summer flounder.

EFH Concerns
The area affected by the proposed action has been identified as EFH for species managed by the following FMPs: Northeast Multispecies; Summer Flounder, Scup, and Black Sea Bass; Squid, Atlantic Mackerel, and Butterfish; Atlantic Surf Clam and Ocean Quahog; Atlantic Herring; Atlantic Bluefish; and Atlantic Tunas, Swordfish, and Sharks. The action in the context of the fishery as a whole should not be substantial.

Endangered species
This action should not adversely affect endangered and threatened species or their critical habitat.

Marine Mammals
Fishing activities conducted under this project should have no adverse impact on marine mammals.

05-RSA-008 - Virginia Institute of Marine Science Title: "An Evaluation of Size Selectivity and relative Efficiency of Black Sea Bass, Habitat Pots Equipped with Large Mesh Panels" Principal Investigator ~ David Rudders, Robert Fisher

Project Abstract:

RSA Amount: 38,456 lb (17,443 kg) of black sea bass

Project Abstract:
To: 1) estimate the selectivity of an experimental design of black sea bass habitat pot. The experimental pot will be comprised of large mesh panels on the top, bottom and posterior end of the pot (opposite the bridal). Three different sizes of large mesh panel will be tested (2" (5 cm), 2.5" (6.4 cm)and 3" (7.62 cm)). These three variations will be compared to a pot conforming to current regulations at the time of study, and 2) catch-per-unit-effort of the three experimental pot variations to the legal pot will be examined.

Project Description: The project will 1) estimate the selectivity of an experimental design of a coated wire mesh black sea bass habitat pot to reduce the capture of sub-legal black sea bass. The experimental pot will be comprised of large mesh panels on the top, bottom and posterior end of the pot (opposite the bridal). Three different sizes of large mesh panel will be tested (2" (5 cm), 2.5"(6.4 cm) and 3"(7.62 cm)). These three variations will be compared to a pot conforming to current regulations at the time of study; and 2) catch-per-unit-effort of the three experimental pot variations and the legal pot will be examined. The gear used in the study will consist of a standard wire mesh black sea bass habitat pot design. All traps will be a single funnel trap with dimensions of 36" (91.4 cm) x 21" (53.3 cm) x 14" (35.6 cm) construction with vinyl wire mesh (14 gage 1.5" ( )wire mesh). The catches from the experimental gear variants will be compared to both a control pot (1.5" (3.8 cm) mesh throughout and no escape vent(s)). The gear will be weighted towards the posterior of the pot and the bridle attached to the opposite

upper corner of the trap. This rigging will insure the fish are put in contact with the larger mesh portion of the pot and given multiple routes to escape.

The project will utilize 1 licensed commercial sea bass vessel(s) to test the experimental trap design 35-75 ft (10.7-22.9 m), and possibly a second vessel in the same size range to harvest some of the research set-aside allocation. The research vessel will conduct roughly 12 experimental cruises between May 1, 2006 and December 13, 2006. The timing of the cruises will approximate the commercial effort over a fishing season and provide samples spanning an annual sea bass migratory cycle. Prior observations suggest that large numbers of small sea bass occupy the fishing sites in late fall/early winter (September-December). It is important to sample during this period as the experimental gear is intended to be selective on the same small fish that appear to be transient on the offshore live bottom. Sampling location will depend on sea bass abundance between Ocean City, Maryland and Currituck Light, North Carolina. The specific location of trap sets will be at the captain's discretion. In general, sites will be roughly 20-50 miles (32.2-80.5 kg) offshore in 90 - 130 ft (27.4 - 39.6 m) of water depth. Overall, the study will utilize 110 black sea bass habitat pots. Of the 110 pots, 100 will be actively used and the remainder will be held in reserve to account for lost gear. The pots will be fished in strings of 20 pots. Four replicates of each design (3 experimental, 1 control, and 1 standard legal) will be randomly placed on each string. Individual pots within a string will be 49 ft (15 m) apart. Each string will be fished in relation to bottom structure, topically a specific "hang". Five strings of pots will be fished per trip (totaling 100 traps/day) with 12 trips planned. Soak times for each set of strings of pots will be kept to 7 and 14 days in length, weather permitting. Detailed catch and data will be obtained from all pots to provide gear performance and size selectivity information. All black sea bass and bycatch will be separated by species and measured to the nearest half center meter. A deck log will be maintained to record location, weather, time , soak duration, water depth, catch information , and observations of discard.

The non-selective control pots will have no black sea bass cull ring, therefore, a special black sea bass vent gear exemption would be required for use of these pots.

The vessel, when conducting research, will need to be exempt form, black sea bass closure restrictions, and possession limit restrictions, and lobster trap limits and vent regulations. Exemption from the closure restrictions will allow the compensation fishing to proceed during a fishery closure.

In the event that the research is completed, but low numbers of sea bass were encountered during the sampling trips, it may be necessary to harvest a portion of the research set-aside allocation aboard another licensed commercial sea bass vessel. Therefore, both vessels will need exemptions to closed seasons and trip limits for black sea bass. The most likely ports for landings will be in Rhode Island and Massachusetts.

EFH Concerns

The area affected by the proposed action has been identified as EFH for species managed by the following FMPs: Northeast Multispecies; Summer Flounder, Scup, and Black Sea Bass; Squid, Atlantic Mackerel, and Butterfish; Atlantic Surf Clam and Ocean Quahog; Atlantic Herring; Atlantic Bluefish; and Atlantic Tunas, Swordfish, and Sharks. The action in the context of the fishery as a whole should not be substantial.

