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

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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 2007 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 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 2007 recreational measures. The Council and the Board will meet in December 2006 to adopt 2007 recreational management measures when more complete data regarding 2006 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.

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 specifications package details all management alternatives for summer flounder, scup, and black sea bass fisheries evaluated for a one year period (2007).

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 actions that result 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

2006. In addition, the "true" no action alternative for each fishery is infeasible. Thus, the no action alternatives are represented in the alternatives section of the document but are not analyzed within the document. For comparison purposes, the alternatives in this specifications package are compared to the status quo alternatives (base line) as opposed to the "true" no action alternatives.

Summer Flounder Alternatives

The preferred summer flounder alternative 1 recommends a total allowable landings limit of 19.90 million lb for 2007 (an 11.60 million lb adjusted commercial quota; a 7.73 million lb adjusted recreational harvest limit). 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 (RSAs) from the total allowable landings. The TAL under this preferred alternative has a 50 percent probability of achieving the target F of 0.276 in 2007, given the results of the latest stock assessment. However, it is not projected to rebuild the summer flounder stock by January 1, 2010. Alternative 1 is expected to result in positive biological impacts. In comparison to the status quo, there are no additional 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, but will be smaller than those expected under the most restrictive alternative (alternative 2). While short-term, negative socioeconomic impacts are expected, long-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 5.22 million lb for 2007 (a 3.04 million lb adjusted commercial quota; a 2.03 million lb adjusted recreational harvest limit). The 2007 TAL associated with alternative 2 has better than the 50 percent probability requirement of achieving the F target in 2007. 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. Based on the current status of the stock, the overall TALs and associated allocations have greater than the 50 percent probability requirement of achieving the target F of 0.276 in 2007, consider the retrospective pattern in F, and are expected to rebuild the stock by January 1, 2010, assuming the TAL and discard level in 2005 are not exceeded. No impacts to slightly positive 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. 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 negative socioeconomic impacts are expected, long-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 23.59 million lb for 2007 (a 13.81 million lb adjusted commercial quota; a 9.21 million lb adjusted recreational harvest limit). This alternative

would provide commercial and recreational fishermen with the largest fishing opportunities in 2007 compared to alternatives 1 and 2 and similar fishing opportunities as compared to 2006. The 2007 TAL associated with alternative 3 has the smallest probability of achieving the F target in 2007 compared to the other two alternatives. This alternative does not meet the required 50 percent probability of achieving the target fishing rate in 2007. This alternative is unrealistic and results in an exploitation rate that most likely will exceed the target for 2007. If the target is exceeded, stock rebuilding will be slowed. 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 2006 because changes in effort are not expected. No socioeconomic impacts are expected under this alternative due to the minimal difference in TAL when compared to 2006 resulting from the RSA adjustment (less than 1%).

As discussed above, the no action (no TAL specified for 2007) alternative is presented as summer flounder alternative 4 in Section 5, but is not analyzed.

In addition, the Council recommended that the minimum fish size, mesh size, and other gear regulations for summer flounder remain in place for 2007.

Scup Alternatives

The preferred scup alternative 1 recommends a total allowable landings limit of 16.00 million lb for 2007 (an 11.93 million lb adjusted commercial quota; a 3.59 million lb recreational harvest limit). The preferred scup TAL and associated allocations are based on the condition of the stock relative to the biological reference points and are within the range of long-term potential catches at approximately ½ B_{MSY}. 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 2007 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 12.00 million lb for 2007 (an 8.90 million lb adjusted commercial quota; a 2.74 million lb adjusted recreational harvest limit). The scup TAL under this alternative should have a positive impact on the scup stock in 2007, 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 2007. There are no habitat or protected resources impacts associated with this alternative in 2007 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 would decrease relative to the existing scup measures (status quo).

Under scup alternative 3 (status quo/least restrictive), the total allowable landings limit is 16.27 million lb for 2007 (a 12.13 million lb adjusted commercial quota; a 3.65 million lb adjusted recreational harvest limit). This alternative allows for the largest landings compared to the previous two alternatives. Given the current overfished status of scup and the stock relative to the biological reference points, fishing at this TAL may meet the target exploitation rate for the fishery. However, if the fishery exceeds the target, stock rebuilding would be hindered resulting in negative impacts in 2007 relative to 2006. There are no additional habitat or protected resource impacts associated with this alternative in 2007 as compared to impacts in 2006. 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 2006; however, this alternative is not expected to achieve the 21% target exploitation rate. As such, there is potential for negative impacts to the stock in the long-term.

As discussed above, the no action (no TAL specified for 2007) alternative is presented as scup alternative 4 in Section 5, but is not analyzed.

In addition, the Council and Commission recommended that the scup minimum fish size, gear restricted area regulations (Appendix A), gear regulations, fish size regulations, Winter I and II possession limits, and transfer of unused quota from Winter I and II period remain in place for 2007.

Black Sea Bass Alternatives

The preferred black sea bass alternative 1 establishes a total allowable landings limit of 6.50 million lb for 2007 (a 3.12 million lb adjusted commercial quota; a 3.25 million lb recreational harvest limit). The preferred black sea bass TAL is the midpoint between the TAL associated with alternative 2 and the status quo alternative (alternative 3). This TAL is not expected to achieve the 25% target exploitation rate for 2007. The implementation of this alternative is not expected to change the biological, habitat, or protected resources impacts in 2007 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 5.00 million lb for 2007 (a 2.39 million lb adjusted commercial quota; a 2.48 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 2007 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 8.00 million lb for 2007 (a 3.86 million lb adjusted commercial quota; a 4.01 million lb adjusted recreational harvest limit). The status quo black sea bass TAL and the associated allocations are not expected to achieve the target

exploitation rate for 2007. No changes to habitat or protected resources impacts in 2007 as compared to impacts in 2006 are expected under this alternative. Finally, no positive or negative socioeconomic impacts, compared to 2006, are expected.
In addition, the Council and Commission recommended that the minimum mesh size, fish size, and gear regulations for black sea bass remain in place for 2007.

As discussed above, the no action (no TAL specified for 2007) alternative is presented as black sea bass alternative 4 in Section 5, but is not analyzed.

Research Set-aside Alternatives

Alternative 1 (no action) does not implement an RSA for summer flounder, scup, or black sea bass. Alternative 2 (preferred alternative and status quo) implements RSAs for these species. Alternative 1 poses no biological, habitat, or protected resources impacts compared to 2006. However, under this alternative the collaborative efforts among 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. Summer flounder alternatives 1 and 3 specify an RSA of 567,062 lb for summer flounder. For summer flounder alternative 2, the maximum 3% allowable RSA of 156,600 lb was assumed. The maximum 3% RSAs of 480,000 lb, 360,000 lb, and 488,100 lb were assumed for scup alternatives 1, 2, and 3, respectively. Finally, an RSA of 131,858 lb was assumed for all black sea alternatives evaluated in this EA. No changes to biological, habitat, protected resources, or socioeconomic impacts compared to 2006 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 impacts 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 (2007). A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, a zero is used for null impact, and "?" is used for uncertainty in an 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(S)/-(L)	0(S)/-(L)

Box ES-2. Overall qualitative summary of the expected impacts of various scup alternatives considered in this document (2007). A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, a zero is used for null impact, and "?" is used for uncertainty in an impact.

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/+(?)

Box ES-3. Overall qualitative summary of the expected impacts of various black sea bass alternatives considered in this document (2007). A minus sign signifies an expected negative impact, a plus sign signifies a positive impact, a zero is used for null impact, and "?" is used for uncertainty in an impact.

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

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 (2007). 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

ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ADAPT VPA	Adaptive Approach (age-structured) Virtual Population Analysis
APA	Administrative Procedures Act
ASMFC	Atlantic States Marine Fisheries Commission or Commission
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
IQA	Information Quality Act
IRFA	Initial Regulatory Flexibility Analysis
LOF	List of Fisheries
LTPC	Long-term Potential Catch
LWTRP	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 Administrative 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
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
RSA	Research Set-Aside
SAFMC	South Atlantic Fishery Management Council
SARC	Stock Assessment Review Committee
SAV	Submerged Aquatic Vegetation
SAW	Stock Assessment Workshop
SFA	Sustainable Fisheries Act
SMA	Small Business Administration
SSB	Spawning Stock Biomass

TAL	Total Allowable Landings
TL	Total Length
VECs	Valued Ecosystem 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 2007 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 FMP and subsequent Amendments to the FMP. A summary of the management actions taken in the FMP, Amendments, and Frameworks is 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
2006	Framework 6	summer flounder	- Established region-specific conservation equivalency measures for summer flounder

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 2007 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}, the exploitation rate for 2007 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 25.6 percent for black sea bass in 2007. 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 in August 2006 and adopted recommended management measures for the three species in 2007.

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 would 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 (RSA) 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 Service imposed by the annual specification process. Additionally, longer-term specifications should provide greater regulatory consistency and predictability to the commercial and recreational fishing sectors.

Taking into consideration the summer flounder stock status uncertainty associated with spring survey data for scup and black sea bass, the Council and Board recommended TALs for one year only. Therefore, in this specifications package, all management alternatives for summer flounder, scup, and black sea bass were analyzed for 2007 only.

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 OBJECTIVES OF THE FMP

The management objectives of the FMP are as follows:

1) reduce fishing mortality in the summer flounder, scup and black sea bass fisheries to ensure that overfishing does not occur;
2) reduce fishing mortality on immature summer flounder, scup, and black sea bass to increase spawning stock biomass;
3) improve the yield from the fishery;
4) promote compatible management regulations between state and federal jurisdictions;
5) promote uniform and effective enforcement of regulations; 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 RSA from the TAL. Preliminary commercial quota overages for the 2006 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 TAL alternatives for each species. These suites of three alternatives included a preferred alternative, a status quo alternative, as well as one additional alternative for consideration. In all cases, the preferred alternative examines the measures adopted by the Council for 2007 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. These recommendations and their impacts relative to 2005 landings are shown in Box 4.2.

In assessing the 2007 TALs for the summer flounder, scup, and black sea bass fisheries, various assumptions were made. Specifically, it was assumed that the RSAs for year 2007 were equal to 3% of the TAL associated with an alternative, or the conditionally approved RSA amount, whichever was greater. The quotas presented in Box 5.1 account for preliminary summer flounder overages (as of July 31, 2006) of 0.05 million lb (0.02 million kg) in Delaware. Lastly, there were no overages in the scup or black sea bass fisheries as of July 31, 2006. Therefore, it was not necessary to adjust the scup or black sea bass commercial quotas in 2007.

In this specifications package, all management alternatives for summer flounder, scup, and black sea bass were analyzed for 2007. 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 (2007).

		Initial TAL	Research Set-Aside	Commercial Quota Overage	Preliminary Adjusted Commercial Quota*	Preliminary Recreational Harvest Limit
Summer Flounder	**Alternative 1 (Preferred)**	19.90	0.567	0.05	11.60	7.73
	Alternative 2 (Most Restrictive)	5.22	0.157**	0.05	3.04	2.03
	Alternative 3 (Least Restrictive / Status Quo)	23.59	0.567	0.05	13.81	9.21
Scup	**Alternative 1 (Preferred)**	16.00	0.480**	0	11.93	3.59
	Alternative 2 (Most Restrictive)	12.00	0.360**	0	8.90	2.74
	Alternative 3 Least Restrictive / Status Quo)	16.27	0.488**	0	12.13	3.65
Black Sea Bass	**Alternative 1 (Preferred)**	6.50	0.132	0	3.12	3.25
	Alternative 2 (Most Restrictive)	5.00	0.132	0	2.39	2.48
	Alternative 3 (Least Restrictive / Status Quo)	8.00	0.132	0	3.86	4.01

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

** Note that these RSA amounts represent 3% of the TAL associated with the respective alternative, while all other RSA amounts are reflect those conditionally approved project amounts.

Box 4.2. Comparison (in million lb) of the summer flounder, scup, and black sea bass alternatives of quota combinations reviewed (2007).

		Preliminary Adjusted Commercial Quota*	2005 Landings	Percent Change from 2005 Landings
Summer Flounder	**Alternative 1 (Preferred)**	11.60	17.14	-32.32
	Alternative 2 (Most Restrictive)	3.04	17.14	-82.26
	Alternative 3 (Least Restrictive / Status Quo)	13.81	17.14	-19.43
Scup	**Alternative 1 (Preferred)**	11.93	9.56	24.79
	Alternative 2 (Most Restrictive)	8.90	9.56	-6.90
	Alternative 3 (Least Restrictive / Status Quo)	12.13	9.56	26.88
Black Sea Bass	**Alternative 1 (Preferred)**	3.12	2.86	9.09
	Alternative 2 (Most Restrictive)	2.39	2.86	-16.43
	Alternative 3 (Least Restrictive / Status Quo)	3.86	2.86	34.97

*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 TAL)

Alternative 1 includes the harvest levels recommended by the Council (adjusted as detailed in section 4.3) for vessels that are permitted to catch summer flounder. The Council recommended a summer flounder TAL of 19.90 million lb (9.03 million kg) for 2007. The summer flounder TAL selected by the Council has a 50 percent probability of achieving the target F of 0.276 in the rebuilding plan in 2007, given the results of the latest stock assessment. The Council approved a 2007 RSA for summer flounder of 567,062 lb (257,215 kg), which would be deducted from the TAL. After the RSA 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 present; 60 percent to the commercial fishery and 40 percent to the recreational fishery. In 2007, the commercial fishery would receive 11.60 million lb (5.26 million kg) as a quota, and the recreational fishery would receive 7.73 million lb (3.51 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 3.18 million lb (1.44 million kg) in 2007.

The quotas presented in Box 5.1 account for a preliminary overage (as of July 31, 2006) 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 2007 to reflect noncompliance by the states, i.e., additional 2006 quota excesses would be deducted from the 2007 quota allocation.

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 2007. 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 RSAs in 2007. Allocations account for overages as of July 31, 2006 and have been adjusted for RSA.

		Quota Allocation (lb)*		
State	**Percent**	**Alternative 1****	**Alternative 2**	**Alternative 3**
ME	0.04756	5,517	1,445	6,570
NH	0.00046	53	14	64
MA	6.82046	791,157	207,208	942,162
RI	15.68298	1,819,189	476,455	2,166,410
CT	2.25708	261,816	68,571	311,788
NY	7.64699	887,033	232,319	1,056,337
NJ	16.72499	1,940,059	508,112	2,310,350
DE	0.01779	-45,295	-46,819	-44,902
MD	2.0391	236,531	61,949	281,676
VA	21.31676	2,472,694	647,612	2,944,647
NC	27.44584	3,183,652	833,816	3,791,303
Total	100	11,597,701	3,037,500	13,811,307

*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 2007. 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 5.22 million lb (2.37 million kg) for 2007. This TAL is projected to rebuild the summer flounder stock biomass to B_{MSY} by January 1, 2010, and considers the retrospective pattern in the current stock assessment model. The initial commercial quota under this system is 3.13 million lb (1.42 million kg), and the initial recreational harvest limit would be 2.09 million lb (0.95 million kg), for summer flounder in 2007. After deducting the RSA for summer flounder of 156,600 lb (71,033 kg) in 2007, the commercial quota is 3.04 million lb (1.38 million kg), and the adjusted recreational harvest limit is 2.03 million lb (0.92 million kg). The state commercial shares range from negative quotas to 0.83 million lb (0.38 million kg) in 2007 (Box 5.1). The quotas presented in Box 5.1 account for a preliminary overage (as of July 31, 2006) 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.

5.1.3 Alternative 3 (Status Quo/Least Restrictive TAL)

As previously noted, under the summer flounder, scup, and black sea bass management program, the no action alternative is not equivalent to the status quo alternative. In addition, the "true" no action alternative is infeasible. For comparison purposes, the proposed alternatives for summer flounder are compared to this alternative, which is the status quo alternative (base line) as opposed to the "true" no action alternative.

The least restrictive/status quo alternative for summer flounder is a TAL of 23.59 million lb (10.70 million kg) for 2007. The proposed TAL does not meet the minimum requirement of a 50 percent probability of achieving the target F for summer flounder in 2007. Under this alternative, the initial commercial quota is 14.15 million lb (6.42 million kg), and the initial recreational harvest limit is 9.44 million lb (4.28 million kg), in 2007. After deducting the RSA for summer flounder of 567,062 lb (257,215 kg) in 2007, the commercial quota is 13.81 million lb (6.26 million kg), and the adjusted recreational harvest limit is 9.21 million lb (4.18 million kg), in 2007. The state commercial shares range from negative quotas to 3.79 million lb (1.72 million kg) in 2007 (Box 5.1). The quotas presented in Box 5.1 account for a preliminary overage (as of July 31, 2006) 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.

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 2007 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 2006 fishing year. There are no "roll-over" provisions currently provided for in the FMP. Thus, if the proposed 2007 summer flounder specifications are not implemented by January 1, 2007, 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 2006.
For the purposes of this EA, the no action alternative is defined as follows: (1) no proposed specifications for the 2007 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 2007; 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 2007.

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. The no action alternative is not analyzed further in the EA. Therefore, the alternatives for summer flounder are compared to summer flounder alternative 3, which is the status quo alternative (base line) as opposed to the "true" no action alternative (alternative 4).

5.2 Scup

5.2.1 Alternative 1 (Preferred TAL)

The preferred alternative for scup sets the scup TAL at 16.00 million lb (7.26 million kg) for 2007. This TAL recommendation is within the range of long-term potential catches at approximately ½ B_{MSY}.