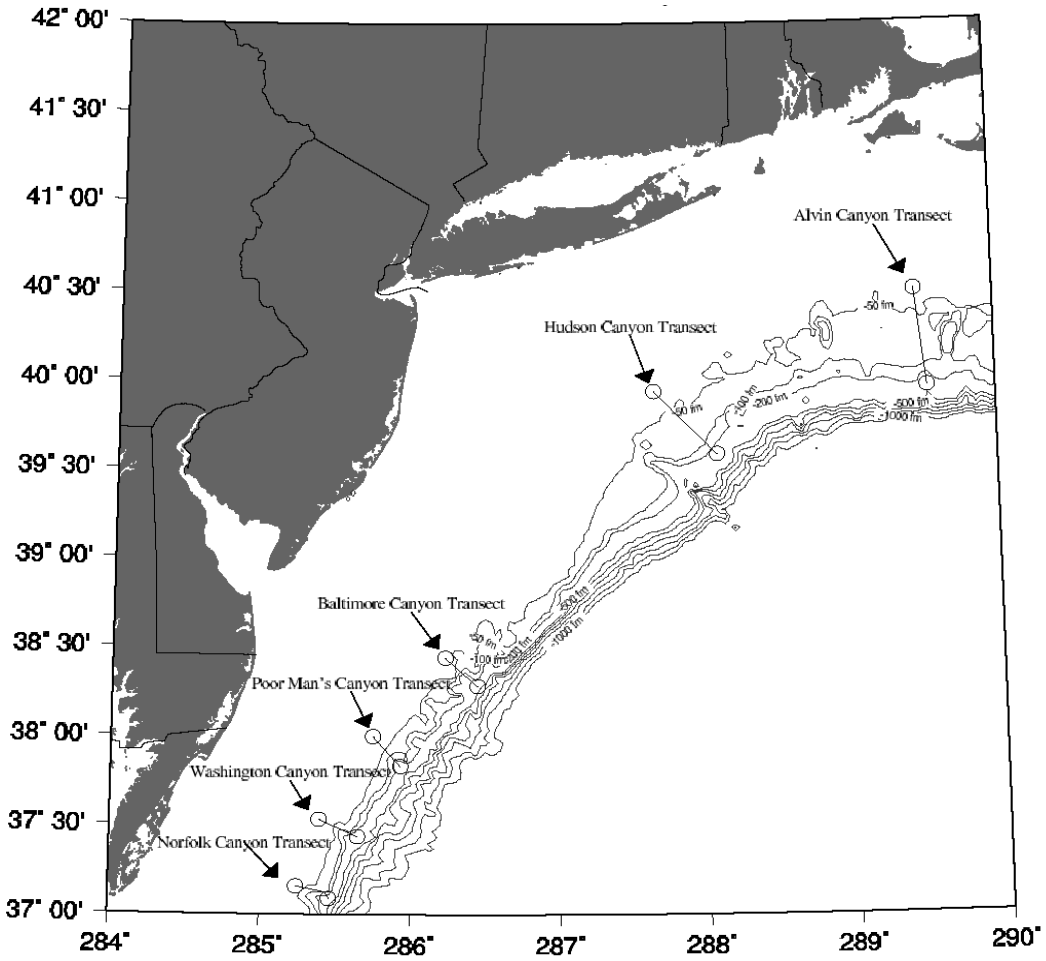
Endangered species

This action should not adversely affect endangered and threatened species or their critical habitat.

Marine Mammals

Fishing activities conducted under this project should have no adverse impacts on marine mammals.

Figure 1. Supplemental Finfish Trawl Survey Transects



APPENDIX D

Description of Species Listed as Endangered 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. 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 (Waring *et al.* 2002).

The north Atlantic right whale has the highest risk of extinction among all of the large whales in the world's 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).

Right whales appear to prefer shallow coastal waters, but their distribution is also strongly correlated to the distribution of their prey (zooplankton). In both the northern and southern hemispheres, right whales are observed in the lower latitudes and more coastal waters during winter where calving takes place, and then tend to migrate to higher latitudes during the summer. The distribution of right whales in summer and fall in both hemispheres appears linked to the distribution of their principal zooplankton prey (Winn *et al.* 1986). They generally occur in Northwest Atlantic waters west of the Gulf Stream and are most commonly associated with cooler waters (21º C). They are not found in the Caribbean and have been recorded only rarely in the Gulf of Mexico.

Right whales feed on zooplankton through the water column, and in shallow waters may feed near the bottom. In the Gulf of Maine they have been observed feeding on zooplankton, primarily copepods, by skimming at or below the water's surface with open mouths (NMFS 1991b; Kenney *et al.* 1986; Murison and Gaskin 1989; and Mayo and Marx 1990). Research suggests that right whales must locate and exploit extremely dense patches of zooplankton to feed efficiently (Waring *et al.* 2000). New England waters include important foraging habitat for right whales and at least some portion of the North Atlantic right whale population is present in these waters throughout most months of the year. They are most abundant in Cape Cod Bay between February and April (Hamilton and Mayo 1990; Schevill *et al.* 1986; Watkins and Schevill 1982) and in the

Great South Channel in May and June (Payne *et al.* 1990) where they have been observed feeding predominantly on copepods, largely of the genera *Calanus* and *Pseudocalanus* (Waring *et al.* 2002). Right whales also frequent Stellwagen Bank and Jeffrey's Ledge, as well as Canadian waters including the Bay of Fundy and Browns and Baccaro Banks, in the spring and summer months. Mid-Atlantic waters are used as a migratory pathway from the spring and summer feeding/nursery areas to the winter calving grounds off the coast of Georgia and Florida.

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 (Canadian Recovery Plan for the North Atlantic Right Whale 2000).

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 PBR.

The western North Atlantic population of right whales was estimated to be 291 individuals in 1998 (Waring *et al.* 2002). The current population growth rate of 2.5% as reported by Knowlton *et al.* (1994) suggests the stock may be showing signs of slow recovery. 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).

Various papers (Barlow & Clapham 1997; Clapham *et al.* 1999) summarized information gathered from a catalogue of photographs of 643 individuals from the western North Atlantic population of humpback whales. These photographs identified reproductively mature western North Atlantic humpbacks wintering in tropical breeding grounds in the Antilles, primarily on Silver and Navidad Banks, north of the Dominican Republic. The primary winter range also includes the Virgin Islands and Puerto Rico (Waring *et al.* 2002). In general, it is believed that calving and copulation take place on the winter range. Calves are born from December through March and are about 4 meters at birth. Sexually mature females give birth approximately every 2 to 3 years. Sexual maturity is reached between 4 and 6 years of age for females and between 7 and 15 years for males. Size at maturity is about 12 meters.

Humpback whales use the mid-Atlantic as a migratory pathway, but it may also be an important feeding area for juveniles. Since 1989, observations of juvenile humpbacks in the mid-Atlantic have been increasing during the winter months, peaking January through March (Swingle *et al.* 1993). Biologists speculate that non-reproductive animals may be establishing a winter feeding range in the mid-Atlantic since they are not participating in reproductive behavior in the Caribbean. Swingle *et al.* (1993) identified a shift in distribution of juvenile humpback whales in the nearshore waters of Virginia, primarily in winter months. Those whales using this mid-Atlantic area that have been identified were found to be residents of the GOM and Atlantic Canada (Gulf of St. Lawrence and Newfoundland) feeding groups, suggesting a mixing of different feeding stocks in the mid-Atlantic region. A shift in distribution may be related to winter prey availability. Studies conducted by the Virginia Marine Science Museum indicate that these whales are feeding on, among other things, bay anchovies and menhaden. In concert with the increase in mid-Atlantic whale sightings, strandings of humpback whales have increased between New Jersey and Florida since 1985. Strandings were most frequent during

September through April in North Carolina and Virginia waters, and were composed primarily of juvenile humpback whales of no more than 11 meters in length (Wiley *et al.* 1995). Six of 18 humpbacks for which the cause of mortality was determined were killed by vessel strikes. An additional humpback had scars and bone fractures indicative of a previous vessel strike that may have contributed to the whale's mortality. Sixty percent of those mortalities that were closely investigated showed signs of entanglement or vessel collision.

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.

Estimating abundance for the Gulf of Maine stock has proved problematic. Three approaches have been investigated: mark-recapture estimates, minimum population size, and line-transect estimates. Most of the mark recapture estimates were affected by heterogeneity of sampling, which was heavily focused on the southwestern Gulf of Maine. However, an estimate of 652 (CV=0.29) derived from the more extensive and representative YONAH sampling in 1992 and 1993 was probably less subject to this bias. The second approach uses photo-identification data to establish the minimum number of humpback whales known to be alive in a particular year, 1997. By determining the number of identified individuals seen either in that year, or in both a previous and subsequent year, it is possible to determine that at least 497 humpbacks were alive in 1997. This figure is also likely to be negatively biased, again because of heterogeneity of sampling. A similar calculation for 1992 (which would correspond to the YONAH estimate for the Gulf of Maine) yields a figure of 501 whales (Waring *et al.* 2002).

In the third approach, data were used from a 28 July to 31 August 1999 line-transect sighting survey conducted by a ship and airplane covering waters from Georges Bank to the mouth of the Gulf of St. Lawrence. Total track line length was 8,212 km. However, in light of the information on stock identity of Scotian Shelf humpback whales noted above, only the portions of the survey covering the Gulf of Maine were used; surveys blocks along the eastern coast of Nova Scotia were excluded. Shipboard data were analyzed using the modified direct duplicate method (Palka 1995) that accounts for school size bias and g(0), the probability of detecting a group on the track line. Aerial data were not corrected for g(0) (Palka 2000). These surveys yielded an estimate of 816 humpbacks (CV = 0.45). However, given that the rate of exchange between the Gulf of Maine and both the Scotian Shelf and mid-Atlantic region is not zero, this estimate is likely to be somewhat conservative. Accordingly, inclusion of data from 25% of the Scotian Shelf survey area (to reflect the match rate of 25% between the Scotian Shelf and the Gulf of Maine) gives an estimate of 902 whales (CV=0.41). Since the mark-recapture

figures for abundance and minimum population size given above falls above the lower bound of the CV of the line transect estimate, and given the known exchange between the Gulf of Maine and the Scotian Shelf, we have chosen to use the latter as the best estimate of abundance for Gulf of Maine humpback whales (Waring *et al.* 2002).

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).

As detailed below, current data suggest that the Gulf of Maine humpback whale stock is steadily increasing in size. This is consistent with an estimated average trend of 3.2% (SE=0.005) in the North Atlantic population overall for the period 1979–1993 (Stevick *et al.* 2001), although there are no other feeding-area-specific estimates. Barlow and Clapham (1997) applied an interbirth interval model to photographic mark-recapture data and estimated the population growth rate of the Gulf of Maine humpback whale stock at 6.5% (CV=0.012). Maximum net productivity is unknown for this population, although a theoretical maximum for any humpback population can be calculated using known values for biological parameters (Brandão *et al.* 2000, Clapham *et al.* 2001b). For the Gulf of Maine, data supplied by Barlow and Clapham (1997) and Clapham *et al.* (1995) gives values of 0.96 for survival rate, 6y as mean age at first parturition, 0.5 as the proportion of females, and 0.42 for annual pregnancy rate. From this, a maximum population growth rate of 0.072 is obtained according to the method described by Brandão et al. (2000). This suggests that the observed rate of 6.5% (Barlow and Clapham 1997) was close to the maximum for this stock. Clapham *et al.* (2001a) updated the Barlow and Clapham (1997) analysis using data from the period 1992 to 2000. The estimate was either 0% (for a calf survival rate of 0.51) or 4.0% (for a calf survival rate of 0.875). Although confidence limits are not available (because maturation parameters could not be estimated), both estimates of population growth rate are outside the 95% confidence intervals of the previous estimate of 6.5% for the period 1979 to 1991 (Barlow and Clapham 1997). It is unclear whether this apparent decline is an artifact resulting from a shift in distribution; indeed, such a shift occurred during exactly the period (1992-95) in which survival rates declined. It is possible that this shift resulted in calves born in those years imprinting on (and thus subsequently returning to) areas other than those in which intensive sampling occurs. If the decline is a real phenomenon it may be related to known high mortality among young-of-the-year whales in the waters of the U.S. mid-Atlantic states. However, calf survival appears to have increased since 1996, presumably accompanied by an increase in population growth. In light of the uncertainty accompanying the more recent estimate of population growth rate for the Gulf of Maine, for purposes of this assessment the maximum net productivity rate was assumed to be the default value for cetaceans of 0.04 (Barlow et al. 1995). Current and maximum net productivity rates are unknown for the North Atlantic population overall (Waring *et al.* 2002). As noted above, Stevick et al. (2001) calculated an average population growth rate of 3.2% (SE=0.005) for the period 1979–1993.

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 (OSP) 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 (1999) 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).

As with right whales, human impacts (vessel collisions and entanglements) are factors which may be slowing recovery of the humpback whale population. There is an average of four to six entanglements of humpback whales a year in waters of the southern Gulf of Maine and additional reports of vessel-collision scars (unpublished data, Center for Coastal Studies). Of 20 dead humpback whales (principally in the mid-Atlantic, where decomposition did not preclude examination for human impacts), Wiley et al. (1995) reported that 6 (30%) had major injuries possibly attributable to ship strikes, and 5 (25%) had injuries consistent with possible entanglement in fishing gear. One whale displayed scars that may have been caused by both ship strike and entanglement. Thus, 60% of the whale carcasses which were suitable for examination showed signs that anthropogenic factors may have contributed to, or been responsible for, their death. Wiley et al. (1995) further reported that all stranded animals were sexually immature, suggesting a winter or migratory segregation and/or that juvenile animals are more susceptible to human impacts.

An updated analysis of humpback whale mortalities from the mid-Atlantic states region has recently been produced by Barco *et al.* (2001). Between 1990 and 2000, there were 52 known humpback whale mortalities in the waters of the U.S. mid-Atlantic states (summarized by Barco *et al.* 2001). Length data from 48 of these whales (18 females, 22 males and 8 of unknown sex) suggested that 39 (81.2%) were first-year animals, 7 (14.6%) were immature and 2 (4.2%) were adults. However, sighting histories of 5 of the dead whales indicate that some were small for their age, and histories of live whales further indicate that the population contains a greater percentage of mature animals than is suggested by the stranded sample. In their study of entanglement rates estimated from caudal peduncle scars, Robbins and Mattila (2001) found that males were more likely to be entangled than females. The scarring data also suggested that yearlings were more likely than other age classes to be involved in entanglements. Finally, female humpbacks showing evidence of prior entanglements produced significantly fewer calves, suggesting that entanglement may significantly impact reproductive success. Humpback whale entanglements also occur in relatively high numbers in Canadian waters. Reports of collisions with fixed fishing gear set for groundfish around Newfoundland averaged 365 annually from 1979 to 1987 (range 174-813). An average of 50 humpback whale entanglements (range 26-66) were reported annually between 1979 and 1988, and 12 of 66 humpback whales that were entangled in 1988 died (Lien et al. 1988). Volgenau et al. (1995) also summarized existing data and concluded that in Newfoundland and Labrador, cod traps caused the most entanglements and entanglement mortalities (21%) of humpbacks between 1979 and 1992. They also reported that gillnets are the gear that has been the primary cause of entanglements and entanglement mortalities (20%) of humpbacks in the Gulf of Maine between 1975 and 1990.

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).

As in the case of right and humpback whales, fin whale populations were heavily affected by commercial whaling. However, commercial exploitation of fin whales occurred much later than for right and humpback whales. Although some fin whales were taken as early as the 17th century by the Japanese using a fairly primitive open-water netting technique (Perry *et al.* 1999) and were hunted occasionally by sailing vessel whalers in the 19th century (Mitchell and Reeves 1983), wide-scale commercial exploitation of fin whales did not occur until the 20th century when the use of steam power and harpoon- gun

technology made exploitation of this faster, more offshore species feasible. In the southern hemisphere, over 700,000 fin whales were landed in the 20th century. More than 48,000 fin whales were taken in the North Atlantic between 1860 and 1970 (Perry *et al.* 1999). Fisheries existed off of Newfoundland, Nova Scotia, Norway, Iceland, the Faroe Islands, Svalbard (Spitsbergen), the islands of the British coasts, Spain and Portugal. Fin whales were rarely taken in U.S. waters, except when they ventured near the shores of Provincetown, MA, during the late 1800's (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.