Estimated discards were added to the TAL to derive a TAC of 17.97 million lb (8.15 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 14.02 million lb (6.36 million kg), and the recreational TAC is 3.95 million lb (1.79 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 for 2007.

	Commercial (million lb)	Recreational (million lb)
TAC:	14.02 (6.36 million kg)	3.95 (1.79 million kg)
Less Discard Estimate:	1.72 (0.78 million kg)	0.25 (0.11 million kg)
Initial TAL:	12.30 (5.58 million kg)	3.70 (1.68 million kg)

Under the preferred alternative, the initial commercial TAL is 12.30 million lb (5.58 million kg), and the initial recreational harvest limit is 3.70 million lb (1.68 million kg) for 2007. Additionally, the approved RSA for scup of 480,000 lb (217,724 kg) would be deducted from the TAL. This resulted in a preliminary adjusted commercial quota of 11.93 million lb (5.41 million kg), and an adjusted recreational harvest limit of 3.59 million lb (1.63 million kg). The commercial quota is also adjusted for overages by period, according to the quota counting procedures outlined in section 4.3. However, as of July 31, 2006, there were no overages by the 2006 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 (2007).

		Adjusted Quota (million lb)		
Period	**Percent Allocation**	**Alternative 1**	**Alternative 2**	**Alternative 3**
Annual	100	11.93	8.90	12.13
Winter I (Jan-April)	45.11	5.38	4.01	5.47
Summer (May-Oct)	38.95	4.65	3.47	4.72
Winter II (Nov-Dec)	15.94	1.90	1.42	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 current minimum fish size, minimum vent size, and minimum mesh size regulations will remain unchanged in 2007. 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 and II scup possession limits will also remain unchanged in 2007. The threshold levels used to trigger the minimum mesh requirements of 500 lb of scup from November 1 through April 30 and 200 lb or more of scup from May 1 through October 31 will remain unchanged. The Winter I landings limit is a 30,000 lb possession limit until 80% of the landings is reached, and then the possession limit would drop to 1,000 lb. The possession limit is 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 increases at 1,500 pound 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.

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

The most restrictive alternative considered for scup in 2007 is a TAL of 12.00 million lb (5.44 million kg). The monitoring committee recommended this TAL, which is within the range of long-term potential catches at approximately ½ B_{MSY} and would bound the landings at the 2005 level. Based on this TAL, the initial commercial quota is 9.18 million lb (4.16 million kg), and the initial recreational harvest limit is 2.82 million lb (1.28 million kg) for 2007. After deducting the RSA for scup of 360,000 lb (163,293 kg), the preliminary adjusted commercial quota is 8.90 million lb (4.04 million kg), and the preliminary recreational harvest is 2.74 million lb (1.24 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 July 31, 2006, there were no overages by the 2006 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.

5.2.3 Alternative 3 (Status Quo/Least Restrictive TAL)

As previously noted, under the summer flounder, scup, and black sea bass management program, the no action alternative is not equivalent to the status quo alternative. In addition, the "true" no

action alternative is infeasible. For comparison purposes, the proposed alternatives for scup are compared to this alternative, which is the status quo alternative (base line) as opposed to the "true" no action alternative.

The least restrictive alternative (status quo) considered for scup in 2007 includes a TAL of 16.27 million lb (7.38 million kg). Based on this TAL, the initial commercial quota is 12.51 million lb (5.67 million kg), and the initial recreational harvest limit is 3.76 million lb (1.71 million kg) for 2007. After the RSA for scup of 488,100 lb (221,398 kg) is deducted, the commercial scup quota is 12.13 million lb (5.50 million kg), and the recreational harvest limit is 3.65 million lb (1.66 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 July 31, 2006, there were no overages by the 2006 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.

5.2.4 Alternative 4 (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 2007 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 2006 fishing year. There are no "roll-over" provisions currently provided for in the FMP. Thus, if the proposed 2007 scup specifications are not implemented by January 1, 2007, 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 2006.

For the purposes of this EA, the no action alternative is defined as follows: (1) no proposed specifications for the 2007 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 2007; (4) the existing gear restrictive areas (GRAs) as identified in 66 FR 12902 will remain in place for 2007. 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 2007.

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. The no action alternative is not analyzed further in the EA. Therefore, the alternatives for scup are compared to scup alternative 3, which is the status quo alternative (base line) as opposed to the "true" no action alternative (alternative 4).

5.3 Black Sea Bass

5.3.1 Alternative 1 (Preferred TAL)

The Council and Board recommended a coastwide TAL of 6.50 million lb (2.95 million kg) in 2007 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. If the spring survey for 2007 is equal to 0.328 (three-year moving average for 2005) and assuming an exploitation rate of 21% in 2003, the TAL associated with an exploitation rate of 25% is about 4.68 million lb (2.12 million kg). However, if the spring survey for 2007 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 5.65 million lb (2.56 million kg). The Council and Board therefore selected a TAL of 6.50 million lb (2.95 million kg), the

midpoint value between the TAL associated with alternative 2 and the status quo (alternative 3), based on social and economic concerns. 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 an RSA for black sea bass of 131,858 lb (59,810 kg), which is deducted from the TAL. As such, the preliminary adjusted commercial quota alternative is 3.12 million lb (1.42 million kg), and the preliminary recreational harvest is 3.25 million lb (1.47 million kg). The commercial quota is also adjusted for overages according to the quota counting procedures outlined in section 4.3. However, as of July 31, 2006, there were no overages by the 2006 commercial black sea bass fishery.

The Commission adopted state-specific allocations for 2004, 2005, and 2006 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 2007. 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. The minimum circle vent size requirements for black sea bass pots/traps were increased last year to 2 $^{1}/_{2}$", and the requirements of 1 $^{3}/_{8}$" x 5 $^{3}/_{4}$" for rectangular vents and 2" for square vents remained unchanged. In addition, 2 vents are now required in the parlor portion of the pot/trap. These pot/trap requirements become effective January 1, 2007.

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

The most restrictive alternative considered for black sea bass in 2007 was also recommended by the monitoring committee, which is a TAL of 5.00 million lb (2.27 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. If the spring survey for 2007 is equal to 0.328 (three year moving average for 2005) and assuming an exploitation rate of 21% in 2003, the TAL associated with an exploitation rate of 25% is about 4.68 million lb (2.12 million kg). However, if the spring survey for 2007 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 5.65 million lb (2.56 million kg). The monitoring committee therefore recommended a TAL of 5.00 million lb (2.27 million kg), a value about halfway between these TALs which is slightly higher than the 2005 landings levels of 4.65 million lb. After the RSA for black sea bass of 131,858 lb (59,810 kg) is removed, the preliminary commercial quota is 2.39 million lb (1.08 million kg), and the preliminary recreational harvest is 2.48 million lb (1.12 million kg). The commercial quota is adjusted for overages according to the quota counting procedures outlined in section 4.3. However, as of July 31, 2006, there were no overages by the 2006 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.

5.3.3 Alternative 3 (Status Quo/Least Restrictive TAL)

As previously noted, under the summer flounder, scup, and black sea bass management program, the no action alternative is not equivalent to the status quo alternative. In addition, the "true" no action alternative is infeasible. For comparison purposes, the proposed alternatives for black sea bass are compared to this alternative, which is the status quo alternative (base line) as opposed to the "true" no action alternative.

The least restrictive/status quo coastwide TAL for black sea bass is 8.00 million lb (3.63 million kg). After the RSA for black sea bass of 131,858 lb (59,810 kg) is deducted, the preliminary adjusted commercial quota is 3.86 million lb (1.75 million kg), and the preliminary recreational harvest is 4.01 million lb (1.82 million kg). The commercial quota is also adjusted for overages according to the quota counting procedures outlined in section 4.3. However, as of July 31, 2006, there were no overages by the 2006 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.

5.3.4 Alternative 4 (No Action)

In the case of the proposed 2007 specifications for black sea bass, the same complications in determining the no action alternative for scup, as described in section 5.2.4 also apply. Thus, if the proposed 2007 black sea bass specifications are not implemented by January 1, 2007, the 2007 fishery will operate without an identified cap on allowable landings; however, some current measures will remain in place. Therefore, the overall management program will not be identical to that of 2006 (status quo). 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. Additionally, the no action alternative would complicate the approved management program for this fishery and likely result in overfishing. The no action alternative is not analyzed further in the EA. Therefore, the alternatives for black sea bass are compared to black sea bass, which is the status quo alternative (base line) as opposed to the "true" no action alternative (alternative 4).

5.4 Research Set-Aside Measures

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

Under this alternative, no RSA will be implemented for summer flounder, scup, or black sea bass in 2007. 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 RSA 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 RSA program, the Council, in consultation with the NMFS Northeast Regional Administrator, and the Commission have recommended summer flounder, scup, and black sea bass research projects for 2007 (Perra, pers. comm.). In order to expedite the approval and implementation of the research projects, 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 RSAs for squid, mackerel, and butterfish were discussed in detail in the 2007 Atlantic Mackerel, *Loligo*, *Illex*, and Butterfish Specifications (section 7.4). The impacts of the RSAs for bluefish are discussed in detail in the 2007 Bluefish Specifications (section 7.4).

The conditionally approved 2007 RSA projects have requested summer flounder, scup, and black sea bass RSAs in the following amounts: 567,062 lb (257,215 kg), 530,886 lb (240,806 kg), and 131,858 lb (59,810 kg), respectively. RSA amounts cannot exceed 3% of the TALs for each of the species. Therefore, for some of the proposed TALs, the 3% maximum RSA amounts could be less than the 2007 conditionally approved amounts. Modifications to the amounts requested by species for each project could occur in 2007 to accommodate shortfalls in RSA amounts; however, the final approved RSA amounts for each species will not exceed 3% of the implemented TAL.

Research set-aside amounts are deducted from the summer flounder, scup, and black sea bass TALs, respectively (Boxes 4.1 and 4.2). For analysis of the alternatives in this specifications document, the RSA amounts deducted from each TAL are either the conditionally approved RSA amount, or 3% of the TAL, whichever is less.

A summary of the RSA projects requesting summer flounder, scup, and black sea bass for 2007 is presented in Appendix B. This description includes project name, description and duration, amount of RSA 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 14.31 million lb (6.49 million kg) in 2002 and 2003, respectively. In 2004, commercial landings were estimated at 18.17 million lb (8.24 million kg). In 2005 landings decreased slightly to 17.14 million lb (7.77 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 11.64 million lb (5.28 million kg) in 2003. In 2004 and 2005, recreational landings were estimated at 10.80 million lb (4.90 million kg) and 10.02 million lb (4.54 million kg), respectively. Combined commercial and recreational landings were 27.16 million lb (12.32 million kg) in 2005.

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 8.77 million lb or 3.98 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 increased to 9.56 million lb (4.34 million kg) in 2005. The recreational landings declined steadily from a 1986 value of 11.61 million lb (5.27 million kg) to 0.88 million lb (0.40 million kg) in 1998, the lowest value in the time series. Recreational landings then increased to 8.48 million lb (3.85 million kg) in 2003. They have since declined to 4.41 million lb (2.00 million kg) in 2004 and 2.38 million lb (1.08 million kg) in 2005.

6.1.1.3 Black Sea Bass

Commercial black sea bass landings have varied without trend since 1981, ranging from a low of 2.04 million lb (0.93 million kg) in 1994 to a high of 4.33 million lb (1.96 million kg) in 1984. Commercial landings in 2002 increased to 3.46 million lb (1.57 million kg) and then dropped to 2.86 million lb (1.30 million kg) in 2005. Recreational landings ranged from a low of 1.29 million lb (0.59 million kg) in 1998 to a high of 12.39 million lb (5.62 million kg) in 1986. Recreational landings in 2005 were about 1.79 million lb (0.81 million kg) or about 50% below the average for 1981-2005.

6.1.2 Status of the Stock

6.1.2.1 Summer Flounder

The Northeast Fisheries Science Center's (NEFSC) Southern Demersal Working Group met in June 2006 to conduct an annual evaluation of summer flounder stock status. 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 2005 is 0.53, which is a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.276. In addition, total stock biomass has increased substantially since 1989 to 105 million lb (47.8 million kg) in 2005, slightly above the current biomass threshold[1] of 102 million lb (46.3 million kg). Spawning stock biomass has increased since 1993 to 67.5 million lb (30.6 million kg) in 2005.
Recruitment declined from 1983 to 1988, with the 1988 year class being the weakest at only 13 million fish. Recruitment since 1988 has generally improved, although the 2005 year class is estimated to be well below the median at 14.5 million fish.

6.1.2.2 Scup

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

State and federal surveys indicated an increase in stock abundance since the mid to late 90s; however, NEFSC spring survey results indicate that spawning stock decreased in 2004. Biomass estimates are based on a 3-year average (2003-2005), and the estimate for 2004 was 0.69 kg/tow. This is below the biomass threshold value of 2.77 kg/tow. Therefore, the stock is considered overfished. In 2005, the NEFSC Spring SSB 3-year average (2004-2006) index value increased to 1.32 kg/tow.

The spring survey index increased in 2006 to 2.03 kg/tow relative to the low value of 0.15 kg/tow derived in 2003. The 2006 index is the highest value in the spring survey since 1978, excluding the high value in 2002 of 9.24 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.

[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 thresholds for these species are: 46,323 mt; 2.77 kg/tow (3-year moving average, NEFSC spring survey SSB index); and 0.98 kg/tow (3-year moving average, NEFSC spring survey SSB index), respectively.

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 2005.

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 spawning stock biomass (SSB) value. In 2005, this relative index value was 9.06.

6.1.2.3 Black Sea Bass

The most recent assessment on black sea bass was completed in June 2006 at SAW/SARC 43. The SARC panelists have called into question the validity of the current biological reference points; however, no recommendations for alternative reference points were provided.

The most recent, peer-reviewed, accepted assessment on black sea bass was completed in June 2004 at SAW 39. It 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 0.98 kg/tow). The 2005 biomass index is 0.8 (the three-year average for 2004-2006). Based on this value, the stock is 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, although these values have decreased in recent years. The index for 2002 of 0.799 is the highest value in the time series (1968-2006). The biomass index declined to 0.493 in 2003, 0.321 in 2004, 0.374 in 2005, and 0.288 in 2006. The 2003-2006 indices were above the time series 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 in 1997 to 0.538 in 2003. However, lower survey values resulted in a three-year average value for 2005 of 0.328.

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, 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 2001 to 2005 relative to indices prior to 1997. 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 "Summer Flounder Stock Assessment Summary for 2006" compiled by the SAW Southern Demersal Working Group.

"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 (NFT 2005). 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), the 2003 and 2004 SAW Southern Demersal Working Group (Terceiro 2003, SDWG 2004), and 2005 SAW 41 assessments (NEFSC 2005)."

"Fishing mortality calculated from the average of the currently fully recruited ages (3-5) was very high, varying between 0.9 and 2.2 during 1982-1997 (55%-83% exploitation), far in excess of the revised FMP Amendment 12 (MAFMC 1999) overfishing definition, $F_{threshold} = F_{target} = F_{max} = 0.276$. The fishing mortality rate has declined since 1997 and was estimated to be 0.46 during 2003-2004, rising to 0.53 (37% exploitation) in 2005. There is an 80% probability that the fishing mortality rate in 2005 was between 0.42 and 0.75. The estimate of F for 2005 may understate the actual fishing mortality; retrospective analysis shows that the current assessment method tends to underestimate recent fishing mortality. Over the last 5 years, the annual retrospective increase in fishing mortality has averaged 33%."

"Total stock biomass increased substantially during the 1990s and through 2004, but has decreased slightly since 2004 and was estimated to be 47,800 mt on January 1, 2006. There is an 80% chance that total stock biomass in 2006 was between 41,600 and 56,900 mt. The current

biomass target (B_{MSY}) required to produce maximum sustainable yield (MSY=19,072 mt) is estimated to be B_{MSY} = 92,645 mt, and the current biomass threshold of one-half B_{MSY} = 46,323 mt."

"The arithmetic average recruitment from 1982 to 2005 is 35 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, although the 2005 year class is estimated to be well below the median at 14.5 million fish. Retrospective analysis shows that the current assessment method tends to overestimate the abundance of age 0 fish in the most recent years. Over the last 5 years, the annual retrospective decrease in recruitment has averaged 10%."

"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 had increased to 32,600 mt in 2004, before declining to 30,600 mt in 2005. Retrospective analysis shows a tendency to overestimate the SSB in the most recent years. The age structure of the spawning stock has expanded, with 74% at ages 2 and older, and 23% at ages 5 and older. Under equilibrium conditions at F_{max}, about 85% of the spawning stock biomass would be expected to be ages 2 and older, with 50% at ages 5 and older. Over the last 5 years, the annual retrospective decrease in SSB has averaged 17%."

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. The most recent, peer-reviewed, accepted assessment on black sea bass was completed in June 2004. 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
	Great South Channel

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. (2002). The most recent information on the stock assessment of various marine mammals through 2004 can be found at:
http://www.nmfs.noaa.gov/pr/PR2/Stock_Assessment_Program/individual_sars.html

Three other useful websites on marine mammals are:
http://www.nmfs.noaa.gov/pr/recovery,
http://spo.nwr.noaa.gov/mfr611/mfr611.htm, and
http://www.nmfs.noaa.gov/pr/species/mammals

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 and green 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

The NMFS observer data for the period of January 2004 to April 2005 describe six turtle takes (2 green, 3 loggerhead, 1 unknown spp.) within the summer flounder, scup, and black sea bass fishery. All of these takes occurred while summer flounder was the target species. Of the six

takes, the three loggerhead turtles were released alive and uninjured, one green turtle was released alive and uninjured, one green turtle was dead, and the unknown turtle species was dead and severely decomposed (NMFS, pers. comm. July 18, 2006).

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).

Green sea turtles are more tropical in distribution than loggerheads and are generally found in waters between the northern and southern 20°C 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.

Fishery Classification under Section 114 of Marine Mammal Protection Act

Under section 118 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% of the Potential Biological Removal[2] (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.

[2] 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).

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"[3] 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.

The 2006 LOF indicates that the Mid-Atlantic bottom trawl fishery is a Category II fishery. There are no documented marine mammal species or stocks incidentally killed or injured in the Mid-Atlantic bottom trawl fishery. 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. Summer flounder are caught in the bottom trawl fishery and also smaller quantities are caught by the Mid-Atlantic commercial sea scallop dredge fishery, the hook and line fishery, and the pound net fishery. All three of these fisheries are listed as Category III under the 2006 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 bottom trawl fishery, as stated above, is a Category II fishery. 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 bottom 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 and

[3] "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.

bottom trawl 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. Potential impacts to protected species associated with the proposed measures under this Amendment are discussed in section 7.0.

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 1996 to 2005 has averaged $21.8 million, ranging from $16.5 million in 1997 to $29.2 million in 2004. The ex-vessel value of summer flounder landings in 2005 was $29.1 million with an average ex-vessel price estimated at $1.70 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 tend to occur during the summer months. This price fluctuation is likely in response to supply.

Summer flounder continues to be an important component of the recreational fishery. Estimates of primary species sought as reported by anglers in recent intercept surveys indicate that summer flounder has shown an upward trend in importance in the U.S. Summer flounder recreational trips averaged 5.1 million for the 1991 to 2005 period, ranging from 3.8 million in 1992 to 6.1 million in 2001. For the 2002 to 2005 period, summer flounder recreational fishing trips were estimated at 4.6, 5.6, 5.1, and 5.8 million, respectively (section 5.1.2 RIR/IRFA).

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, 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, 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 2005 have averaged 5.98 million lb (2.71 million kg), ranging from 3.23 million lb (1.47 million kg) in 2004 to 7.87 million lb (3.57 million kg) in 1999. The value of these landings has averaged $4.62 million, ranging from $3.33 million in 2004 to $5.81 million in 2000. In 2005, 4.70 million lb (2.13 million kg) of flounders valued at $3.92 million entered the country for consumption. The amount of flounder imported into the U.S. in 2005 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 (e.g., 2001-2005) 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. However, tightened summer flounder quotas along with potential reductions in groundfish days-at-sea could increase flatfish prices and increase competition from the West Coast and foreign suppliers (National Fishermen, 2006).

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 9.88 million lb (4.48 million kg; from ME to Cape Hatteras, NC) and valued at $6.29 million in 2004. In 2005, 9.67 million lb (4.39 million kg) of scup were landed and valued at $7.26 million. The average price per pound was $0.64 in 2004 and $0.75 in 2005. 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.

Commercial black sea bass landings were approximately 3.06 million lb (1.38 million kg; from ME to Cape Hatteras, NC) and valued at $6.41 million in 2004. In 2005, 2.49 million lb (1.12 million kg) of black sea bass were landed and valued at $6.33 million. The average price per pound was $2.09 in 2004 and $2.54 in 2005. 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 2005 VTR data indicated that 22,530 trips, by five major gear types, caught a total of 16.38 million lb (7.43 million kg) of summer flounder; landing 16.03 million lb (7.27 million kg) and discarding 0.35 million lb (0.16 million kg). The majority of the trips and catch were made by bottom otter and beam trawls (76.0 percent of trips, 97.7 percent of catch), followed by gillnets (8.3 percent of trips, 1.0 percent of catch), handline “other” (7.7 percent of trips, 0.7 percent of catch), pots and traps (3.8 percent of trips, 0.2 percent of catch), and scallop dredges (4.2 percent of trips, 0.3 percent of catch). There were seven statistical areas, which individually, accounted for greater than 5 percent of the summer flounder catch in 2005 (Table 1). Collectively, these seven areas accounted for 72 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 2005 (Table 2). Collectively, these six areas accounted for 76 percent of the trips that caught summer flounder and 38 percent of the 2005 summer flounder catch.

6.4.2.2 Scup

NMFS 2005 VTR data indicated that 10,951 trips, by four major gear types, caught a total of 6.67 million lb (3.03 million kg) of scup. Of these, 6.53 million lb (2.96 million kg) of scup 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, 90.5 percent of catch), followed hand line "other" (18.7 percent of trips, 3.8 percent of catch), pots and traps (19.8

percent of trips, 3.4 percent of catch), and gillnets (4.4 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 2005 (Table 1). Collectively, these six areas accounted for 87 percent of the scup catch. There were five statistical areas, which individually, accounted for greater than 5 percent of the trips which caught scup in 2005 (Table 2). Collectively, these five areas accounted for 89 percent of the trips that caught scup and 36 percent of the 2005 scup catch.

6.4.2.3 Black Sea Bass

NMFS 2005 VTR data indicated that 9,664 trips, by four major gear types, caught a total of 2.53 million lb (1.15 million kg) of black sea bass. Of these, 2.41 million lb (1.09 million kg) of black sea bass were landed, and 0.12 million lb (0.05 million kg) were discarded. The majority of the trips and catch were made by bottom otter and beam trawls (54.1 percent of trips, 50.0 percent of catch), followed by pots and traps (31.7 percent of trips, 46.4 percent of catch), handline "other" (10.7 percent of trips, 2.9 percent of catch), and gillnets (3.2 percent of trips, 0.3 percent of catch). There were five statistical areas, which individually, accounted for greater than 5 percent of the black sea bass catch in 2005 (Table 1). Collectively, these five areas accounted for 67 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 2005 (Table 2). Collectively, these eight areas accounted for 87 percent of the trips that caught black sea bass and 51 percent of the 2005 black sea bass catch.

6.5 Human Communities

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, 2005 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 2005, there were 2,242 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 1,001, 866, and 922 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 852, 742, and 820 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 2,242 vessels with at least one federal permit, there were 1,330 that held only commercial permits for summer flounder, scup, or black sea bass while there were 795 vessels that held only a recreational permit. The remaining vessels (117) 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 338 vessels whose only commercial permit was for summer flounder. By contrast, there were 500 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 10 vessels whose only recreational permit was for scup while 681 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 Florida, Virginia, North Carolina, and Connecticut. In terms of average length, the largest commercial vessels are found in Florida, followed by Pennsylvania, North Carolina, and Virginia. In terms of average horse power, the largest commercial vessels are found in Florida, followed by Pennsylvania, Connecticut, Virginia, and New Jersey.

For party/charter vessels (Table 8), the largest numbers of permit holders are found in New York, followed by Massachusetts and Rhode Island. The fewest permits are in Pennsylvania, New Hampshire, and Maryland. 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 Maryland and Delaware, followed by New Jersey, Connecticut, and New Hampshire. In terms of average horse power, the largest recreational vessels are found in Connecticut, Delaware, Rhode Island, and New Jersey.

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, Massachusetts, and Virginia (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. With the exception of 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, with the exception of Pennsylvania and Maine (Table 8). With the exception of the state of Pennsylvania, a high percentage of recreational/commercial vessel owners list the same state as both the vessel owner's declared principal port of landing and their identified home port (Table 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 2005. They were distributed by state as indicated in Table 10. Employment data for these specific firms are not available. In 2005 these dealers bought $28.0 million worth of summer flounder; $7.0 million worth of scup; and $7.2 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 year 2007 specifications for summer flounder, scup, and black sea bass relative to the status quo measures for each species. These alternatives include the TALs (commercial quotas and recreational harvest limits), which are necessary to achieve the annual target exploitation rates established under the individual species' rebuilding schedules and other commercial management measures. The Council and Board will meet in December 2006 to adopt specific recreational management measures (i.e., bag limits, size limits, seasonal closures) for 2007, when 2006 recreational landings are more

complete. These recreational measures will be analyzed in the 2007 recreational specification package when the Council and Board submit recommendations for 2007 recreational measures.

The nature of the management programs for the summer flounder, scup, and black sea bass fisheries was 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, although the geographic focus of the fishery varies somewhat from year to year.

7.1 Summer Flounder Alternatives

7.1.1 Alternative 1 (Preferred TAL)

7.1.1.1 Biological Impacts

Alternative 1 is the preferred alternative and specifies a TAL of 19.90 million lb (a 11.60 million lb adjusted commercial quota; a 7.73 million lb adjusted recreational harvest limit; a 567,062 lb RSA) in 2007 for summer flounder. The TAL under this alternative as well as the other summer flounder 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 2007 TAL under this alternative is 14.68 million lb higher (281 percent) than the summer flounder TAL under the most restrictive alternative (alternative 2) in 2007. The 2007 TAL under this alternative is 3.69 million lb lower (16 percent) than the summer flounder TAL under the status quo alternative (alternative 3) in 2007. 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 2007, relative to the status quo (alternative 3).

The TAL under this preferred alternative was recommended by the Council and has a 50 percent probability of achieving the target F of 0.276 in 2007, given the results of the latest stock assessment. However, it is not projected to rebuild the summer flounder stock by January 1, 2010. 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 2005 is 0.53, which is a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.276. In addition, total stock biomass has increased substantially since 1989 to 105 million lb in 2005, which is slightly above the current biomass threshold of 102 million lb. Spawning stock biomass has increased since 1993 to 67.5 million lb in 2005.

Under this alternative, the 2007 adjusted commercial quota of 11.60 million lb is approximately 2.21 million lb (16 percent) lower than the adjusted commercial quota 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 landing 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 2007. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2007 relative to 2006.

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 2007, because true incidental catch would now be landed and applied to the quota.

The overall summer flounder TAL for this alternative includes a maximum RSA of 567,062 lb for 2007. The results of the research conducted through the RSA 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 RSA projects count against the overall quota, the biological/ecological impacts do not change relative to 2006. 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 RSA program.

The preferred alternative implements an adjusted recreational harvest limit of 7.73 million lb in 2007. The 2007 recreational limit under this alternative is 16 percent lower than the recreational harvest limit under the status quo alternative. If recreational landings are the same in 2006 as in 2005 (10.02 million lb), the adjusted recreational harvest limits may constrain recreational

landings in 2007. Therefore, the adjusted recreational limits under this alternative allow for less recreational landings in 2007 compared to the status quo alternative. However, continued rebuilding to the B_{msy} level of 204 million lb would be a positive impact on the summer flounder stock. As such, these recreational harvest limits are expected to result in positive biological impacts to the summer flounder stock in 2007, 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 2007 preferred alternative includes a decrease in the summer flounder commercial quota by 16 percent (2.21 million lb) 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 landing 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 the 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 2007. These actions are not expected to change effort in 2007 as compared to 2006 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 2006 List of Fisheries, except the Mid-Atlantic mixed trawl fishery. Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals. There are no documented marine mammal species or stocks incidentally killed or injured in the Mid-Atlantic mixed trawl fishery. 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 2007 as compared to impacts in 2006, 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 landing 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 additional adverse impact on marine mammals, relative to the status quo.

7.1.1.4 Socioeconomic Impacts

The proposed 2007 TAL of 19.90 million lb for summer flounder is approximately 16 percent lower than the TAL under the status quo alternative (alternative 3).

The preferred summer flounder TAL includes a preliminary adjusted commercial quota of 11.60 million lb; a preliminary adjusted recreational harvest limit of 7.73 million lb; and a maximum RSA of 567,062 lb for 2007. The commercial landings level under this alternative represents a 16 percent decrease in landings in 2007 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 2007 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 2007. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

The recreational harvest limits under this alternative represents a 16 percent decrease in landings in 2007 relative to the status quo alternative. If recreational landings are the same in 2006 as in 2005 (10.02 million lb), the adjusted recreational harvest limits will not constrain recreational landings in 2007. 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 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 2007, 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 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 5.1.1.2 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 2007), 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. The TAL under this preferred alternative was recommended by the Council and has a 50 percent probability of achieving the target F of 0.276 in 2007, given the results of the latest stock assessment. However, it is not projected to rebuild the summer flounder stock by January 1, 2010.

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 measure for summer flounder is a TAL of 5.22 million lb (a 3.04 million lb adjusted commercial quota; a 2.03 million lb adjusted recreational harvest limit; a 156,600 lb RSA) for 2007.

Based on the current status of the stock, a TAL of 5.22 million lb has better than the 50 percent probability requirement of achieving the target F of 0.276 in 2007, assuming the TAL and discard level in 2006 are not exceeded. This TAL is projected to rebuild the summer flounder stock biomass to B_{MSY} by January 1, 2010, and considers the retrospective pattern in the current stock assessment model. 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 2005 is 0.53, which is a significant decline from the 1.32 estimated for 1994 but is above the threshold F of 0.276. In addition, total stock biomass has increased substantially since 1989 to 105 million lb in 2005, slightly above the current biomass threshold of 102 million lb. Spawning stock biomass has increased since 1993 to 67.5 million lb in 2005.

These measures (commercial quotas and recreational harvest limits) have the greatest probability of achieving the fishing mortality targets in 2007 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 2007.

The 2007 adjusted commercial quota under this alternative is 10.77 million lb (78 percent) less 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 2006, 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 landing 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 2007. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2007 relative to 2006.

The discussion regarding the discard set-aside measures and RSA 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 2.03 million lb in 2007. This value is lower (7.18 million lb; about 78 percent) than the adjusted recreational harvest limit under the status quo alternative. As indicated above, based on the current status of the stock, the overall TAL and associated allocations have greater than the 50 percent probability requirement of achieving the target F of 0.276 in 2007, consider the retrospective pattern in F, and are expected to rebuild the stock by January 1, 2010, assuming the TAL and discard level in 2006 are not exceeded. As such, these recreational harvest limits are expected to result in positive biological impacts to the summer flounder stock in 2007, relative to the status quo alternative.

Overall, the summer flounder measures under the most restrictive alternative will likely have positive impacts on the summer flounder stock, and these measures are expected to achieve the target exploitation rate for 2007.

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 78 percent (10.77 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 landing 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 the 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 2007. As such, these measures are not expected to change effort in 2007 as compared to 2006 and thus, are 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 2007 target exploitation rates for summer flounder and would meet the rebuilding objectives of January 1, 2010.

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 2007 as compared to impacts in 2006, 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 landing 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 5.22 million lb for 2007. This TAL is approximately 78 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 3.04 million lb; a preliminary adjusted recreational harvest limit of 2.03 million lb; and a maximum RSA of 156,600 lb for 2007. The commercial landings level under this alternative represents a 78 percent decrease in landings in 2007 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 2007 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. In general, it is expected that a significant reduction in the supply of fluke as the result of the lower adjusted commercial quota under this alternative may increase imports of flounders from other countries and regions of the US. This could in turn make traditional summer flounder suppliers lose market share to imports. 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 2007. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

The recreational harvest limits under this alternative represents a 78 percent decrease in landings in 2007 relative to the status quo alternative. If recreational landings are the same in 2006 as in 2005 (10.02 million lb), the adjusted recreational harvest limits will not constrain recreational landings in 2007. 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 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. In addition, this alternative is likely to impact the demand of party/charter trips when compared 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.

Given that the commercial quotas and recreational harvest levels are substantially lower under this alternative than under alternative 1, it is expected that the overall negative social and economic impacts 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 5.22 million lb has better than the 50 percent probability requirement of achieving the target F of 0.276 in 2007, assuming the TAL and discard level in 2006 are not exceeded.

7.1.3 Alternative 3 (Status Quo/Least Restrictive TAL)

7.1.3.1 Biological Impacts

The least restrictive measure for summer flounder (alternative 3) and also the status quo alternative would implement a TAL of 23.59 million lb (a 13.81 million lb adjusted commercial quota; a 9.21 million lb adjusted recreational harvest limit; a 567,062 lb RSA) for 2007. The 2007 TAL under this alternative is equal to the summer flounder TAL in 2006

Based on the current status of the stock, the overall TALs and associated allocations under this alternative, this alternative does not meet the required 50 percent probability of achieving the fishing target rate in 2007, assuming the TAL and discard levels in 2006 are 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 2007. If the target is exceeded, stock rebuilding will be slowed. The probability of achieving the target fishing mortality rate in 2007 associated with this alternative is lower than those under alternatives 1 and 2.

Under this alternative, the 2007 commercial quota is approximately 20 thousand lb (less than 1 percent) higher than the adjusted commercial quota implemented in 2006. 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 2006 is nil; therefore, impacts to other fisheries are not expected when compared to 2006.

Under this alternative, the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations remain unchanged in 2007. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2007 relative to 2006.

The discussion regarding the discard set-aside measures and RSA 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 2006.

The least restrictive alternative implements an adjusted recreational harvest limit of 9.21 million lb in 2007. The 2007 recreational limit under this alternative is 80 thousand lb less than the recreational harvest limit implemented in 2006. If recreational landings are the same in 2006 as in 2005 (10.02 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 less than the required 50 percent probability of achieving the fishing target rate in 2007, assuming the TALs and discard levels in 2006 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 2007, relative to 2006. The magnitude of these impacts is unknown.

Note that even though the proposed TAL for 2007 is the same as the overall TAL implemented in 2006 (a status quo measure), the adjusted commercial quotas and recreational harvest limits vary mainly due to differences in the value of the RSA used to derive 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 2007. If this were to occur, negative impacts to the summer flounder stock could occur relative to 2006.