In the North Atlantic today, fin whales are widespread and occur from the Gulf of Mexico and Mediterranean Sea northward to the edges of the arctic pack ice (Waring *et al.* 2002). A number of researchers have suggested the existence of fin whale subpopulations in the North Atlantic. Mizroch *et al.* (1984) suggested that local depletions resulting from commercial overharvesting supported the existence of North Atlantic fin whale subpopulations. Others have used genetics information to provide support for the belief that there are several subpopulations of fin whales in the North Atlantic and Mediterranean (Bérubé *et al.* 1998). In 1976, the IWC's Scientific Committee proposed seven stocks for North Atlantic fin whales. These are: (1) North Norway; (2) West Norway-Faroe Islands; (3) British Isles-Spain and Portugal; (4) East Greenland-Iceland; (5) West Greenland; (6) Newfoundland-Labrador; and (7) Nova Scotia (Perry *et al.* 1999). However, it is uncertain whether these stock boundaries define biologically isolated units (Waring *et al.* 2002). The NMFS has designated one stock of fin whale for U.S. waters of the North Atlantic where the species is commonly found from Cape Hatteras northward.

During 1978-1982 aerial surveys, fin whales accounted for 24% of all cetaceans and 46% of all large cetaceans sighted over the continental shelf between Cape Hatteras and Nova Scotia (Waring *et al.* 1998). Underwater listening systems have also demonstrated that the fin whale is the most acoustically common whale species heard in the North Atlantic (Clark 1995). The single most important area for this species appeared to be from the Great South Channel, along the 50 meter isobath past Cape Cod, over Stellwagen Bank, and past Cape Ann to Jeffrey's Ledge (Hain *et al.* 1992).

Despite our broad knowledge of fin whales, less is known about their life history as compared to right and humpback whales. Age at sexual maturity for both sexes ranges from 5-15 years. Physical maturity is reached at 20-30 years. Conception occurs during

a 5 month winter period in either hemisphere. After a 12 month gestation, a single calf is born. The calf is weaned between 6 and 11 months after birth. The mean calving interval is 2.7 years, with a range of between 2 and 3 years (Agler *et al.* 1993). Like right and humpback whales, fin whales are believed to use northwestern North Atlantic waters primarily for feeding and migrate to more southern waters for calving. However, the overall pattern of fin whale movement consists of a less obvious north-south pattern of migration than that of right and humpback whales. Based on acoustic recordings from hydrophone arrays, Clark (1995) reported a general pattern of fin whale movements in the fall from the Labrador/Newfoundland region, south past Bermuda, and into the West Indies. However, evidence regarding where the majority of fin whales winter, calve, and mate is still scarce. Some populations seem to move with the seasons (e.g., one moving south in winter to occupy the summer range of another), but there is much structuring in fin whale populations that what animals of different sex and age class do is not at all clear. Neonate strandings along the U.S. mid-Atlantic coast from October through January suggest the possibility of an offshore calving area.

The overall distribution of fin whales may be based on prey availability. This species preys opportunistically on both invertebrates and fish. The predominant prey of fin whales varies greatly in different geographical areas depending on what is locally available. In the western North Atlantic fin whales feed on a variety of small schooling fish (i.e., herring, capelin, sand lance) as well as squid and planktonic crustaceans. As with humpback whales, fin whales feed by filtering large volumes of water for their prey through their baleen plates. Photo identification studies in western North Atlantic feeding areas, particularly in Massachusetts Bay, have shown a high rate of annual return by fin whales, both within years and between years (Seipt *et al.* 1990).

As discussed above, fin whales were the focus of commercial whaling, primarily in the 20th century. The IWC did not begin to manage commercial whaling of fin whales in the North Atlantic until 1976. In 1987, fin whales were given total protection in the North Atlantic with the exception of a subsistence whaling hunt for Greenland. The IWC set a catch limit of 19 whales for the years 1995-1997 in West Greenland. All other fin whale stocks had a zero catch limit for these same years. However, Iceland reported a catch of 136 whales in the 1988/89 and 1989/90 seasons, and has since ceased reporting fin whale kills to the IWC (Perry *et al.* 1999). In total, there have been 239 reported kills of fin whales from the North Atlantic from 1988 to 1995.

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 (Donovan 1991 *in* 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 became the target of modern commercial whalers primarily in the late 19th and early 20th century after stocks of other whales, including right, humpback, fin and blues, had already been depleted. Sei whales were taken in large numbers by Norway and Scotland from the beginning of modern whaling. More than 700 sei whales were killed off of Norway in 1885, alone. Small numbers were also taken off of Spain, Portugal and in the Strait of Gibraltar beginning in the 1920's, and by Norwegian and Danish whalers off of West Greenland from the 1920's to 1950's (Perry *et al.* 1999). In the western North Atlantic, sei whales were originally hunted off of Norway and Iceland, but from 1967-1972, sei whales were also taken off of Nova Scotia (Perry *et al.* 1999). A total of 825 sei whales were taken on the Scotian Shelf between 1966-1972, and an additional 16 were taken from the same area during the same time by a shore based Newfoundland whaling station (Perry *et al.* 1999). The species continued to be exploited in Iceland until 1986 even though measures to stop whaling of sei whales in other areas had been put into place in the 1970's (Perry *et al.* 1999). There is no estimate for the abundance of sei whales prior to commercial whaling. Based on whaling records, approximately14,295 sei whales were taken in the entire North Atlantic from 1885 to 1984 (Perry *et al.* 1999).

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. 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. 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.

Although sei whales may prey upon small schooling fish and squid in the action area, available information suggests that calanoid copepods and euphausiids are the primary prey of this species. There are occasional influxes of sei whales further into Gulf of Maine waters, presumably in conjunction with years of high copepod abundance inshore. Sei whales are occasionally seen feeding in association with right whales in the southern Gulf of Maine and in the Bay of Fundy. However, there is no evidence to demonstrate interspecific competition between these species for food resources. There is very little information on natural mortality factors for sei whales. Possible causes of natural mortality, particularly for young, old or otherwise compromised individuals are shark attacks, killer whale attacks, and endoparasitic helminths. Baleen loss has been observed in California sei whales, presumably as a result of an unknown disease (Perry *et al.* 1999).

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* (Waring *et al.* 2002). 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 were intensively hunted in all of the world's oceans from the turn of the century to the mid-1960's. Blue whales were occasionally hunted by sailing vessel whalers in the 19th century. However, development of steam-powered vessels and deck-mounted harpoon guns in the late 19th century made it possible to exploit them on an industrial scale. Blue whale populations declined worldwide as the new technology spread and began to receive widespread use (Perry *et al.* 1999). Subsequently, the whaling industry shifted effort away from declining blue whale stocks and targeted other large species, such as fin whales, and then resumed hunting for blue whales when the species appeared to be more abundant (Perry *et al.* 1999). The result was a cyclical rise and fall, leading to severe depletion of blue whale stocks worldwide (Perry *et al.* 1999). In the North Atlantic, Norway shifted operations to fin whales as early as 1882 due to the scarcity of blue whales (Perry *et al.* 1999). In all, at least 11,000 blue whales were taken in the North Atlantic from the late 19th century through the mid-20th century. Blue whales were given complete protection in the North Atlantic in 1955 under the International Convention for the Regulation of Whaling. However, Iceland continued to hunt blue whales until 1960. There are no good estimates of the pre-exploitation size of the western North Atlantic blue whale stock but it is widely believed that this stock was severely depleted by the time legal protection was introduced in 1955 (Perry *et al.* 1999). Mitchell (1974) suggested that the stock numbered in the very low hundreds during the late 1960's through early 1970's (Perry *et al.* 1999). Photo-identification studies of blue whales in the Gulf of St. Lawrence from 1979 to 1995 identified 320 individual whales. The NMFS recognizes a minimum population estimate of 308 blue whales for the western North Atlantic (Waring *et al.* 2002).