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 (20 thousand lb) in 2007 as compared to 2006. The difference is mainly due to differences in the RSA 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 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 landing 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 results 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 2006, 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 2007. As such, these measures are not expected to result in biological impacts (positive or negative) to the summer flounder stock or other fisheries in 2007 relative to 2006.

The increase in the commercial quota under alternative 3 is not expected to 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 2007. As such, these measures are not expected to change effort in 2007 as compared to 2006 and thus, are not expected to increase adverse impacts on endangered and other protected species.

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 landing a larger volume of fish. However, given that the proposed 2007 commercial quota under this alternative is nearly identical to the commercial quota implemented in 2006, 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 2006.

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 23.59 million lb for 2007. Based on the current status of the stock, the overall TAL and associated allocations, overfishing on the summer flounder stock will continue. 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 2007. If the target is exceeded, stock rebuilding will be slowed. The probability of achieving the fishing target rate in 2007 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 13.81 million lb; a preliminary adjusted recreational harvest limit of 9.21 million lb; and a maximum RSA of 567,062 lb for 2007.

This alternative includes an increase in the summer flounder commercial quota of less than 1 percent (20 thousand lb) in 2007 as compared to 2006. As a result of a slightly higher adjusted commercial quota for summer flounder, small positive economic impacts on the summer flounder fishery will probably occur, relative to 2006. The quota landings allow for slightly higher landings, resulting in an increase in revenue, relative to 2006. However, this economic impact may be small due to the relatively minor projected increase in commercial quota in 2007 relative to 2006. It is important to note that even though this is the status quo alternative, the

adjusted quota and recreational harvest limits under this alternative for 2007 are slightly different that those implemented in 2006 due to different levels of RSAs used to make quota adjustments between these two time periods (and/or other adjustments due to overages/quota restorations).

Under this alternative, the current summer flounder minimum fish size, minimum mesh regulations, and minimum mesh threshold regulations will remain unchanged in 2007. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

The least restrictive measures for summer flounder implement an adjusted recreational harvest limit of 9.21 million lb in 2007. This value is near identical to the recreational harvest limit implemented in 2006. If recreational landings are the same in 2006 as in 2005 (10.02 million lb), the adjusted recreational harvest limits will not constrain recreational landings in 2007. As such, it is likely 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 2007. 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 smaller than that under the preferred alternative (alternative 1) and most restrictive alternative (alternative 2). 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 2006 are more complete.

Overall, the status quo summer flounder measures under this alternative (also least restrictive) will likely result in no or negligible negative social and economic impacts on the summer flounder fisheries compared to 2006. However, these measures most likely will not achieve the target exploitation rate for summer flounder in 2007.

7.2 Scup Alternatives

7.2.1 Alternative 1 (Preferred TAL)

7.2.1.1 Biological Impacts

The proposed scup TAL of 16.00 million lb under alternative 1 is the Council preferred TAL for 2007. Estimated discards were added to the TAL to derive a TAC of 17.97 million lb. This TAL recommendation is based on the condition of the stock relative to the biological reference point and is within the range of long-term potential catches at approximately ½ B_{MSY}. Specifically, the stock is considered overfished, which indicates the biomass is less than ½ B_{MSY}.

The preferred 2007 scup TAL of 16.00 million lb includes a preliminary adjusted commercial quota of 11.93 million lb, a preliminary adjusted recreational harvest limit of 3.59 million lb, and an RSA of 480,000 lb. The preferred scup TAL and the associated allocations are not expected to

result in biological impacts (positive or negative) to the scup stock in 2007 when compared to the status quo alternative (alternative 3).

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 0.20 million lb lower than the status quo alternative for 2007 (alternative 3). However, since the adjusted commercial quota is nearly identical to the adjusted commercial status quo quota in 2006 (i.e., 0.21 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 and II possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain unchanged in 2007. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2007 when compared to the status quo alternative (alternative 3).

The proposed scup TAL includes an RSA of 480,000 lb. The results of the research conducted through the RSA 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 RSA projects count against the overall quota, the biological/ecological impacts will not change relative to 2006. 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 RSA program.

The preferred alternative would implement an adjusted recreational harvest limit of 3.59 million lb, approximately 60 thousand lb (< 2 percent) less 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 2007, 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 impacts on the scup stock in 2007 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 < 2 percent (60 thousand lb) in 2007 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 2007 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 2006. 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 and II possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain unchanged in 2007. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2006. These actions are not expected to change effort in 2007 as compared to 2006 and thus, are not expected to increase adverse impacts on EFH. 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 2006 List of Fisheries, except the Mid-Atlantic mixed trawl fishery and Mid-Atlantic pot/trap fishery. Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals. There are no documented marine mammal species or stocks incidentally killed or injured in the Mid-Atlantic mixed trawl fishery. Marine mammal species injured or killed by Mid-Atlantic mixed species traps/pots include fin whale, humpback whale, Minke whale, and harbor porpoise. 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.

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. 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.

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 A) and the transfer of unused scup quota from Winter I to Winter II period regulations will not have a different impact on protected resources in 2007 as compared to 2006, because these measures are not expected to change fishing effort.
This alternative is not expected to yield different impacts to endangered and protected resources in 2007 as compared to impacts in 2006. 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, relative to the status quo.

7.2.1.4 Socioeconomic Impacts

The proposed 2007 TAL of 16.00 million lb for scup is approximately < 2 percent lower than the TAL under the status quo alternative (alternative 3). This TAL recommendation is based on the condition of the stock relative to the biological reference point and is within the range of long-term potential catches at approximately ½ B_{MSY}. Specifically, the stock is considered overfished, which indicates the biomass is less than ½ B_{MSY}.

The preferred scup TAL includes a preliminary adjusted commercial quota of 11.93 million lb; a preliminary adjusted recreational harvest limit of 3.59 million lb; and a maximum RSA of 480,000 lb for 2007. The commercial quota and recreational harvest limit under this alternative are approximately 0.20 and 0.06 million lb lower, respectively, than the adjusted quota and recreational harvest limit under the status quo alternative.

The adjusted commercial quota under this alternative is approximately < 2 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 < 2 percent lower than the adjusted recreational harvest limit under the status quo alternative. If

2006 landings are the same as the 2005 landings (2.38 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 are complete. However, it is not expected that such measures will result in a decrease in recreational satisfaction.

Under this alternative, the scup current minimum fish size, minimum vent size, Winter I and Winter II possession limits, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain unchanged in 2007. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

Overall, small social and economic impacts are expected to occur as a result of the preferred scup measures for 2007 relative to the status quo measures. 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 (Monitoring Committee Recommended/Most Restrictive TAL)

7.2.2.1 Biological Impacts

The most restrictive TAL for scup is 12.00 million lb. Based on this overall TAL, the preliminary adjusted commercial quota is 8.90 million lb, the preliminary adjusted recreational harvest limit is 2.74 million lb, and the RSA is 360,000 lb. The commercial quota and the recreational harvest limit under this alternative are the most restrictive of all alternatives evaluated.

The monitoring committee recommended this TAL, which is within the range of long-term potential catches at approximately ½ B_{MSY} and would bound the landings at the 2005 level. 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 and II possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix B) will remain unchanged in 2007. As such, these measures are not expected to result in biological impacts

(positive or negative) to the scup stock or other fisheries in 2006. In addition, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2007.

The preliminary adjusted commercial quota for scup under alternative 2 is approximately 27 percent lower (3.23 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 of 2.74 million lb, which is approximately 25 percent lower than the adjusted recreational harvest limit under the status quo alternative. If landings in 2007 equal landings from 2005 (2.38 million lb), the adjusted recreational harvest limit would constrain the 2007 recreational landings. This recreational harvest limit should have nil or small positive biological impacts on the stock relative to status quo alternative 3.

Overall, the scup measures under this alternative should have a nil to small positive impact on scup stock and the stocks of other species in 2007, relative to the status quo scup alternative 3.

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 27 percent (3.23 million lb) in 2007 compared to the status quo alternative.

Under this alternative, the current minimum fish size, minimum vent size, Winter I and II possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain unchanged in 2007. These actions are not expected to change effort in 2007 as compared to 2006 and thus, are not expected to increase adverse impacts on EFH. This alternative will not change fishing effort or redistribute fishing effort by gear type. For this reason, this alternative is expected to have no additional impact to EFH in 2007 as compared to impacts in 2006.

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.

7.2.2.3 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 27 percent (3.23 million lb) in 2007 compared to the status quo alternative.

Under this alternative, the current minimum fish size, minimum vent size, Winter I and II possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain unchanged in 2007. As such, these measures are not expected to change effort in 2007 when compared to 2006 and therefore, are not expected to increase adverse impacts on endangered and other protected species. 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 2007 as compared to impacts in 2006. 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 12.00 million lb for 2007. This TAL is about 27 percent lower than the TAL under the status quo alternative (alternative 3). The monitoring committee recommended this TAL, which is within the range of long-term potential catches at approximately ½ B_{MSY} and would bound the landings at the 2005 level.

This TAL includes a preliminary adjusted commercial quota of 8.90 million lb, a preliminary adjusted recreational harvest limit of 2.74 million lb, and a maximum RSA of 360,000 lb for 2007.

A preliminary adjusted commercial quota of 8.90 million lb is approximately 27 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 8.90 million lb is expected to result in revenue reduction relative to the status quo alternative. However, it is possible that given the potential decrease in scup 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 scup may mitigate some of the revenue reductions associated with lower quantities of scup quota availability under this alternative relative to the status quo alternative.

An adjusted recreational harvest limit of 2.74 million lb is approximately 25 percent lower than the recreational harvest limit under the status quo alternative. If 2006 landings are the same as the 2005 landings (2.38 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 are more complete. However, it is not expected that such measures will result in a decrease in recreational satisfaction.

Under this alternative, the current scup minimum fish size, minimum vent size, Winter I and Winter II possession limits, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain unchanged in 2007. As such, these measures are not expected to result in socioeconomic impacts (positive or negative) in 2007 as compared to impacts in 2006.

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).

7.2.3 Alternative 3 (Status Quo/Least Restrictive TAL)

7.2.3.1 Biological Impacts

The proposed scup TAL of 16.27 million lb under alternative 3 is the status quo TAL for 2007. Estimated discards were added to the TAL to derive a TAC of 18.24 million lb. Given the current overfished status of the scup stock relative to the biological reference points, fishing at the status quo may meet the 21% exploitation rate target. This TAL includes a preliminary adjusted commercial quota of 12.13 million lb, a preliminary adjusted recreational harvest limit of 3.65 million lb, and an RSA of 488,100 lb. The status quo scup TAL and the associated allocations could potentially result in small negative biological impacts to the scup stock in 2007.

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 0.20 million lb higher than the adjusted quota in 2006. Note that even though this is a status quo measure, the 2007 adjusted commercial quota and recreational harvest limit are slightly different than the 2006 allocations mainly due to the fact that the discard estimates and RSA requests were different in 2007 allocations compared to 2006. However, since the adjusted commercial quota proposed for 2007 is nearly identical to the adjusted commercial quota in 2006 (i.e., 0.20 million lb higher), 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 and II possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain

unchanged in 2007. As such, these measures are not expected to result in biological impacts (positive or negative) to the scup stock or other fisheries in 2007.

The proposed scup TAL includes an RSA of 488,100 lb. The results of the research conducted through the RSA 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 RSA projects count against the overall quota, the biological/ecological impacts will not change relative to 2006. 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 RSA program.

The status quo alternative would implement an adjusted recreational harvest limit of 3.65 million lb, approximately 503 thousand lb (about 12 percent) less than the adjusted recreational harvest limit implemented in 2006. This recreational harvest limit is not expected to result in biological impacts (positive or negative) to the scup stock in 2007, relative to 2006.

Overall, the scup measures under the status quo alternative should have no impacts (positive or negative) on the scup stock in 2007 as compared to impacts in 2006, unless the target F is not met and the stock continues to be overfished. In the case that this target is not met, the measures in this alternative could potentially result in small negative biological impacts compared to 2006.

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 3 (status quo alternative) includes an increase in the scup commercial quota by about 2 percent (0.20 million lb) in 2007 as compared to 2006. 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 2007 commercial quota under this alternative is nearly identical to the quota implemented in 2006, it is not expected that changes in fishing effort will occur as a consequence of the proposed 2007 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 and II possession limit, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain

unchanged in 2007. These actions are not expected to change effort in 2007 as compared to 2006 and thus, are not expected to increase adverse impacts on EFH. This alternative will not change fishing effort or redistribute fishing effort by gear type. For this reason, this alternative is expected to have no additional impact to EFH in 2007 as compared to impacts in 2006.

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

The discussion presented in section 7.2.1.3 regarding the types of gear used to capture scup commercially also applies here. Alternative 3 (status quo/least restrictive) includes an adjusted commercial quota proposed for 2007 that is nearly identical to the adjusted commercial quota in 2006 (i.e., 0.20 million lb higher).

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 A), and the transfer of unused scup quota from Winter I to Winter II period regulations will not have a different impact to protected resources in 2007 as compared to impacts in 2006, because these measures are not expected to change fishing effort.

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 2006.

7.2.3.4 Socioeconomic Impacts

The least restrictive scup measure (also status quo measure) includes a TAL of 16.27 million lb. Under this alternative, the preliminary adjusted commercial quota is 12.13 million lb, the preliminary adjusted recreational harvest limit is 3.65 million lb, and a maximum RSA is 488,100 lb. Given the current overfished status of the scup stock relative to the biological reference points, fishing at the status quo may not meet the 21% exploitation rate target.

A preliminary adjusted commercial quota of 12.13 million lb is < 2 percent higher (0.20 million lb) than the existing adjusted commercial quota for scup. As a result of a slightly higher adjusted commercial quota for scup, small positive economic impacts on the scup fishery will probably occur, relative to 2006. The quota landings allow for slightly higher landings, resulting in an increase in revenue, relative to 2006. However, this economic impact may be small due to the relatively minor projected increase in commercial quota in 2007, relative to 2006. It is important to note that even though this is the status quo alternative, the adjusted quota and recreational harvest limits under this alternative for 2007 are slightly different that those implemented in 2006 mainly due to different discard levels used to derived the TAC/TAL levels and RSAs used

to make quota adjustments between these two time periods (and/or other adjustments due to overages/quota restorations).

An adjusted recreational harvest limit of 3.65 million lb is approximately 12 percent lower than the recreational harvest limit for 2006. If 2006 landings equal the 2005 landings (2.38 million lb), the adjusted recreational harvest limit will constrain landings in 2007. As such, it is likely that more restrictive limits (i.e., lower possession limits, greater minimum size limits, and/or shorter seasons) will not be necessary to prevent anglers from exceeding this recreational harvest limit in 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 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 scup minimum fish size, minimum vent size, Winter I and Winter II possession limits, the transfer of unused scup quota from Winter I to Winter II period, winter period mesh threshold regulations, and GRA management measures (Appendix A) will remain unchanged in 2007. As such, these measures are not expected to result in socioeconomic impacts (positive or negative) in 2007 as compared to impacts in 2006.

Overall, the status quo scup measures under this alternative (also least restrictive) will likely result in no or negligible negative social and economic impacts on the scup fisheries compared to 2006.

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 6.50 million lb (a 3.12 million lb adjusted commercial quota; a 3.25 million lb adjusted recreational harvest limit; a 131,858 lb RSA) for 2007. The TAL under this alternative as well as the other black sea bass 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.

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. If the spring survey for 2007 is equal to 0.328 (three-year moving average for 2005) and assuming an exploitation rate of 21% in 2003, the TAL associated with an exploitation rate of 25% is about 4.68 million lb. However, if the spring survey for 2007 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 5.65 million lb. Therefore, the Council and Board selected a TAL of 6.50 million lb, the midpoint value between the TAL associated with alternative 2 and

the status quo alternative (alternative 3), based on social and economic concerns. This TAL is not expected to achieve the 25% target exploitation rate.
The proposed black sea bass TAL of 6.50 million lb for 2007 under alternative 1 represents a 19 percent decrease (1.5 million lb) relative to the TAL under the status quo alternative. 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 2007, relative to the status quo alternative (alternative 3).

The adjusted commercial quota under this alternative is slightly lower than the adjusted quota under the status quo alternative; therefore, the black sea bass commercial quota is 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 2006 to 2007 associated with this alternative (i.e., 0.70 million lb) and the possibility that 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 2007. 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 2007 relative to 2006.

The proposed black sea bass TAL includes an RSA of 131,858 lb. The results of the research conducted through the RSA 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 RSA would be identical because the program was in effect in 2006.

The preferred alternative implements an adjusted recreational harvest limit of 3.25 million lb, approximately 0.76 million lb (19 percent) lower than the recreational harvest limit under the status quo alternative. If recreational landings are the same in 2006 as in 2005 (1.79 million lb), this limit will constrain recreational landings in 2007. As such, this recreational harvest limit is expected to result in no impacts or slightly negative biological impacts to the black sea bass stock relative to the status quo alternative.

Overall, the black sea bass measures under the preferred alternative are expected to be no impacts or slightly positive 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 a decrease in the black sea bass commercial quota by 19 percent in 2006 (0.76 million lb) 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 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. 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 2007. These actions are not expected to change effort in 2007 as compared to 2006 and thus, are not expected to increase adverse impacts on EFH.

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.

Black sea bass are targeted by the Mid-Atlantic bottom 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 and bottom trawl fishery, which NMFS lists as Category II fisheries. Category III fisheries are not associated with any documented serious injuries or mortalities of marine mammals. There are no documented marine mammal species or stocks incidentally killed or injured in the Mid-Atlantic mixed trawl fishery. 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 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 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 will not have a different impact on protected resources in 2007 as compared to impacts in 2006, because these measures are not expected to change fishing 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 2006 to 2007 under this alternative is about 0.76 million lb, 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 6.50 million lb for black sea bass under this alternative is approximately 19 percent lower than the TAL under the status quo alternative (alternative 3). The preferred black sea bass TAL includes a preliminary adjusted commercial quota of 3.12 million lb, a preliminary adjusted recreational harvest limit of 3.25 million lb, and a maximum RSA of 131,858 lb for 2007.

The commercial landings level under this alternative represents an approximately 19 percent decrease 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, it is possible that given the potential decrease in black sea bass 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 black sea bass may mitigate some of the revenue reductions associated with lower quantities of black sea bass 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 black sea bass minimum fish size, minimum mesh regulations, minimum mesh threshold, and minimum vent size will remain unchanged in 2007. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

An adjusted recreational harvest limit of 3.25 million lb is approximately 19 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 2006 landings are the same as the 2005 or 2004 landings (1.79 and 1.94 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 are more complete.

Overall, it is expected that small negative social and economic impacts may occur because of the decrease in commercial landings in 2007, relative to the status quo alternative. These measures are not expected to achieve the 25% target exploitation rate.

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 monitoring committee recommended measures. The black sea bass TAL under this alternative will be 5.00 million lb for 2007. Under this alternative, the preliminary adjusted commercial quota will be 2.39 million lb, the preliminary adjusted recreational harvest limit will be 2.48 million lb, and the RSA will be 131,858 lb. This TAL will likely achieve the target exploitation rate of 25 percent for 2007. 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. If the spring survey for 2007 is equal to 0.328 (three-year moving average for 2005) and assuming an exploitation rate of 21% in 2003, the TAL associated with an exploitation rate of 25% is about 4.680 million lb. However, if the spring survey for 2007 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 5.650 million lb. Therefore, the monitoring committee recommended a TAL of 5.00 million lb, which is halfway between the two TAL calculations and would constrain landings to the 2005 level. As such, the most restrictive black sea bass TAL and the associated allocations are expected to result in small positive biological impacts to the black sea bass stock in 2007, 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 2.39 million lb, which represents a 1.47 million lb (38 percent) decrease from the quota under the status quo alternative (alternative 3). The decrease in quota associated with this alternative may result in positive biological impacts to other fisheries in 2007 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 2007. 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 2007, relative to 2006.

This TAL implements an adjusted recreational harvest limit of 2.48 million lb, 1.53 million lb (38 percent) less than the recreational harvest limit under the status quo alternative (alternative 3). 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 small positive biological impacts to the black sea bass stock in 2007, 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 2007 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 2007.

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 a decrease in the black sea bass commercial quota by 38 percent in 2007 (1.47 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. The decrease in the adjusted commercial quota in 2007 as compared to 2006 is not expected to dramatically affect fishing effort, as 2005 landings (2.86 million lb) are only slightly greater than the proposed commercial quota under this alternative (2.39 million lb). 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 2007. These actions are expected to maintain or

slightly decrease effort in 2007 as compared to 2006 and thus, are expected to result in nil or small positive impacts on EFH.

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 will not have a different impact on protected resources in 2007 as compared to impacts in 2006, because these measures are not expected to change fishing 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 2006 to 2007 under this alternative is about 1.47 million lb, and it is not expected that it will affect 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 additional adverse impact on marine mammals, relative to the status quo.

7.3.2.4 Socioeconomic Impacts

The black sea bass TAL under this alternative is 5.00 million lb for 2007 (most restrictive alternative). This alternative includes a preliminary adjusted commercial quota of 2.39 million lb, a preliminary adjusted recreational harvest limit of 2.48 million lb, and a maximum RSA of 131,858 lb for 2007.

The preliminary adjusted commercial quota of 2.39 million lb is approximately 38 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 black sea bass minimum fish size, minimum mesh regulations, minimum mesh threshold, and minimum vent size will remain unchanged in 2007. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

An adjusted recreational harvest limit of 2.48 million lb is approximately 38 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 2006 landings are the same as the 2005 or 2004 landings (1.79 and 1.94 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 are more complete.

Overall, the associated allocations under this alternative (most restrictive) will likely result in negative social and economic impacts on the black sea bass fishery in 2007 compared to the status quo alternative. These measures will achieve the target exploitation rate for 2006.

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 8.00 million lb for 2007. Under this alternative, the preliminary adjusted commercial quota will be 3.86 million lb, the preliminary adjusted recreational harvest limit will be 4.01 million lb, and the RSA will be 131,858 lb. This TAL is not expected to achieve the target exploitation rate of 25 percent for 2007. 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. If the spring survey for 2007 is equal to 0.328 (three-year moving average for 2005) and assuming an exploitation rate of 21% in 2003, the TAL associated with an exploitation rate of 25% is about 4.680 million lb. However, if the spring survey for 2007 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 5.650 million lb. As such, the least restrictive black sea bass TAL and the associated allocations are expected to result in slightly negative biological impacts to the black sea bass stock in 2007, relative to 2006.

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 3.86 million lb. This represents an approximate 30 thousand lb increase from the 2006 adjusted quota. As the black sea bass stock decreases, catch-per-unit-effort could correspondingly decrease resulting in the same number of tows landing a smaller volume of fish. Given that this alternative does not significantly increase or decrease black sea bass landings relative to the quota specified in 2006, impacts to other fisheries in 2007 would be similar to 2006.

Under this alternative the current minimum fish size, minimum mesh regulations, and minimum mesh threshold will remain unchanged in 2007. 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 2007 relative to 2006.
This TAL implements an adjusted recreational harvest limit of 4.01 million lb, 20 thousand lb (about 1 percent) higher than the recreational harvest limit in 2006. As discussed above, the recreational harvest limit and commercial quota associated with this TAL are not expected to achieve the target exploitation rate of 25%. This recreational harvest limit may result in slightly negative biological impacts to the black sea bass stock in 2007, relative to 2006. Note that even though this is a status quo measure, the adjusted commercial quota and recreational harvest limit are slightly higher than the 2006 allocation because of differences in the RSA used to derive the adjusted limits for 2007, as compared to 2006.

Overall, the black sea bass measures under this alternative should have no impact or slightly negative impacts on the black sea bass stock or other fisheries in 2007 relative to 2006.

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 3 (least restrictive/status quo alternative) includes an increase in the black sea bass commercial quota by about 1 percent in 2007 (30 thousand lb) compared to the adjusted quota specified for 2006. 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 slightly larger quota could result in more fishing trips, or longer fishing trips, with a corresponding potential for increased habitat impacts. Conversely, a larger quota could mean that states establish higher 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. The increase in the adjusted commercial quota in 2007 as compared to 2006 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 2007. These actions are not expected to change effort in 2007 as compared to 2006 and thus, are not expected to increase adverse impacts on EFH.

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 will not have a different impact on protected resources in 2007 as compared to impacts in 2006, because these measures are not expected to change fishing effort. Fishing effort could decrease as vessels take fewer, or shorter, trips (Table 13). Similarly, with decreased species abundance, catch-per-unit-effort could decrease, requiring a greater number of tows to land the same volume of fish. Furthermore, the increase in commercial quota from 2006 to 2007 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 impacts (positive or negative) on marine mammals in 2007, relative to 2006.

7.3.3.4 Socioeconomic Impacts

The status quo and least restrictive black sea bass measures include a TAL of 8.00 million lb. Under this alternative, the preliminary adjusted commercial quota is 3.86 million lb, the preliminary adjusted recreational harvest limit is 4.01 million lb, and the maximum RSA is 131,858 lb for 2007.

A preliminary adjusted commercial quota of 3.86 million lb is approximately < 1 percent lower (0.03 million lb) than the adjusted commercial quota implemented in 2006. 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 2006. However, this economic impact may be nil due to the relatively minor projected decrease in commercial quota in 2007 relative to 2006. 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 2007 are slightly different that those implemented in 2006 due to different levels of RSAs used to make quota adjustments between these two time periods (and/or other adjustments due to overages/quota restorations).

Under this alternative, the current black sea bass minimum fish size, minimum mesh regulations, minimum mesh threshold, and minimum vent size will remain unchanged in 2007. As such, these measures are not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

An adjusted recreational harvest limit of 4.01 million lb is near identical to the recreational limit implemented in 2006 (3.99 million lb). If 2006 landings are the same as the 2005 or 2004 landings (1.79 and 1.94 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 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 2007, as compared to impacts in 2006.

7.4 Research Set-Aside Measures

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

Under this alternative no RSA 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 RSA implemented for 2007. Because all summer flounder, scup, and black sea bass landings would count against the overall quota whether or not an RSA is implemented, the biological/ecological impacts would not change relative to 2006. 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 2006.

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 catch 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 2006.

7.4.1.5 Socioeconomic Impacts

Under this alternative, there will be no RSA 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 an RSA 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-RSA 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 RSA quota. Since no RSA is implemented under this alternative, there are no direct economic or social costs as described above.

Under this alternative, the collaborative efforts among 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 from data or other information about these fisheries for management or stock assessment purposes.

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

The Council recommended a maximum summer flounder, scup, and black sea bass RSA of 3% of the implemented TAL for each species. There are four research projects submitted to NMFS requesting set-asides for these species for 2007. The conditionally approved 2007 RSA projects have requested summer flounder, scup, and black sea bass RSAs in the following amounts: 567,062 lb (257,215 kg), 530,886 lb (240,806 kg), and 131,858 lb (59,810 kg), respectively. RSA amounts cannot exceed 3% of the TALs for each of the species. Therefore, for some of the proposed TALs, the 3% maximum RSA amounts could be less than the 2007 condition approved amounts. Modifications to the amounts requested by species for each project could occur in 2007 to accommodate shortfalls in RSA amounts; however, the final approved RSA amounts for each species will not exceed 3% of the implemented TAL. For analysis of the alternatives in this specifications document, the RSA amount deducted from each TAL is either the conditionally approved RSA amount, or 3% of the TAL, whichever is less (Table 14). If the RSA is not used, the RSA quota will be put back into the overall TAL. A summary of the RSA projects requesting summer flounder, scup, and black sea bass for 2007 is presented in Appendix B. This summary includes project name, description and duration, amount of RSA requested, and gear to be used to conduct the project. This alternative is the status quo alternative.

The impacts of the RSAs for squid, mackerel, and butterfish were discussed in detail in the 2007 Atlantic Mackerel, *Loligo*, *Illex*, and Butterfish Specifications (section 7.4). The impacts of the RSAs for bluefish are discussed in detail in the 2007 Bluefish Specifications (section 7.4). There are no significant impacts expected from those RSA 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 2006 (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 regulations limit fishermen to a 2,000 lb possession limit for the second winter period. Although the possession limits can be exceeded, the landings count against the quota; therefore, the biological/ ecological impacts would not change relative to 2006.

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 2006 (section 7.2.1.1).

Black Sea Bass

The proposed research allows for landings of black sea bass in excess of Federal or state possession limits. Current Federal regulations state that otter trawlers whose owners are issued a black sea bass permit are required to possess a minimum of 75 meshes of 4.5" diamond mesh in the codend of the net, or the entire net must have a minimum mesh size of 4.5" throughout. The threshold level used to trigger the minimum mesh size requirement is 500 lb from January through March and 100 lb from April through December.

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 2006 (section 7.3.1.1).

Non-targeted Species

Non-targeted species may be encountered and caught during the course of the RSA projects. A summary of the status of the stock for potential non-target species for the proposed 2007 Mid-Atlantic RSA projects is provided in Table 15. 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 among 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 RSA. In addition, the RSA 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 applies 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 RSA 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 RSA 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 is 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-RSA 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 RSA quota.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1, 7.2, and 7.3 was based on adjusted commercial quotas accounting for the RSA proposed under this alternative. The MAFMC recommended research set asides quotas of up to 3 percent of the overall TALs for summer flounder, scup, and black sea bass for 2007. NMFS has conditionally approved Mid-Atlantic RSA research proposals requesting 567,062, 480,000, and 131,858 lb of summer flounder, scup, and black sea bass for the 2007 fishing year, respectively.

However, some of the measures discussed in this document (i.e., summer flounder alternative 2 and all of the scup alternatives) cannot support the requested poundage for the 2007 conditionally approved projects. This is due to the fact that the requested research set aside amounts would be greater than 3% of each species' quota cap under these measures (i.e., summer flounder alternative 2 and all of the scup alternatives). Therefore, the research set asides for summer flounder alternative 2 and all of the scup alternatives were set at the maximum allowable level of 3%.

More specifically, a RSA of 567,062 lb (340,237 lb for commercial and 226,825 lb for recreational) was assumed for summer flounder alternatives 1 and 3. For summer flounder alternative 2, the maximum 3% allowable RSA of 156,600 lb (5.20 million lb TAL x 3%; 93,960 lb for commercial and 62,640 lb for recreational) was assumed. The maximum 3% allowable RSA of 480,000 lb (16.00 million lb TAL x 3%; 368,898 lb for commercial and 118,102 lb for recreational), 360,000 lb (12.00 million lb TAL x 3%; 275,298 lb for commercial and 84,702 lb for recreational), and 488,100 lb (16.27 million lb TAL x 3%; 375,216 lb for commercial and 112,884 lb for recreational) was assumed for scup alternatives 1, 2, and 3, respectively. Finally, an RSA of 131,858 lb (64,610 lb for commercial and 67,248 lb for recreational) was assumed for all black sea bass alternatives evaluated. A summary of the scope of work for 2007 Mid-Atlantic RSA projects is presented in Appendix B. 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 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2006 RSA for the commercial component of the fishery could be worth as much as $578,403 under alternatives 1 and 3 and $159,732 under alternative 2 for summer flounder. For scup, the

commercial component of the RSA could be worth as much as $276,674, $206,474, and $281,412 for alternatives 1, 2, and 3, respectively. Lastly, for black sea bass, the commercial component of the RSA could be worth as much as $164,109 under each of the black sea bass alternatives evaluated.

As such, on a per vessel basis, the commercial RSAs could result in a potential decrease in summer flounder revenues of $771 under alternatives 1 and 3 and $213 under alternative 2 for that species. The potential decrease in revenue for scup as a consequence of the commercial RSA for that species is $630, $470, and $641 per vessel under scup alternatives 1, 2, and 3, respectively. Lastly, potential decrease in revenue for black sea bass as a consequence of the commercial RSA for that species is $291 per vessel under each of the alternatives evaluated for that species. The losses in revenues are relative to commercial quotas without RSA in place. The values estimated above assume an equal decrease in revenue among all active vessels in 2005, i.e., 750, 439, and 563 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 RSAs (as described in sections 4.3 and 5.0). If RSAs are not used, the landings would be included in 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 small; the limit changes from 7.96 to 7.73 million lb (a 2.9 percent decrease) under summer flounder alternative 1, from 2.09 to 2.03 million lb (a 2.9 percent decrease) under summer flounder alternative 2, and from 9.44 to 9.21 million lb (a 2.4 percent decrease) under summer flounder alternative 3. For the analyzed scup alternatives, the changes in the recreational harvest limit due to RSAs are from 3.70 to 3.59 million lb (a 3.0 percent decrease) under alternative 1, from 2.82 to 2.74 million lb (a 2.8 percent decrease) under alternative 2, and from 3.76 to 3.65 million lb (a 2.9 percent decrease) under alternative 3. Lastly, for the analyzed back sea bass alternatives, the changes in the recreational harvest limits due to RSAs are from 3.32 to 3.25 million lb (a 2.1 percent decrease) under alternative 1, from 2.55 to 2.48 million lb (a 2.7 percent decrease) under alternative 2, and from 4.08 to 4.01 million lb (a 1.70 percent decrease) under alternative 3. It is unlikely that the possession, size or seasonal limits will change as the result of this RSA, and there will be no negative impacts.

However, given the substantial decrease in the quotas in 2007 relative to 2006 for all three species under alternative 2 (most restrictive), 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-RSA participants in the fishery.

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.

As indicated in section 5.4, the impacts of the RSAs for squid, mackerel, and butterfish were discussed in detail in the 2007 Atlantic Mackerel, *Loligo* squid, and Butterfish Specifications (section 7.4). The impacts of the RSAs for bluefish are discussed in detail in the 2007 Bluefish Specifications (section 7.4). There are no significant impacts expected from those RSA projects. Finally, it is possible that for the species for which the requested RSA poundage for the 2007 conditionally approved projects that are substantially smaller than the 3% RSA quota cap (i.e., *Loligo* squid and black sea bass), there may be additional requested set-aside for those species. More specifically, the Council approved up to 1.12 and 0.20 million lb of *Loligo* squid and black sea bass research-set aside for 2007, respectively. However, the requested set-aside poundage for conditionally approved projects for the 2007 fishing year only call for 0.61 and 0.13 million lb of *Loligo* squid and black sea bass, respectively. Therefore, it is possible that additional RSA for *Loligo* squid and black sea bass could be allocated in the future in order to compensate for the potential shortfall in the RSAs requested for summer flounder and scup due to lower TALs for those species in 2007 (Perra, pers. comm.).