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. 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.

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, 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).

There is limited information on the factors affecting natural mortality of blue whales in the North Atlantic. Ice entrapment is known to kill and seriously injure some blue whales, particularly along the southwest coast of Newfoundland, during late winter and early spring. Habitat degradation has been suggested as possibly affecting blue whales such as in the St. Lawrence River and the Gulf of St. Lawrence where habitat has been degraded by acoustic and chemical pollution. However, there is no data to confirm that blue whales have been affected by such habitat changes (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).

The International Whaling Commission estimates that nearly a quarter-million sperm whales were killed worldwide in whaling activities between 1800 and 1900 (IWC 1971). However, estimates of the number of sperm whales taken during this time are difficult to quantify since sperm whale catches from the early 19th century through the early 20th century were calculated on barrels of oil produced per whale rather than the actual number of whales caught (Perry *et al.* 1999). With the advent of modern whaling the larger rorqual whales were targeted. However as their numbers decreased, greater attention was paid to smaller rorquals and sperm whales. From 1910 to 1982 there were nearly 700,000 sperm whales killed worldwide from whaling activities (Clarke 1954). Whale catches for the southern hemisphere is 394,000 (including revised Soviet figures). Sperm whales were hunted in America from the 17th century through the early 20th century. In the North Atlantic, hunting occurred off of Iceland, Norway, the Faroe Islands, coastal Britain, West Greenland, Nova Scotia, Newfoundland/Labrador, New England, the Azores, Madeira, Spain, and Spanish Morocco (Waring *et al.* 1998). Some whales were also taken off the U.S. Mid-Atlantic coast (Reeves and Mitchell 1988; Perry *et al.* 1999), and in the northern Gulf of Mexico (Perry *et al.* 1999). There are no catch estimates available for the number of sperm whales caught during U.S. operations (Perry *et al.* 1999). Recorded North Atlantic sperm whale catch numbers for Canada and Norway from 1904 to 1972 total 1,995. All killing of sperm whales was banned by the IWC in 1988. However, at the 2000 meetings of the IWC, Japan indicated it would include the take of sperm whales in its scientific research whaling operations. Although this action was disapproved of by the IWC, Japan has reported the take of 5 sperm whales from the North Pacific as a result of this research.

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.* (2002) 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 , 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).

Sperm whale distribution may be linked to their social structure as well as distribution of their prey (Waring *et al.* 2002). Sperm whale populations are organized into two types of groupings: breeding schools and bachelor schools. Older males are often solitary (Best

1979). Breeding schools consist of females of all ages, calves and juvenile males. In the Northern Hemisphere, mature females ovulate April through August. During this season one or more large mature bulls temporarily join each breeding school. A single calf is born after a 15-month gestation. A mature female will produce a calf every 4-6 years. Females attain sexual maturity at a mean age of nine years, while males have a prolonged puberty and attain sexual maturity at about age 20 (Waring *et al.* 2002). Bachelor schools consist of maturing males who leave the breeding school and aggregate in loose groups of about 40 animals. As the males grow older they separate from the bachelor schools and remain solitary most of the year (Best 1979). Male sperm whales may not reach physical maturity until they are 45 years old (Waring *et al.* 2002). The sperm whales prey consists of larger mesopelagic squid (e.g., *Architeuthis* and *Moroteuthis*) and fish species (Perry *et al.* 1999). Sperm whales, especially mature males in higher latitude waters, have been observed to take significant quantities of large demersal and mesopelagic sharks, skates, and bony fishes (Clarke 1962, 1980).

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.

Atlantic Bottlenose dolphin

Most of the information which follows concerning Atlantic bottlenose dolphin was excerpted from the most recent stock assessment for this species (Waring *et al.* 2002). The coastal morphotype of the Atlantic bottlenose dolphin is continuously distributed along the Atlantic coast south of Long Island, around peninsula Florida and along the Gulf of Mexico coast. Within the western North Atlantic, the stock structure of coastal bottlenose dolphins is complex. Scott *et al.* (1988) hypothesized a single coastal migratory stock ranging seasonally from as far north as Long Island, NY, to as far south as central Florida, citing stranding patterns during a high mortality event in 1987-88 and observed density patterns along the US Atlantic coast. The continuous distribution of dolphins along the coast seemed to support this hypothesis. It was recognized that bottlenose dolphins were resident in some estuaries; these were considered to be separate from the coastal migratory animals. However, recent studies suggest that the single coastal migratory stock hypothesis is incorrect and that there is likely a complex mosaic of stocks. For example, year-round resident populations have been reported at a variety of sites in the southern part of the range, from Charleston, South Carolina (Zolman 1996) to central Florida (Odell and Asper 1990); seasonal residents and migratory or transient animals also occur in these areas (summarized in Hohn 1997). In the northern part of the range the patterns reported include seasonal residency, year-round residency with large home ranges, and migratory or transient movements (Barco and Swingle 1996, Sayigh *et al.* 1997). Communities of dolphins have been recognized in embayments and coastal areas of the Gulf of Mexico (Wells *et al.* 1996; Scott *et al.* 1990; Weller 1998) so it is not surprising to find similar situations along the Atlantic coast (Waring *et al.* 2002).

Recent genetic analyses of samples from Jacksonville, FL, southern South Carolina (primarily the estuaries around Charleston), southern North Carolina, and coastal Virginia, using both mitochondrial DNA and nuclear microsatellite markers, indicate that a significant amount of the overall genetic variation can be explained by differences between the groups (NMFS 2001). These results indicate a minimum of four populations of coastal bottlenose dolphins in the Northwest Atlantic and reject the null hypothesis of one homogeneous population of bottlenose dolphins. Integration of the preliminary results from genetics, photo-identification, satellite telemetry, and stable isotope studies confirms a complex mosaic of stocks of coastal bottlenose dolphins in the western North Atlantic (Waring *et al.* 2002). As an interim measure, pending additional results, seven management units within the range of the "coastal migratory stock" have been defined. The true population structure is likely more than the seven units identified in Waring *et al.* (2002); research efforts continue in an attempt to identify that structure.