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 addresses the significance of the expected cumulative impacts as they relate to the federally managed summer flounder, scup, and black sea bass fisheries.

The cumulative impact 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.

Past and Present FMP Actions

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 the above described 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.

Reasonably Foreseeable Future Actions

In terms of Reasonably Foreseeable Future (RFF) Actions that relate to the federally-managed summer flounder, scup, and black sea bass fishery, several warrant additional discussion. Draft Amendment 14 to the FMP would implement a rebuilding program for scup, and prevent overfishing while rebuilding the stock to the biomass associated with the maximum sustainable yield. The development of Amendment 15 to the Summer Flounder, Scup, and Black Sea Bass FMP would also continue to manage these resources in accordance with the National Standards required under the Magnuson-Stevens Act. The issues to be addressed in Amendment 15 are speculative, with many potential issues proposed for consideration by the Council and the public that would meet the FMP objectives.

Cumulative effects to the physical and biological dimensions of the environment may also result from non-fishing activities as they relate to anthropogenic effects or natural disturbance. Many of these have occurred in the past and present, and may continue in the RFF. These activities can

range from beach renourishment programs, agricultural runoff, installation of utility lines and cables, dredged material disposal, and expansion of ports and marinas. In order for many of these projects to be permitted under other Federal agencies, those agencies would conduct examinations of potential biological, socioeconomic, and habitat impacts. The MSFMCA (50 CFR 600.930) imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight Fishery Management Councils are engaged in this review process by making comments and recommendations on any Federal or state action that may affect habitat, including EFH, for their managed species and by commenting on actions likely to substantially affect habitat, including EFH.

In addition, under the Fish and Wildlife Coordination Act (Section 662), "whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State wherein the" activity is taking place. This act provides another avenue for review of actions by other Federal and state agencies that may impact resources that NMFS manages in the reasonably foreseeable future.

It is likely that permitted projects would have negative impacts from disturbance and construction activities in the area immediately around the affected area. Given the wide distribution of the affected species, minor overall negative effects to offshore habitat, protected resources, and target and non-target species are anticipated since the affected areas are localized to the project sites, which involve a small percentage of the fish populations and their habitat. Any impacts to inshore water quality from these permitted projects, including impacts to planktonic, juvenile and adult life stages, are unknown but likely minor due to the transient and limited exposure.

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

The above described conservation and management measures 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 have seen improvements since management measures were implemented 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 2005 is 0.53, a significant decline from the 1.32 estimated for 1994 and above the threshold F of 0.276. 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 considered overfished, but stock status with respect to overfishing cannot be determined.

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. Although anthropogenic projects such as beach replenishment and ocean dumping in the past have had effects on summer flounder, scup, and black sea bass, it is unlikely that any anthropogenic activity could significantly impact any population on more than simply a local level, since these three species occur over wide areas of the mid and north Atlantic.

The proposed reduction in quotas, when added to the other actions, would have additional positive cumulative effects on Summer Flounder since the TAL would be reduced. The minor reductions in TALs for Scup and Black Sea Bass would have negligible to slightly positive cumulative effects for these species, since there is only a minor decrease in TAL. The resultant cumulative effect over time would be to continue the rebuilding of all three stocks. 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.

As described above, it is likely that permitted non-fishing projects would have negative impacts from disturbance and construction activities in the area immediately around the affected area. Given the wide distribution of the affected non-target species, minor overall negative effects to offshore habitat are anticipated since the affected areas are localized to the project sites, which involve a small percentage of the fish populations and their habitat. Any impacts to inshore water quality from these permitted projects, including impacts to planktonic, juvenile and adult life stages, are unknown but likely minor due to the transient and limited exposure.

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. Thus, no cumulative effects to non-target species are anticipated. In fact, the proposed quotas in 2007 (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 2007, relative to 2006, and are not expected to have any significant cumulative effects on these species.

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 remainders 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 B. These effects will continue to occur until further action on recovery plans and take reduction plans are implemented.

The 2006 LOF indicates that the Mid-Atlantic bottom trawl fishery is a Category II fishery. There are no documented marine mammal species or stocks incidentally killed or injured in the Mid-Atlantic bottom trawl fishery. 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. Summer flounder are caught in the bottom trawl fishery and also smaller quantities are caught by the Mid-Atlantic commercial sea scallop dredge fishery, the hook and line fishery, and the pound net fishery. All three of these fisheries are also listed as Category III under the 2006 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. As previously stated, the Mid-Atlantic bottom trawl fishery, as stated above, is a Category II fishery. 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 bottom 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 and bottom trawl fishery, which NMFS lists as Category II fisheries. 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. Potential impacts to protected species associated with the proposed measures under this specification are discussed in section 7.0.

Since there is no anticipated increase in gear interactions to any protected species as a result of the proposed reduction in TALs, there would not be any significant cumulative effects to those species.

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 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.

As described above, it is likely that permitted non-fishing projects would have negative impacts to habitat from disturbance and construction activities in the area immediately around the affected area. Given the wide distribution of the affected species, minor overall negative effects to offshore habitat are anticipated since the affected areas are localized to the project sites, which involve a small percentage of the fish populations and their habitat. Any impacts to inshore water quality from these permitted projects, including impacts to planktonic, juvenile and adult life stages, are unknown but likely minor due to the transient and limited exposure.

The proposed quotas in 2007 (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 2007, relative to 2006.

Although past and present fishing and anthropogenic activities have negatively impacted bottom habitat, the proposed reductions in TALs would not further add to these adverse effects. Thus, the proposed action would not have any cumulative effects on habitat.

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, 2005 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 2006, 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 the scup quota under the preferred alternative is very small compared to 2006, it is not expected that it will result in negative impacts to ports and communities involved in this fishery. It is possible that the ports and communities involved in the black sea bass fisheries may experience some negative impacts from the quota for this species due to the reduction in black sea bass quota from 2006 to 2007. However, it is important to mention that the overall black sea bass landings for 2004 and 2005 have been substantially lower than the TALs specified for those years. Furthermore, the proposed black sea bass TAL for 2007 is substantially higher than the overall landings for that species in both 2004 and 2005. 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.

Historical Account of Overages

Although the summer flounder, scup, and black sea bass measures proposed in this EA are for the year 2007 only, 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	14.31	0.44
2004	28.20	16.92	16.76	18.17	1.41
2005[a]	30.30	18.18	17.90	17.14[b]	-
2006	26.60	14.15	13.94	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: 2006 landings not yet available.

Summer Flounder Adjusted 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	9.28	11.64	2.36
2004	11.21	10.76	-
2005 [a]	11.98	10.02	-
2006	9.29	n/a	n/a

[a] Preliminary

Note: 2006 landings not yet available.

Scup TAL [a]			
Year	**TAL**	**Total Landings**	**Overage**
1997	7.947	6.035	-
1998	6.125	5.049	-
1999	3.770	5.204	1.434
2000	3.770	8.104	4.334
2001	6.210	8.329	2.119
2002	10.770	10.905	0.135
2003	16.500	18.391	1.891
2004	16.500	13.740	-
2005 [b]	16.270	11.936	-
2006	16.270	n/a	n/a

[a] Includes both commercial and recreational harvest limits.

[b] Preliminary.

Note - 2006 landings not yet available.

Black Sea Bass TAL[a]			
Year	**TAL**	**Total Landings**	**Overage**
1997	-	7.013	-
1998	6.173	3.858	-
1999	6.173	4.595	-
2000	6.173	6.786	0.613
2001	6.173	6.453	0.280
2002	6.800	7.906	1.106
2003	6.800	6.449	-
2004	8.000	5.006	-
2005[b]	8.200	4.650	-
2006	8.000	n/a	n/a

[a] Includes both commercial and recreational harvest limits.
[b] Preliminary.
Note - 2006 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 2.8 and 1.9 million lb, respectively. There were no overages in the black sea bass fisheries in 2003. In 2004, overall overages (recreational and commercial) totaled approximately 1.41 million lb for summer flounder. There were no overages in the scup or black sea bass fisheries in 2004. There were no summer flounder, scup or black sea bass overages in 2005. 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 2007, quota alternative 1 (preferred alternative) includes the three preferred 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.

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 of alternative 1 (preferred)

The preferred quotas for summer flounder and black sea bass for year 2007 (adjusted for overages and/or RSA) under this alternative are approximately 16 and 19 percent lower relative to the adjusted quotas specified for those species in 2006. The preferred scup quota for 2007 is identical to the quota implemented for that species in 2006. The recreational harvest limits (adjusted for RSAs) in preferred alternative 1 for summer flounder, scup, and black sea bass for the year 2007 are 17, 13, and 19 percent lower relative to the adjusted recreational harvest limits for year 2006. 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 2007 quotas to have impacts, the larger communities and towns in which they live will not.

Commercial Impacts

Vessels affected under the 2007 recommended quota harvest levels (alternative 1 - preferred)

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 34 vessels to an expected revenue loss of ≥ 5 percent for 859 vessels in 2007 relative to 2006 (section 5.1.1 of the RIR/IRFA).

The analysis of the harvest levels under this alternative indicates that the economic impacts ranged from expected revenue losses on the order of < 5 percent for 34 vessels that landed combinations of black sea bass or summer flounder with scup, or landed combinations of summer flounder, scup, and black sea bass to 10-19 percent for 755 vessels that landed all combinations of summer flounder, scup, and/or black sea bass (except scup only; Table 16). As indicated before, in total, 859 vessels are projected to incur revenue reduction of ≥ 5 percent. More specifically, 104 vessels are projected to incur revenue reductions of 5-9 percent, and 755 vessels are projected to incur revenue reductions of 10-19 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 vessels to assess further impacts. For example, according to dealer data, it was estimated that 36 percent of the vessels (272 out of 755 vessels) projected to incur revenue reductions of 10-19 percent had total gross sales (all possible species combined not just summer flounder, scup, and black sea bass) of $1,000 or less, and 56 percent of the same vessels (425 out of 755 vessels) had total gross sales of $10,000 or less. Furthermore, 22 percent of the vessels (24 out of 104 vessels) projected to incur revenue losses of 5-9 percent had total gross sales of approximately $1,000 or less, and 54 percent of the same vessels (56 out of 104 vessels) had total gross sales of $10,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (859) is likely to be impacted with revenue reductions of more than 5 percent or more, 34 percent of these vessels (296 vessels) had gross sales of $1,000 or less, and 56 percent of the impacted vessels (481 vessels) had gross sales of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels 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 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 less than 2 in most states to 22 in New York. The number of vessels with revenue reduction of > 5 percent, ranged from 4 vessels in Maine to 155 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 and black sea bass fisheries. Most vessels with revenue losses of 5 percent or higher had landed summer flounder or black sea bass only, or a combination of summer flounder, scup, and black sea bass. 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 859 vessels showing revenue reduction of ≥ 5 percent, 626 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 626 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, skate, and tilefish incidental permits. 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 626 vessels with federal permits for summer flounder, scup and/or black sea bass have home ports in Massachusetts, New Jersey, Rhode Island, New York, and North Carolina. The principal ports of landing for these vessels are mainly located in Massachusetts, Rhode Island, New Jersey, New York, and North Carolina (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 (83-99 percent; 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, Maine, North Carolina, 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, New Jersey, Rhode Island, New York, North Carolina, and Virginia (Table 21). Within these states, the most impacted counties (largest number of impacted vessels) are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Ocean, Cape May, and Monmouth counties in New Jersey; Washington and Newport counties in Rhode Island; Suffolk, New York City, and Nassau counties in New York; Dare, Pamlico, and Carteret counties in North Carolina; and City of Norfolk and City of Newport News counties in Virginia. 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; Cape May (Cape May county), Barnegat Light and Point Pleasant (Ocean county), and Belford (Monmouth county) in New Jersey; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; Montauk and Shinnecock (Suffolk county) and New York (New York City county) in New York; Wanchese (Dare county), and Oriental (Pamlico county) in North Carolina; and Norfolk (City of Norfolk county) and Newport News (City of Newport News county) in Virginia. Other ports with a large number of impacted vessels (9 or more) are: Stonington (New London county in CT), Ocean City (Worcester county in MD), Provincetown (Barnstable county in MA); Other (Suffolk county in NY); Beaufort (Carteret county in NC); and Other (Suffolk county in NY). 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 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2007 quotas

associated with the preferred alternative would decrease summer flounder and black sea bass revenues by approximately $3.72 and $1.80 million, respectively, relative to the quota implemented in 2006. No changes in scup revenues are expected in 2007 relative to 2006.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with the preferred alternative is distributed equally among the 750 vessels that landed summer flounder in 2005, the average decrease in revenue associated with the decrease in summer flounder quota is approximately $4,960/vessel. Assuming the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally among the 563 vessels that landed black sea bass in 2005, the average decrease in revenue associated with the decrease in black sea bass quota is approximately $3,197/vessel.

The overall reduction in ex-vessel gross revenue associated with summer flounder and black sea bass combined in 2007 relative to quotas implemented in 2006 is approximately $5.52 million (assuming 2005 ex-vessel prices) under the preferred alternative. If this is distributed among the 893 vessels that landed summer flounder and black sea bass in 2005, the average decrease in revenue is approximately $6,181/vessel. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2007 versus 2006 assumed static prices for summer flounder 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 2007 under this alternative will likely result in revenue reduction for summer flounder and black sea bass. However, it is possible that given the potential decrease in summer flounder 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 and/or 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 2007 for quota overages in 2006 that were not accounted for here.

Recreational Impacts

As indicated in the executive summary, the management measures addressed in this specifications document 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 2007 recreational measures. The Council and the Board will meet in December 2006 to adopt 2007 recreational management measures, when more complete data regarding 2006 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.

A discussion regarding summer flounder, scup, and black sea bass recreational fishing trends is presented in section 5.1.1 of the RIR/IRFA. 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 has remained relatively stable with a slight upward trend for the 1990 to 2005 time period. On average, for the 1990-2005 period, approximately 24 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 2004 and 2005, 27 and 29 million marine recreational fishing trips, respectively, were taken in the two regions combined.
The number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined has fluctuated throughout the 1990-2005 period showing a downward trend for the 1990 to 2005 period. On average, for the 1990-2005 period, 1.7 million party/charter marine fishing trips were taken in the North Atlantic and Mid-Atlantic sub-regions combined, ranging from 2.6 million trips in 1993 to 1.0 million trips in 2005. In 2002, 2003, and 2004, 1.2, 1.5, and 1.6 million party/charter boat trips, respectively, were taken in the North Atlantic and Mid-Atlantic subregions combined.

The number of anglers participating in marine recreational trips in the North Atlantic and Mid-Atlantic subregions combined has shown an upward trend for the 1990 to 2005 period. On average, for the 1990-2005 period, 3.2 million anglers fished in the North Atlantic and Mid-Atlantic sub-regions combined, ranging from 2.5 million trips in 2001 to 4.7 million trips in 2005. In 2002, 2003, and 2004, 3.0, 3.7, and 3.8 million anglers, respectively, fished in the North Atlantic and Mid-Atlantic subregions combined.

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 2007, 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 also likely that party/charter anglers will target other species when faced with potential reductions in the amount that they are allowed to catch of these species (section 5.1.1 of the RIR/IRFA).

Other Impacts

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

For summer flounder no changes to the existing current minimum fish size, minimum mesh regulations, or minimum mesh threshold regulations will be made for 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

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 and Winter II possession limits, winter period mesh threshold regulations, and GRA management measures will remain unchanged in 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

For the black sea bass fishery, the current minimum fish size, minimum mesh regulation, minimum mesh threshold, and minimum vent size regulations will remain unchanged in 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

Effects of the RSA

The background information regarding the conditionally approved Mid-Atlantic RSA research proposals for these species for the 2007 fishing year is presented in section 7.4.2. A summary of the scope of work for 2007 Mid-Atlantic RSA projects is presented in Appendix B. The economic effects of the RSA were discussed in detail in section 7.4.2.4.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.1.4, 7.2.1.4, and 7.3.1.4 were based on adjusted commercial quotas accounting for the RSA proposed under this alternative. More specifically, a maximum RSA of 567,062 lb (340,237 lb for commercial and 226,825 lb for recreational) was assumed for summer flounder alternative 1, 480,000 lb (368,898 lb for commercial and 118,102 lb for recreational) was assumed for scup alternative 1, and 131,858 lb (64,610 lb for commercial and 67,248 lb for recreational) was assumed for black sea bass alternative 1.

Assuming 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2007 RSA for the commercial component of the fishery under alternative 1 could be worth as much as $578,403, $276,674, and $164,109 for summer flounder, scup, and black sea bass, respectively. As such, on a per vessel basis, the commercial RSAs could result in a potential decrease in summer flounder, scup, and black sea bass revenues of $771, $630, and

$291, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. The calculated losses in revenues are relative to commercial quotas without RSA in place. The values estimated above assume an equal decrease in revenue among all active vessels in 2005, i.e., 750, 439, and 563 commercial vessels that landed summer flounder, scup, and black sea bass, respectively.

The overall reduction in ex-vessel gross revenue associated with the three species combined under alternative 1 in 2007 as the result of the research set asides is $1,019,186 compared to commercial quotas without RSA in place. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $1,125/vessel. If RSAs are not used, the landings would be included in 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 7.96 to 7.73 million lb (a 2.9 percent decrease) for summer flounder; from 3.70 to 3.59 million lb (a 3.0 percent decrease) for scup; and from 3.32 to 3.25 million lb (a 2.1 percent decrease) for black sea bass in 2007 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this RSA, 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 A). The Council proposed to continue the GRAs in 2007. 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 RSA. However, given the level of the RSA, 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 $276,674, $164,109, and $329,304 dockside for scup, black sea bass and *Loligo* squid based on 2005 prices, respectively. Assuming an equal reduction among all active vessels (i.e., 439, 563, and 340 commercial vessels that landed scup, black sea bass, and *Loligo* in 2005, respectively), this may mean a reduction of $630, $291, and $969 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 RSAs 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).

Summary of Impacts

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 34 vessels that landed combinations of black sea bass or summer flounder with scup, or landed combinations of summer flounder, scup, and black to 10-19 percent for 755 vessels that landed all combinations of summer flounder, scup, and/or black sea bass (except scup only). While the analysis presented above indicates that in relative terms a large number of vessels (859) are likely to be impacted with revenue reductions of more than 5 percent or more, 34 percent of these vessels (296 vessels) had gross sales of $1,000 or less and 56 percent of the impacted vessels (481 vessels) had gross sales of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels is very small.

Assuming 2005 ex-vessel prices and the effect of potential changes in fishing opportunities in 2007 versus 2006, the 2007 quotas in alternative 1 (after overages and research set-aside have been applied) would decrease summer flounder and black sea bass revenues by approximately $3.72 and $1.80 million, respectively, relative to the quota implemented in 2006. No changes in scup revenues are expected in 2007 relative to 2006.

On a per vessel level, the average decrease in revenue associated with the decrease in summer flounder and black sea bass quotas is $4,960 and $3,197. The overall reduction in ex-vessel gross revenue associated with summer flounder and black sea bass combined in 2007 relative to quotas implemented in 2006 is approximately $5.52 million or approximately $6,181/vessel.

It is important to stress that these are potential changes, i.e., based on available data and assumptions made in order to conduct this analysis. 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 2007 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 target fishing mortality rates 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 because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding target fishing mortality rates 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, gear regulations and/or minimum threshold regulations will remain unchanged in 2007 for all three species. In addition, scup measures regarding scup transfer from Winter I to Winter II period, possession limits for Winter I and Winter II periods, and GRA management measures will remain unchanged. As such, these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2007 relative to 2006.

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.

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 action, 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.

The past and present actions, which include actions taken through the FMP, and subsequent amendments, frameworks, and specifications documents (not including those proposed in this

document), have been used to develop the regulatory programs to manage the summer flounder, scup, and black sea bass fisheries and have established effort levels and gear requirements. This has positively impacted non-target species, habitat (including EFH), and protected resources through reduced interactions, either through effort controls or gear requirements. These actions have been consistent with the national standards and have had indirect positive impacts on the managed resources. Through sustainable management of the resources, domestic businesses and human communities have benefited, although some indirect negative impacts on human communities have occurred due to reduced availability of the resources for some participants. The overall impacts of these past actions on the VECs have been indirectly positive.

Non-fishing activities which have occurred in the past and present, and may continue in the reasonably foreseeable future (i.e., offshore disposal of dredged materials, beach nourishment, marine transportation, etc.) are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on the managed resource is expected to be limited. Non-fishing impacts such as agricultural runoff or those from natural disturbance (i.e., hurricane) may be much broader in scope, and those impacts may be of a larger magnitude. The impacts of these non-fishing activities on the productivity of the managed resources and on the other VECs is unquantifiable, although overall many of these actions would be expected to be indirectly negative. NMFS has several means under which it can review non-fishing actions of other Federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources under NMFS' jurisdiction.

In terms of RFF actions, the development of Amendment 14 and 15 to the FMP would continue to have indirect positive impacts of the managed resources, non-target species, habitat, protected resources, and human communities, as described above for all FMP related actions. Many of the non-fishing disturbances, anthropogenic or natural, would continue to impact the VECs in the RFF as well.

The impacts of this proposed action on the VECs are described in sections 7.5.2 through 7.5.6. This action builds on actions taken in the original FMP, subsequent amendments, and the annual specification process for the 2006 fishing year. When this action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future actions, the specifications are not expected to result in any significant impacts, positive or negative. 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 for 2007.

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 2007, 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 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 apply here.

The most restrictive quotas for summer flounder, scup, and black sea bass (status quo) for year 2007 (adjusted for overages and RSA) are approximately 78, 25, and 38 percent lower relative to the quotas specified (adjusted quotas) for those species in 2006, respectively. In addition, adjusted recreational limits for year 2007 are 78, 34, and 38 percent lower for summer flounder, scup, and black sea bass, respectively, relative to the 2006 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 20-29 percent for 24 vessels; 30-39 percent for 180 vessels; 40-49 percent for 31 vessels; and ≥ 50 percent for 671 vessels (Table 22). The majority of the revenue losses of 50 percent or higher are attributed to quota reductions associated with the summer flounder fishery. Since there are 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).

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 32 percent of the vessels (213 out of 671 vessels) projected to incur revenue reductions of 50 percent or greater had total gross sales (all possible species combined not just summer flounder, scup, and black sea bass) of $1,000 or less and 52 percent of the same vessels (348 out of 671 vessels) had total gross sales of $10,000 or less. Furthermore, 67 percent of the vessels (16 out of 24 vessels) projected to incur revenue reductions of 20-29 percent had total gross sales of $1,000 or less and 100 percent of the same vessels (24 out of 24 vessels) had total gross sales of $10,000 or less; 43 percent of the vessels (78 out of 180 vessels) projected to incur revenue losses of 30-39 percent had total gross sales of approximately $1,000 or less and 64

percent of the same vessels (115 out of 180 vessels) had total gross sales of $10,000 or less; and 13 percent of the vessels (4 out of 31 vessels) projected to incur revenue losses of 40-49 percent had total gross sales of approximately $1,000 or less and 23 percent of the same vessels (7 out of 31 vessels) had total gross sales of $10,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (906) are likely to be impacted with revenue reductions of more than 5 percent or more, 34 percent of these vessels (311 vessels) had gross sales of $1,000 or less and 54 percent of the impacted vessels (491 vessels) had gross sales of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels 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 4 in Maine to 158 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, 659 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 659 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, squid-mackerel-butterfish, dogfish, skate, herring (non-VMS), and tilefish incidental. 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 659 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, Rhode Island, New Jersey, New York, and North Carolina (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 (75-98 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, 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 Jersey, New York, Rhode Island, North Carolina, and Virginia (Table 27). Within these states, the most impacted counties (largest number of impacted vessels) are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Ocean, Cape May, and Monmouth counties in New Jersey; Suffolk, New York City, and Nassau counties in New York; Washington and Newport counties in Rhode Island; Dare, Pamlico, and Carteret counties in North Carolina; and City of Norfolk and City of Newport News counties in Virginia. 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; Cape May (Cape May county), Barnegat Light and Point Pleasant (Ocean county), and Belford (Monmouth county) in New Jersey; Montauk and Shinnecock (Suffolk county) and New York (New York City county) in New York; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; Wanchese (Dare county), and Oriental (Pamlico county) in North Carolina; and Norfolk (City of Norfolk county) and Newport News (City of Newport News county) in Virginia. Other ports with a large number of impacted vessels (9 or more) are: Stonington (New London county in CT), Ocean City (Worcester county in MD), Provincetown (Barnstable county in MA); Other (Suffolk county in NY); Beaufort (Carteret county); and Other (Suffolk county in NY). 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 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2007 quotas associated with alternative 2 would decrease summer flounder, scup, and black sea bass revenues by approximately $18.28, $2.27, and $3.64 million, respectively, relative to the quota implemented in 2006.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with alternative 2 is distributed equally between the 750 vessels that landed summer flounder in 2005, the average decrease in revenue associated with the decrease in summer flounder quota is $24,373/vessel. Assuming the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally between the 439 vessels that landed scup in 2005, the average decrease in revenue associated with the decrease in scup quota is $5,170/vessel. Finally, if the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally between the 563 vessels that landed black sea bass in 2005, the average decrease in revenue associated with the decrease in black sea bass quota is $6,465/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2007, relative to 2006, is approximately $24.19 million (assuming 2005 ex-vessel prices) under alternative 2. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $26,700/vessel. The changes in gross revenues associated with the potential changes in quotas in 2007 versus 2006 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

The information regarding trends in recreational participation (trends in effort) presented under the combined alternative 1 (section 7.5.6) above also apply here.

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. It is likely that proposed management measures may restrict the recreational fishery for 2007, and these measures may cause some decrease in recreational

satisfaction (i.e., low bag limit, larger fish size or closed season). This is due to the substantial decrease in the recreational harvest limits associated with this alternative, especially those for summer flounder.

There is no information regarding how the potential decrease in the recreational harvest limits for these species will affect the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable; however, it is likely that given the proposed recreational harvest limits associated with this alternative (especially for summer flounder), the demand for party/charter boat trips may be negatively impacted. Nevertheless, some party/charter recreational anglers may likely 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). As previously indicated, the Council and the Board will meet in December 2006 to adopt 2007 recreational management measures, when more complete data regarding 2006 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.

Other Impacts

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

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

Effects of the RSA

The background information regarding the conditionally approved Mid-Atlantic RSA research proposals for these species for 2007 fishing year is presented in section 7.4.2. A summary of the scope of work for 2007 Mid-Atlantic RSA projects is presented in Appendix B. The economic effects of the RSA were discussed in detail is section 7.4.2.4.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.2.4, 7.2.2.4, and 7.3.2.4 were based on adjusted commercial quotas accounting for the RSA proposed under this alternative. More specifically, a maximum RSA of 156,600 lb (93,960 lb for commercial and 62,640 lb for recreational) was assumed for summer flounder alternative 2, 360,000 lb (275,298 lb for commercial and 84,702 lb for recreational) was assumed for scup alternative 2, and 131,858 lb (64,610 lb for commercial and 67,248 lb for recreational) was assumed for black sea bass alternative 2.

Assuming 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2006 RSA for the commercial component of the fishery under alternative 2 could be worth as much as $159,732, $206,474, and $164,109 for summer flounder, scup, and black sea bass respectively. As such, on a per vessel basis, the commercial RSAs could result in a potential decrease in summer flounder, scup, and black sea bass revenues of $213, $470, and

$291, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. The calculated losses in revenues are relative to commercial quotas without RSA in place. The values estimated above assume an equal decrease in revenue among all active vessels in 2005, i.e., 750, 439, and 563 commercial vessels that landed summer flounder, scup, and black sea bass, respectively.

The overall reduction in ex-vessel gross revenue associated with the three species combined under alternative 2 in 2007 as the result of the research set asides is $530,315 compared to commercial quotas without RSA in place. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $585/vessel. If RSAs 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.

The limits will changes from 2.09 to 2.03 million lb (a 2.9 percent decrease) for summer flounder; from 2.82 to 2.74 million lb (a 2.8 percent decrease) for scup; and from 2.55 to 2.48 million lb (a 2.7 percent decrease) for black sea bass in 2007 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this RSA, and there will be no negative impacts.

However, given the substantial decrease in the quotas in 2007 relative to 2006 for all three species under alternative 2 (most restrictive), 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-RSA participants in the fishery.

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

The impacts of this non-quota management measure 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 apply here.

The least restrictive quotas for summer flounder, scup, and black sea bass for year 2007 (adjusted for overages and RSA) are approximately < 1 percent higher for summer flounder and

black sea bass, and 2 percent higher for scup relative to the quotas specified (adjusted quotas) for those species in 2006. In addition, adjusted recreational limits for year 2007 are approximately < 1 percent higher for summer flounder and black sea bass, and 12 percent lower for scup relative to limits implemented in 2006 for that species. Even though the overall 2007 commercial TALs for summer flounder, scup, and black sea bass under this alternative are the same as in 2006, the adjusted commercial quotas and recreational harvest limits are slightly different than the allocations implemented in 2006 mainly due to differences in the RSA used to derived adjusted allocations for these species during those two time periods and/or other adjustments due to overages/quota restorations, and the manner in which discard rates were calculated for the scup fishery.

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 488 vessels were projected to be impacted by revenue increase (relative to 2005). In addition, 418 vessels were projected to incur revenue losses of less than 5 percent relative to 2006 (Table 34 and section 5.1.3 of the RIR/IRFA).

In addition to the threshold analysis described above, the Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. 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 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2007 quotas associated with alternative 3 would increase summer flounder, scup, and black sea bass revenue by $0.03 million, $0.15 million, and $0.08 million, respectively, relative to the quota implemented in 2006.

Assuming the increase in summer flounder, scup, and black sea bass total ex-vessel gross revenues associated with alternative 3 is distributed equally between the vessels that landed summer flounder (750), scup (439), and black sea bass (563) in 2005, the average increase in revenue associated with the increase in quotas is $40, $342, and $142 per vessel for summer flounder, scup, and black sea bass, respectively.

The overall increase in ex-vessel gross revenue associated with the three species combined in 2007, relative to 2006, is approximately $0.26 million (assuming 2005 ex-vessel prices) under alternative 3. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average increase in revenue is approximately $287/vessel. 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 2007 relative to 2006, 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

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

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

Effects of the RSA

The background information regarding the conditionally approved Mid-Atlantic RSA research proposals for these species for 2007 fishing year is presented in section 7.4.2. A summary of the scope of work for 2007 Mid-Atlantic RSA projects is presented in Appendix B. The economic effects of the RSA were discussed in detail is section 7.4.2.4.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.3.4, 7.2.3.4, and 7.3.3.4 were based on adjusted commercial quotas accounting for the RSA proposed under this alternative. More specifically, a maximum RSA of 567,062 lb (340,237 lb for commercial and 226,825 lb for recreational) was assumed for summer flounder alternative 3, 488,100 lb (375,216 lb for commercial and 112,884 lb for recreational) was assumed for scup alternative 3, and 131,858 lb (64,610 lb for commercial and 67,248 lb for recreational) was assumed for black sea bass alternative 3.

Assuming 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2006 RSA for the commercial component of the fishery under alternative 3 could be worth as much as $578,403, $281,412, and $164,109 for summer flounder, scup, and black sea bass respectively. As such, on a per vessel basis, the commercial RSAs could result in a potential decrease in summer flounder, scup, and black sea bass revenues of $771, $641, and $291, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. The calculated losses in revenues are relative to commercial quotas without RSA in place. The values estimated above assume an equal decrease in revenue among all active vessels in 2005, i.e., 750, 439, and 563 commercial vessels that landed summer flounder, scup, and black sea bass, respectively.

The overall reduction in ex-vessel gross revenue associated with the three species combined under alternative 3 in 2007 as the result of the research set asides is $1,023,924 compared to commercial quotas without RSA in place. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $1,130/vessel. If RSAs 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.
The limits will changes from 9.44 to 9.21 million lb (a 2.4 percent decrease) for summer flounder; from 3.76 to 3.65 million lb (a 2.9 percent decrease) for scup; and from 4.08 to 4.01 million lb (a 1.7 percent decrease) for black sea bass in 2007 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this RSA, 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

The impacts of this non-quota management measure 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, scup, and black sea bass in 2007. The impacts of the actions proposed in this EA, on EFH, are described in detail in section 7.0.

In summary, the 2007 summer flounder, scup, and black sea bass commercial quotas are lower than those specified for 2006. 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. The quota measures proposed in this specification package may have effects to EFH that range from impacts remaining the same to impacts that are less than existing impacts. Therefore, there are no expected adverse effects of any of these measures. Furthermore, the non-quota setting specifications associated with this action will not have an adverse effect on EFH. Therefore, since there are no adverse EFH impacts associated with the proposed action, an EFH consultation is not required.

9.0 OTHER APPLICABLE LAWS

9.1 NEPA (FONSI)

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 or RSA projects presented in this document is 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 19.90 million lb for 2007 has a 50% probability of achieving the target F in the rebuilding plan. The proposed scup and black sea bass quotas are consistent with the FMP overfishing definitions and may achieve the target fishing mortality levels, which are sustainable in the long-term. 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 or RSA projects presented in this document is 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 or RSA projects is expected to increase fishing effort.

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, has the potential to adversely affect EFH for the species detailed in section 6.2 of the EA. The quota-setting measured proposed in this action will either reduce the amount of time that bottom trawling vessels spend fishing for summer flounder, scup, and black sea bass, or maintain it at the same level as the status quo alternative. In either case, no adverse impacts to the marine habitats or

EFH are expected. Similarly, none of the other measures included in the proposed action will have any adverse habitat impact.

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 proposed specifications or RSA projects is expected to alter fishing methods or activities. None of the proposed specifications or RSA projects is expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort (see section 7.0). 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.