Earlier aerial (CETAP 1982) and shipboard (NMFS unpublished data) surveys north of Cape Hatteras identified two concentrations of bottlenose dolphins, one inshore of the 25

m isobath and the other offshore of the 25 m isobath. The lowest density of bottlenose dolphins was observed over the continental shelf, with higher densities along the coast and near the continental shelf edge. It was suggested that the coastal morphotype is restricted to waters < 25 m in depth north of Cape Hatteras (Kenney 1990). There was no apparent longitudinal discontinuity in bottlenose dolphin herd sightings during aerial surveys south of Cape Hatteras in the winter (Blaylock and Hoggard 1994). NMFS surveys conducted from 1992-1998 show a clustering of bottlenose dolphins nearshore and then additional bottlenose dolphins in the offshore areas. Unfortunately, the morphotype of bottlenose dolphins (WNA offshore or WNA coastal) cannot be determined from the air so attributing each sighting to a specific morphotype is not possible. There is also a potential for confusing immature spotted dolphins, with few or no spots dorsally, with bottlenose dolphins where the two species are co-occur. In 1995, NMFS conducted two aerial surveys along the Atlantic coast (Blaylock 1995; Garrison and Yeung 2001). One survey was conducted during summer 1995 between Cape Hatteras, NC, and Sandy Hook, NJ, and included three replicate surveys. The second survey was conducted during winter 1995 between Cape Hatteras, NC, and Ft. Pierce, FL. A distributional analysis identified a significant spatial pattern in bottlenose dolphin sightings as a function of distance from shore (Garrison 2001a). During the northern (summer) surveys, the significant spatial boundary occurred at 12 km from shore. During the southern (winter) survey, the significant spatial boundary occurred at 27 km from shore. The gap in sightings best defines, for the time being, the eastern extent of the coastal morphotype for purposes of habitat definition and abundance estimates. NMFS continues to collect biopsy samples from *Tursiops* throughout the possible range of the coastal morphotype so that stock boundaries can be confirmed or modified on the basis of a more comprehensive data set (Waring *et al.* 2002).

The 1995 aerial surveys were conducted to estimate population size of the hypothesized single coastal migratory stock (Blaylock 1995; Garrison and Yeung 2001). The summer aerial survey was conducted between July 1 and August 14, 1995, covering Cape Hatteras, NC, to Sandy Hook, NJ, (35.23^{o}N-40.5^{o}N), and from the mainland shore to the 25 m isobath. This survey provided coverage and abundance estimates for the Northern Migratory (NM) and Northern North Carolina (NNC) management units. However, coverage of the NNC unit was incomplete as the surveys did not cover the region south of Cape Hatteras, NC, to Cape Lookout, NC. Abundance was estimated for each stratum pooling across the three replicate surveys. The winter survey was conducted between January 27 and March 6, covering from Fort Pierce, FL, to Cape Hatteras, NC, from the mainland shore to 9.25 km (5 Nautical Miles) beyond the inshore edge of the Gulf Stream or <200 km offshore. This survey included coverage of the NNC, Southern North Carolina (SNC), South Carolina (SC), Georgia (GA), Northern Florida (NFL) and Central Florida (CFL) management units. However, the coverage of the NNC management unit was incomplete and did not include the region north of Cape Hatteras, NC. These abundance estimates also include NM unit animals that have migrated south of the NC/VA border during winter. Abundance for each management unit was estimated using line transect methods and the program DISTANCE (Buckland *et al.* 1993) for both the winter and summer surveys. There was no significant difference between the abundance estimates for the combined NM and NNC management units in summer and the

combined NM, NNC, and SNC stocks in winter. Another set of aerial surveys was conducted parallel to the coastline from the North Carolina/South Carolina border to the Maryland/Delaware border during 1998 and 1999 to document the distribution of dolphins and fishing gear in nearshore waters (Hohn *et al.* unpubl. data). These strip transect surveys were conducted weekly, weather permitting, over 12 months in most of North Carolina and for six months (May to December) in Virginia and Maryland. In retrospect, they provide seasonal coverage of the Southern North Carolina, Northern North Carolina, and Northern Migratory management units. The strip transect surveys cannot be used directly for abundance estimation because they did not follow the design constraints of line transect survey methods and covered only a small proportion of the habitat of coastal bottlenose dolphin. The density of dolphins near the coastline is high relative to habitats further offshore, and the use of density estimates in this region to calculate overall abundance would likely result in significant positive bias. However, these surveys do provide information on the relative abundance of dolphins between regions that may be used to supplement the abundance estimates from the line transect surveys conducted in 1995 (Garrison and Hohn 2001). Both sets of aerial surveys covered ocean coasts only. An abundance estimate was generated for bottlenose dolphins in estuarine waters of North Carolina using mark-recapture methodology (Read *et al.* In review). It is possible to post-stratify the markrecapture estimates consistent with management unit definitions (Palka *et al.* 2001). Abundance estimates for each management unit are the sum of estimates, where appropriate, from the recent analyses. Estimated overall abundance was 9,206 from summer surveys and 19,459 from winter surveys. However, for consistency with achieving the goals of the MMPA, such as maintaining marine mammals as functioning components of their ecosystems, it is more appropriate to establish abundance estimates for each management unit. Abundance for each management unit was estimated by post-stratifying sightings and effort data consistent with geographic and seasonal management unit boundaries (Garrison and Yeung 2001; Palka *et al.* 2001). Although these estimates are improved relative to previous abundance estimates for coastal bottlenose dolphins, potential biases remain. The aerial survey estimates are not corrected for g(0), the probability of detecting a group on the track line as a function of perception bias and availability bias. The exclusion of g(0) from the abundance estimate results in a negative bias of unknown magnitude. A positive bias may occur if the longitudinal boundaries have been extended too far offshore resulting in offshore dolphins being included in the abundance estimates for the coastal morphotype or if estuarine dolphins were over-represented in coastal waters during the time of the survey. Further uncertainties in the abundance estimates result from incomplete coverage of some seasonal management units during the line transect surveys. While the strip transect surveys were used to supplement the survey coverage, uncertainties associated with that analysis also introduce uncertainty in the overall abundance estimate (Garrison and Hohn 2001).

The minimum population size (NMIN) for each management was calculated by Waring *et al.* (2002) according to he Potential Biological Removal (PBR) Guidelines (Wade and Angliss 1997): NMIN= N/exp(0.842H[ln(1+[CV(N)]2)]½). It was recognized that these estimates may be negatively biased because they do not include corrections for g(0) and, for some of the managements units, do not include the entire spatial range of the unit

during that season. The strip transect surveys compensate for some of the abundance omitted during line-transect survey; nonetheless, for some management units the entire range was not covered. There are insufficient data to determine the population trend for this stock (Waring *et al.* 2002).

In addition, Current and maximum net productivity rates are not known for the WNA coastal morphotype. The maximum net productivity rate was assumed to be 0.04. This value is based on theoretical modeling showing that cetacean populations may not grow at rates much greater than 4% given the constraints of their reproductive life history (Barlow *et al.* 1995; Waring *et al.* 2002).

PBR is the product of the minimum population size, one-half the maximum productivity rate, and a "recovery" factor (Wade and Angliss 1997). The "recovery" factor is assumed to be 0.50, the default for depleted stocks and stocks of unknown status. At least part of the range-wide stock complex is depleted; for the remainder, status is unknown. For consistency with achieving the goals of the MMPA, such as maintaining marine mammals as functioning components of their ecosystems, it is more appropriate to establish separate PBRs for each management unit.

Total estimated average annual fishery-related mortality or serious injury resulting from observed fishing trips during 1996-2000 was 233 bottlenose dolphins (CV=0.16) in the mid-Atlantic coastal gillnet fishery (Waring et al. 2002). The management units affected by this fishery would be the NM, NNC, and SC. An estimated 24 (CV=0.89) were taken in the shark drift gillnet fishery off the coast of Florida during 1999-2000, affecting the Central and Northern Florida management units. No estimates of mortality from observed trips are available for any of the other fisheries that interact with WNA coastal bottlenose dolphins. Therefore, the total average annual mortality estimate is considered to be a lower bound of the actual annual human-caused mortality and serious injury (Waring *et al.* 2002).

Bottlenose dolphins are known to interact with commercial fisheries and occasionally are taken in various kinds of fishing gear including gillnets, seines, long-lines, shrimp trawls, and crab pots (Read 1994; Wang *et al.* 1994) especially in near-shore areas where dolphin densities and fishery efforts are greatest. There are nine Category II commercial fisheries that interact with WNA coastal bottlenose dolphins in the 2001 MMPA LOF, six of which occur in North Carolina waters. Category II fisheries include the mid-Atlantic coastal gillnet, NC inshore gillnet, mid-Atlantic haul/beach seine, NC long haul seine, NC stop net, Atlantic blue crab trap/pot, Southeast Atlantic gillnet, Southeastern U.S. Atlantic shark gillnet and the Virginia pound net (see 2001 List of Fisheries, 66 FR 42780, August 15, 2001; Waring *et al.* 2002). The mid-Atlantic haul/beach seine fishery also includes the haul seine and swipe net fisheries. There are five Category III fisheries that may interact with WNA coastal bottlenose dolphins. Three of these are inshore gillnet fisheries: the Delaware Bay inshore gillnet, the Long Island Sound inshore gillnet, and the Rhode Island, southern Massachusetts, and New York Bight inshore gillnet. The remaining two are the shrimp trawl and mid-Atlantic menhaden purse seine fisheries.

There are have been no takes observed by the NMFS observer programs in any of these fisheries (Waring *et al.* 2002).

The mid-Atlantic coastal gillnet fishery is actually a combination of small-vessel fisheries that target a variety of fish species, including bluefish, croaker, spiny and smooth dogfish, kingfish, Spanish mackerel, spot, striped bass, and weakfish (Steve *et al.* 2001). These fisheries operate in different seasons targeting different species in different states throughout the range of the coastal morphotype. Most nets are set gillnets without anchors and are fished close to shore. Anchored set gillnets or drift gillnets are used in some fisheries (e.g., monkfish or dogfish). A comprehensive description of coastal gillnet gear and fishing effort in North Carolina is available in Steve *et al.* (2001). This fishery has the highest documented level of mortality of WNA coastal bottlenose dolphins; the North Carolina sink gillnet fishery is its largest component in terms of fishing effort and observed takes. Bycatch estimates are available for the period 1996-2000 (Waring *et al.* 2002). Of 12 observed mortalities from 1995-2000, 5 occurred in sets targeting spiny or smooth dogfish and another in a set targeting "shark" species, 2 occurred in striped bass sets, 2 occurred in Spanish mackerel sets, and the remainder were in sets targeting kingfish, weakfish, or "finfish" (Rossman and Palka 2001; Waring *et al.* 2002).

The shark gillnet fishery operates in federal waters from southern Florida to southern Georgia. The fishery is defined by vessels using relatively large mesh nets (>10 inches) and net lengths typically greater than 1500 feet. The fishery primarily uses drifting nets that are set overnight, however recently it has been employing a small number of shorter duration "strike" sets that encircle targeted schools of sharks. Since 1999, the Atlantic Large Whale Take Reduction Plan restricted the activities of the fishery to waters south of 27° 51' N latitude during the critical right whale season from 15 November – 31 March and mandated 100% observer coverage during this period. During the remainder of the year, these vessels generally operate north of Cape Canaveral, FL and there is little observer coverage of the fleet. The fishery potentially interacts with the Georgia, Northern Florida, and Central Florida management units of coastal bottlenose dolphin. During an observer program in 1993 and 1994 and limited observer coverage during summer 1998, no takes of bottlenose dolphin were observed (Trent *et al.* 1997; Carlson and Lee, 2000). However, takes resulting in mortality were observed in the central Florida management unit during 1999 and 2000. Total bycatch mortality for this management unit has been estimated for 1999 and 2000 (Garrison 2001b).

A beach seine fishery operates along northern North Carolina beaches targeting striped bass, mullet, spot, weakfish, sea trout, and bluefish. The fishery operates on the Outer Banks of North Carolina primarily in the spring (April through June) and fall (October through December). It uses two primary gear types: a "beach anchored gill net" and a "beach seine." Both systems utilize a small net anchored to the beach. The beach seine system also uses a bunt and a wash net that are attached to the beach and are in the surf (Steve *et al.* 2001). The North Carolina beach seine fishery has been observed since April 7, 1998 by the NMFS fisheries sampling program (observer program) based at the Northeast Fisheries Science Center. Through 2001, there were 101 sets observed during

the winter season (Nov-Apr) and 65 sets observed during the summer season (May-Oct). There were no sets observed during the summer of 2001. A total of 2 coastal bottlenose dolphin takes were observed, 1 in May 1998 and 1 in December 2000. The beach seine observer data are currently being reviewed but estimates of mortality are not yet available (Waring *et al.* 2002).

Between 1994 and 1998, 22 bottlenose dolphin carcasses (4.4 dolphins per year on average) recovered by the Stranding Network between North Carolina and Florida's Atlantic coast displayed evidence of possible interaction with a trap/pot fishery (i.e., rope and/or pots attached, or rope marks). Additionally, at least 5 dolphins were reported to be released alive (condition unknown) from blue crab traps/pots during this time period. In recent years, reports of strandings with evidence of interactions between bottlenose dolphins and both recreational and commercial crab-pot fisheries have been increasing in the Southeast Region (McFee and Brooks 1998). The increased reporting may result from increased effort towards documenting these marks or increases in mortality (Waring *et al.* 2002).

Data from the Chesapeake Bay suggest that the likelihood of bottlenose dolphin entanglement in pound net leads may be affected by the mesh size of the lead net (Bellmund *et al.* 1997), but the information is not conclusive. Stranding data for 1993-1997 document interactions between WNA coastal bottlenose dolphins and pound nets in Virginia. Two bottlenose dolphin carcasses were found entangled in the leads of pound nets in Virginia during 1993-1997, for an average of 0.4 bottlenose dolphin strandings per year. A third record of an entangled bottlenose dolphin in Virginia in 1997 may have been applicable to this fishery. This entanglement involved a bottlenose dolphin carcass found near a pound net with twisted line marks consistent with the twine in the nearby pound net lead rather than with monofilament gillnet gear. Given that other sources of annual serious injury and mortality estimates (e.g., observer data) are not available, the stranding data (0.4 bottlenose dolphins per year) were used as a minimum estimate of annual serious injury and mortality and this fishery was classified as a Category II fishery in the 2001 List of Fisheries (Waring *et al.* 2002).

The shrimp trawl fishery operates from North Carolina through northern Florida virtually year around, moving seasonally up and down the coast. One bottlenose dolphin was recovered dead from a shrimp trawl in Georgia in 1995 (Southeast USA Marine Mammal Stranding Network unpublished data), and another was taken in 1996 near the mouth of Winyah Bay, SC, during a research survey. No other bottlenose dolphin mortality or serious injury has been previously reported to NMFS (Waring *et al.* 2002).

The Atlantic menhaden purse seine fishery targets the Atlantic menhaden in Atlantic coastal waters. Smith (1999) summarized menhaden fishing patterns by the Virginia-North Carolina vessels from 1985-1996. Most of the catch and sets during that time occurred within three miles of the shore. Between 1994 and 1997, menhaden were processed at only three facilities, two in Reedville Beach, VA, and one in Beaufort, NC. Each of the Virginia facilities had a fleet of 9-10 vessels while the Beaufort facility is supported by 2-6 vessels. Since 1998, only one plant has operated in Virginia and the

number of vessels has been reduced to ten in Virginia and two in North Carolina (Vaughan *et al.* 2001). The fishery moves seasonally, with most effort occurring off of North Carolina from November-January and moving northward to southern New England during warmer months. Menhaden purse seiners have reported an annual incidental take of 1 to 5 bottlenose dolphins, although observer data are not available (Waring *et al.* 2002).

From 1997-1999, 995 bottlenose dolphins were reported stranded along the Atlantic coast from New York to Florida (Hohn and Martone 2001; Hohn *et al.* 2001; Palka *et al.* 2001). Of these, it was possible to determine whether a human interaction had occurred for 449 (45%); for the remainder it was not possible to make that determination. The proportion of carcasses determined to have been involved in a human interaction averaged 34%, but ranged widely from 11-12% in Delaware and Georgia to 49% and 53% in Virginia and North Carolina, respectively.

The nearshore habitat occupied by the coastal morphotype is adjacent to areas of high human population and in the northern portion of its range is highly industrialized. The blubber of stranded dolphins examined during the 1987-88 mortality event contained anthropogenic contaminants in levels among the highest recorded for a cetacean (Geraci 1989). There are no estimates of indirect human-caused mortality resulting from pollution or habitat degradation.

The coastal migratory stock is designated as depleted under the MMPA. From 1995-2001, NMFS recognized only a single migratory stock of coastal bottlenose dolphins in the WNA and, therefore, the entire stock was listed as depleted. The management units in this report now replace the single coastal migratory stock. A re-analysis of the depletion designation on a management unit basis needs to be undertaken. In the interim, because one or more of the management units may be depleted, all management units retain the depleted designation. In addition, mortality in multiple units exceed PBR (Waring *et al.* 2002). There are no rigorous results that would provide reliable information on current abundance relative to historical abundance. All prior estimates cover only part of the range of management units spatially or temporally, include the offshore morphotype, or are otherwise compromised. Population trends cannot be determined due to insufficient data. Over the past five years, estimated average annual mortality exceeded PBR in the mid-Atlantic gillnet fisheries for the northern migratory and northern NC management units during summer and for the NC mixed management units in winter (Waring *et al.* 2002).

The species is not listed as threatened or endangered under the Endangered Species Act, but because, as noted above, the stock is listed as depleted under the MMPA it is a strategic stock. This stock is also considered strategic under the MMPA because fishery-related mortality and serious injury exceed the potential biological removal level.

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 (Ernst and Barbour 1972). 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.* (1998b) 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.

Although leatherbacks are a long lived species (> 30 years), they are somewhat faster to mature than loggerheads, with an estimated age at sexual maturity reported as about 13-14 years for females, and an estimated minimum age at sexual maturity of 5-6 years, with 9 years reported as a likely minimum (Zug and Parham 1996) and 19 years as a likely maximum (NMFS 2001). In the U.S. and Caribbean, female leatherbacks nest from March through July. They nest frequently (up to 7 nests per year) during a nesting season and nest about every 2-3 years. During each nesting, they produce 100 eggs or more in each clutch and thus, can produce 700 eggs or more per nesting season (Schultz 1975). The eggs will incubate for 55-75 days before hatching. The habitat requirements for post-hatchling leatherbacks are virtually unknown (NMFS and USFWS 1992).

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 (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 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 occurred from1990-2000. 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 1996). Eckert (1996) and Spotila *et al.* (1996) record that adult mortality has also increased significantly, particularly as a result of driftnet and longline fisheries. Spotila (2000) 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 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 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. 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. In the Chesapeake Bay, ridleys frequently forage in shallow embayments, particularly in areas supporting submerged aquatic vegetation (Lutcavage and Musick 1985). The juvenile population in Chesapeake Bay is estimated to be 211 to 1,083 turtles.

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 20EC isotherms. In the western 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 8E 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 8E 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). 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 (DPS) are perilously small with total run sizes of approximately 150 spawners occurring in 1999 (Baum 2000). 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 surfclam and ocean quahog fisheries.

Smalltooth sawfish

NMFS issued a final rule to list the DPS of smalltooth sawfish in the United States as an endangered species on April 1, 2003. Smalltooth sawfish are tropical marine and estuarine fish that have the northwestern terminus of their Atlantic range in the waters of the eastern United States. In the United States, smalltooth sawfish are generally a shallow water fish of inshore bars, mangrove edges, and seagrass beds, but larger animals can be found in deeper coastal waters. In order to assess both the historic and the current distribution and abundance of the smalltooth sawfish, a status review team collected and compiled literature accounts, museum collection specimens, and other records on the species. This information indicated that prior to around 1960, smalltooth sawfish occurred commonly in shallow waters of the Gulf of Mexico and eastern seaboard up to North Carolina, and more rarely as far north as New York. Subsequently their distribution has contracted to peninsular Florida and, within that area, they can only be found with any regularity off the extreme southern portion of the state. The current distribution is centered in the Everglades National Park, including Florida Bay (NMFS 2003).

Smalltooth sawfish have declined dramatically in U.S. waters over the last century, as indicated by publication and museum records, negative scientific survey results, anecdotal fishermen observations, and limited landings per unit effort (NMFS 2003). The fact that documented smalltooth sawfish catch records have declined during the twentieth century despite tremendous increases in fishing effort underscores the population reduction in the species. While NMFS lacks time-series abundance data to quantify the extent of the DPS's decline, the best available information indicates that the abundance of the U.S. DPS of smalltooth sawfish is at an extremely low level relative to historic levels.

The smalltooth sawfish continues to face threats from: (1) loss of wetlands, (2) eutrophication, (3) point and non point sources of pollution, (4) increased sedimentation and turbidity, (5) hydrologic modifications, and (6) incidental catch in fisheries (NMFS 2003). Commercial bycatch has played the primary role in the decline of this species. While Federal, state, and interjurisdictional laws, regulations, and policies lead to overall

environmental enhancements indirectly aiding smalltooth sawfish, very few have been applied specifically for the protection of smalltooth sawfish. Based on the species' low intrinsic rate of increase resulting from their slow growth, late maturation, and low fecundity, population recovery potential for the species is limited and the species is at risk of extinction. Current protective measures and conservation efforts underway to protect the smalltooth sawfish are confined to: actions directed at increasing general awareness of this species and the risks it faces; possession prohibitions in the state waters of Florida and Louisiana; and research being pursued by the Mote Marine Laboratory's Center for Shark Research. There are no Federal or state conservation plans for the smalltooth sawfish.

Seabirds

Most of the following information about seabirds is taken from the Mid-Atlantic Regional Marine Research Program (1994) and Peterson (1963). 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 (Safina pers. comm.). 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 fishing gear. Human activities such as coastal development, habitat degradation, and the presence of organochlorine contaminants are considered the major threats to some seabird populations.