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 in 2007 for the summer flounder, scup, and black sea bass fisheries. None of the proposed specifications or RSA projects is expected to alter fishing methods or activities. None of the proposed specifications or RSA projects is 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 hook and line fisheries for scup; and in the pot/trap, Mid-Atlantic mixed trawl, and hook and line fisheries for black sea bass. Bottom otter 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 or RSA projects is expected to alter fishing methods or activities or is 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 in 2007 for the summer flounder, scup, and black sea bass 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. Thus, 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 in 2007 for the summer flounder, scup, and black sea bass 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 7.0 of the EA. The proposed action merely revises the annual commercial quota, recreational harvest limit, and other management measures in 2007 for the summer flounder, scup, and black sea bass fisheries. None of the proposed specifications or RSA projects is expected to alter fishing methods or activities or is 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 effects or to involve 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 is expected to generate positive impacts overall. The proposed actions, together with past, present, 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 7.0 of the EA. The proposed action merely revises the annual commercial quota, recreational harvest limit, and other management measures in 2007 for the summer flounder, scup, and black sea bass 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 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 in 2007 for the summer flounder, scup, and black sea bass fisheries. There is no evidence or indication that these fisheries have ever resulted in the introduction or spread of nonindigenous species. None of the proposed specifications or RSA projects is expected to alter fishing methods or activities. None of the proposed specifications or RSA projects is expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed action 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 in 2007 for the summer flounder, scup, and black sea bass fisheries. None of the proposed specifications or RSA projects is 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 specifications or RSA projects results 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 in 2007 for the summer flounder, scup, and black sea bass fisheries. None of the proposed specifications or RSA projects is 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 or RSA projects is 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 is 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 2007 summer flounder, 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 September 20, 2006, under section 307 of the Coastal Zone Management Act. Letters were sent to each of the following states within the management unit reviewing the consistency of the proposed action relative to each state's Coastal Zone Management Program: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. To request a copy of the letter or a list of the CZM contacts for each state, contact Daniel T. Furlong at the Mid-Atlantic Fishery Management Council, Room 2115 Federal Building, 300 South New Street, Dover, Delaware 19904-6790, Telephone: (302) 674-2331, Fax: (302) 674-5399.

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 (2007 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 18, 2006 and during the MAFMC meeting held on August 1-3, 2006 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 2007 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 2007. 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 (2007 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 18, 2006 and during the MAFMC meeting held on August 1-3, 2006 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 FMPs 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 2005, 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: Jessica Coakley, Dr. José L. Montañez, Kathy Collins, and Dr. Eric Thunberg (NEFSC) assisted in documenting the analysis of permit data. Scott Steinback 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 consulted through the Coastal Zone Management Program consistency process. Letters were sent to each of the following states within the management unit reviewing the consistency of the proposed action relative to each state's Coastal Zone Management Program: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. To request a copy of the letter or a list of the CZM contacts for each state, contact Daniel T. Furlong at the Mid-Atlantic Fishery Management Council, Room 2115 Federal Building, 300 South New Street, Dover, Delaware 19904-6790, Telephone: (302) 674-2331, Fax: (302) 674-5399.

In order to ensure compliance with NMFS formatting requirements, the advice of NMFS Northeast Region personnel was sought, including Sarah McLaughlin, Michael Pentony, and Sarah Thompson.

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 (EO) 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 2007. 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, and seasonal closures) will be analyzed when the Council and Board submit recommendations for 2007 recreational measures. The Council and the Board will meet in December 2006 to adopt 2007 recreational management measures, when more complete data regarding 2006 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 EO 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 2006 fishing season indicates that overages will not occur if current landings patterns continue. In addition, there were no overages in the summer flounder fishery in 2005. The fishing mortality rate estimated

for 2005 is 0.53, a significant decline from the 1.32 estimated for 1994 but above the threshold F of 0.276. In addition, total stock biomass has increased substantially since 1989 to 105 million lb (47.8 million kg) in 2005, slightly above the current biomass threshold[4] of 102 million lb (46.3 million kg). Spawning stock biomass has increased since 1993 to 67.5 million lb (30.6 million kg) in 2005 (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 2006 fishing season indicates that overages will not occur this year (assuming that overages will not occur in the Summer or Winter II periods). In addition, there were no overages in the scup fishery in 2005 or 2004. At this time, the plan objectives appear to be met so there is a reasonable expectation that the expected economic benefits of managing scup will not be compromised. The most recent assessment on scup was completed in June 2002 (35th SARC). That assessment indicated that scup are no longer overfished, "but stock status with respect to overfishing cannot currently be evaluated." The SARC also concluded that although "the relative exploitation rates have declined in recent years the absolute value of F cannot be determined." However, they did indicate that "survey data indicate strong recruitment and some rebuilding of age structure" in recent years. State and federal surveys indicated an increase in stock abundance since the mid to late 90s; however, NEFSC spring survey results indicate that spawning stock decreased in 2004. Biomass estimates are based on a 3-year average (2003-2005), and the estimate for 2004 was 0.69 kg/tow. This is below the biomass threshold value of 2.77 kg/tow. Therefore, the stock is considered overfished. In 2005, the NEFSC Spring SSB 3-year average (2004-2006) index value increased to 1.32 kg/tow. The spring survey index increased in 2006 to 2.03 kg/tow relative to the low value of 0.15 kg/tow derived in 2003. The 2006 index is the highest value in the spring survey since 1978, excluding the high value in 2002 of 9.24 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

[4] 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: 46,323 mt; 2.77 kg/tow (3-year moving average, NEFSC spring survey SSB index); and 0.98 kg/tow (3-year moving average, NEFSC spring survey SSB index), respectively.

was largely qualitative in nature. The coastwide black sea bass quota has only been implemented from 1998 to 2006. 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 2006 fishing season indicates that overages will not occur if current landings patterns continue. In addition, there have been no overages in the black sea bass fisheries for the 2003 to 2005 period. 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.

The most recent, peer-reviewed, accepted assessment on black sea bass was completed in June 2004 at SAW 39. It 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 0.98 kg/tow). The 2005 biomass index is 0.8 (the three-year average for 2004-2006). Based on this value, the stock is 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, although these values have decreased in recent years. The index for 2002 of 0.799 is the highest value in the time series (1968-2006). The biomass index declined to 0.493 in 2003, 0.321 in 2004, 0.374 in 2005, and 0.288 in 2006. The 2003-2006 indices were above the time series 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 in 1997 to 0.538 in 2003. However, lower survey values resulted in a three year average value for 2005 of 0.328. 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 (Table 6). Results for 2000 indicate a strong year class was produced in 1999; the index is 0.661, 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 2001 to 2005 relative to indices prior to 1997. 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 2007, 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 is the adjusted quotas for 2006 (quotas adjusted for RSAs, and other adjustments due to transfers, overages, and/or quota restorations). 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 2006. Aggregate changes in fishing opportunities in 2007 (quotas adjusted for overages and RSAs) versus adjusted quotas for 2006 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, 2007 quotas were also adjusted to account for RSAs 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 2007

2.6.1.1 Quota Alternative 1 (Preferred Alternative)

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 and black sea bass are expected to be approximately 16 and 19 percent lower in 2007 relative to 2006 adjusted quota, respectively. No changes in scup landings are expected.

Prices - It is possible that given the potential decrease in summer flounder and black sea bass landings, price for these species may increase if all other factors are held constant. No change in the price for scup is expected.

Consumer Surplus - Assuming the potential increase in the price of summer flounder and black sea bass, it is possible that CS associated with these fisheries may decrease. No change in the CS for scup is expected.

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 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 is 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[5]: 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 2003).

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.

[5] 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 a change in quantity demanded and price are the same.

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.

2.6.1.2 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 78, 25, and 38 percent lower in 2007 relative to 2006 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 apply 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 and black sea bass are expected to be approximately < 1 percent higher in 2007 relative to 2006. Black sea bass landings are expected to be approximately 2 percent higher in 2007 relative to 2006. Note that even though the summer flounder, scup, and black sea bass quotas are the status quo measure, the 2007 adjusted commercial quotas for these species are slightly different than the adjusted quotas implemented in 2006 due to different levels of RSAs used to make quota adjustments between these two time periods (and/or other adjustments due to overages/quota restorations).

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 summer flounder no changes to the existing current minimum fish size, minimum mesh regulations, or minimum mesh threshold regulations will be made for 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

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 and Winter II possession limits, winter period mesh threshold regulations, and GRA management measures will remain unchanged in 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

For the black sea bass fishery, the current minimum fish size, minimum mesh regulation, minimum mesh threshold, and minimum vent size regulations will remain unchanged in 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

Under the RSA 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.

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 2006. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative in 2007 versus the fishing opportunities that were in place in 2006.

Quota alternatives for 2007 - The preferred alternative (alternative 1) and the most restrictive alternative (alternative 2) may be expected to have similar overall directional impacts for summer flounder 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 2007 relative to the 2006 base year (except for scup under alternative 1). 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 2007. 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 2007 relative to the 2006 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 2005 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 2005 was estimated at $1.70/lb, $0.75/lb, and $2.54/lb, respectively. The aggregate percent change in landings in 2007 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 2007 relative to 2006 is an approximate reduction of $5.52 and $24.19 million under alternatives 1 and 2, respectively; and an increase in revenue of $0.26 million under alternatives 3. These changes in revenues assume that the overall quota for each species will be taken in 2007, 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 2006. 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 a small net benefit gain; while alternative 1 would provide the smallest benefit loss and alternative 2 would provide the largest benefit loss in 2007. While alternative 3 provides the largest net benefits among all the evaluated alternatives, 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 2005 ex-vessel prices.

It is important to mention that although the commercial measures that are evaluated in this specification package are for 2007 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, or minimum mesh threshold regulations for summer flounder; the current minimum fish size, minimum vent size, the transfer of unused scup quota from Winter I to Winter II period, Winter I and Winter II possession limits, winter period mesh threshold regulations, and GRA management measures for scup; and the current minimum fish size, minimum mesh regulation, minimum mesh threshold, and minimum vent size regulations 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 2007 relative to 2006.

The proposed action does not constitute a significant regulatory action under EO 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 $42.7 million. Based on preliminary unpublished NMFS dealer data from Maine to Virginia, and South Atlantic unpublished General Canvass for North Carolina, the 2005 total commercial value for summer flounder was estimated at $29.1 million from Maine to North Carolina, and at $7.3 million and $6.3 million for scup and black sea bass from Maine to Cape Hatteras, NC, respectively. As estimated above, assuming 2005 ex-vessel prices and the potential change in landings due to the adjusted quotas in 2007 relative to the adjusted 2006 quotas, the overall reduction in gross revenue under the preferred alternative would be $5.52 million in 2007 relative to 2006. 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 EO 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 (16 percent) and black sea bass (19 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 2007 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. Recent summer flounder, scup, and black sea bass landing patterns among ports are presented in section 6.5.1 of the EA. 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 $4.0 and $6.5 million, respectively. The proposed measures regarding the 2007 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 2005 there were 2,242 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 2005. 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 233 commercial vessels did not hold a valid federal permit for summer flounder, scup, or black sea bass during calendar year 2005. 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 2005, 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 2007, 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 four 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 2005. 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 2005. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since 2005 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 2006 were not used in this analysis because the year is not complete. As such, 2005 data were used as a proxy for 2006.

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 2007 for all three species versus the base quota year 2006. Landings to date, overages, and RSA estimates were employed to adjust the 2007 quotas. For the purpose of estimating the 2007 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 2006 state allocations; b) that no additional summer flounder overages will occur in 2006; c) that the black sea bass and scup quotas will be fully harvested and not to exceed the 2006 allocation; and d) that the entire summer flounder, scup, and black sea bass quota allocations will be taken in 2007. Detailed description of the 2007 quota derivation process (accounting for overages and RSAs) is presented in sections 4.0 and 5.0 of the EA.

The fourth step was to compare the estimated 2007 revenues from all species to the 2006 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 2007: New London, CT; Sussex, DE; Cumberland, ME; Worcester, MD; Barnstable, Bristol, Dukes,

Plymouth, and Suffolk, MA; Cape May, Monmouth, and Ocean, NJ; Nassau, New York, and Suffolk, NY; Beaufort, Carteret, Craven, Dare, Hyde, and Pamlico, NC; Newport, and Washington, RI; City of Newport News, City of Norfolk, Virginia Beach City, and York, VA. Counties not included in this analysis (e.g., Essex and Nantucket, MA; Atlantic, NJ; Accomac, 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 2005 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 2007 (quotas adjusted for overages and RSAs) versus adjusted quotas for 2006 (quotas adjusted for RSAs, and other adjustments due to transfers, overages, and/or quota restorations) 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

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 minimum fish size, minimum mesh regulations, or minimum mesh threshold regulations for summer flounder; the current minimum fish size, minimum vent size, the transfer of unused scup quota from Winter I to Winter II period, Winter I and Winter II possession limits, winter period mesh threshold regulations, and GRA management measures for scup; and the current minimum

fish size, minimum mesh regulation, minimum mesh threshold, and minimum vent size regulations for black sea bass for 2007.

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.

Alternative 2 includes the most restrictive possible harvest levels, i.e., those that would result in the greatest reductions in landings (relative to 2006) for summer flounder, scup, and black sea bass. This alternative includes non-selected alternatives for all three species. This alternative contains the scup and black sea bass monitoring committee recommended TALs.

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 2006) 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 2007, 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 2005 dealer data and participation. In addition to this, 2005 permit files were used to describe permit holders in these fisheries. It is important to mention that revenue changes for 2007 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, 2007 quotas were also adjusted to account for RSAs. 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 2005, and comparing it to its potential revenue in 2007, given the changes in fishing opportunity (harvest levels) from 2006 to 2007. 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 2007

In this section management the 2007 measures for summer flounder, scup, and black sea bass are discussed.

5.1.1 Quota Alternative 1 (Preferred)

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 11.60, 11.93, 3.12 million lb for summer flounder, scup, and black sea bass, respectively. This alternative also specifies adjusted recreational landings limits of 7.73, 3.59, and 3.25 million lb for flounder, scup, and black sea bass, respectively.

Under this alternative, the summer flounder specifications would result in an aggregate 16 percent decrease in allowable commercial landings and a 17 percent decrease in recreational harvest limit relative to the 2006 allocations (Tables 27 and 31). The scup specifications would result in no change in allowable commercial landings and a 13 percent decrease in the recreational harvest limit relative to the 2006 allocations (Tables 27 and 32). The black sea bass specifications would result in an aggregate 19 percent decrease in both allowable commercial landings and recreational harvest limit relative to the 2006 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 on the order of < 5 percent for 34 vessels that landed combinations of black sea bass or summer flounder with scup, or landed combinations of summer flounder, scup, and black to 10-19 percent for 755 vessels that landed all combinations of summer flounder, scup, and/or black sea bass (except scup only). As indicated before, in total, 859 vessels are projected to incur revenue reduction of ≥ 5 percent. More specifically, 104 vessels are projected to incur revenue reductions in the order of 5-9 percent and 755 vessels are projected to incur revenue reductions in the order of 10-19 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 36 percent of the vessels (272 out of 755 vessels) projected to incur revenue reductions of 10-19 percent had total gross sales (all possible species combined not just summer flounder, scup, and black sea bass) of $1,000 or less and 56 percent of the same vessels (425 out of 755 vessels) had total gross sales of $10,000 or less. Furthermore, 22 percent of the vessels (24 out of 104 vessels) projected to incur revenue losses of 5-9 percent had total gross sales of approximately $1,000 or less and 54 percent of the same vessels (56 out of 104 vessels) had total gross sales of $10,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (859) are likely to be impacted with revenue reductions of more than 5 percent or more, 34

percent of these vessels (296 vessels) had gross sales of $1,000 or less and 56 percent of the impacted vessels (481 vessels) had gross sales of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels 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 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 less than 2 in most states to 22 in New York. The number of vessels with revenue reduction of > 5 percent, ranged from 4 vessels in Maine to 155 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 and black sea bass fisheries. Most vessels with revenue losses of 5 percent or higher had landed summer flounder or black sea bass only, or a combination of summer flounder, scup, and black sea bass. 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 859 vessels showing revenue reduction of ≥ 5 percent, 626 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 626 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, skate, and tilefish incidental permits. 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 626 vessels with federal permits for summer flounder, scup and/or black sea bass have home ports in Massachusetts, New Jersey, Rhode Island, New York, and North

Carolina. The principal ports of landing for these vessels are mainly located in Massachusetts, Rhode Island, New Jersey, New York, and North Carolina (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 (83-99 percent; 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, Maine, North Carolina, 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, New Jersey, Rhode Island, New York, North Carolina, and Virginia (Table 21). Within these states, the most impacted counties (largest number of impacted vessels) are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Ocean, Cape May, and Monmouth counties in New Jersey; Washington and Newport counties in Rhode Island; Suffolk, New York City, and Nassau counties in New York; Dare, Pamlico, and Carteret counties in North Carolina; and City of Norfolk and City of Newport News counties in Virginia. 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; Cape May (Cape May county), Barnegat Light and Point Pleasant (Ocean county), and Belford (Monmouth county) in New Jersey; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; Montauk and Shinnecock (Suffolk county) and New York (New York City county) in New York; Wanchese (Dare county), and Oriental (Pamlico county) in North Carolina; and Nortfolk (City of Norfolk county) and Newport News (City of Newport News county) in Virginia. Other ports with a large number of impacted vessels (9 or more) are: Stonington (New London county in CT), Ocean City (Worcester county in MD), Provincetown (Barnstable county in MA); Other (Suffolk county in NY); Beaufort (Carteret county in NC); and Other (Suffolk county in NY). 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 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 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2007 quotas associated with the preferred alternative would decrease summer flounder and black sea bass revenues by approximately $3.72 and $1.80 million, respectively, relative to the quota implemented in 2006. No changes in scup revenues are expected in 2007 relative to 2006.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with the preferred alternative is distributed equally among the 750 vessels that landed summer flounder in 2005, the average decrease in revenue associated with the decrease in summer flounder quota is approximately $4,960/vessel. Assuming the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally among the 563 vessels that landed black sea bass in 2005, the average decrease in revenue associated with the decrease in black sea bass quota is approximately $3,197/vessel.

The overall reduction in ex-vessel gross revenue associated with summer flounder and black sea bass combined in 2007 relative to quotas implemented in 2006 is approximately $5.52 million (assuming 2005 ex-vessel prices) under the preferred alternative. If this is distributed among the 893 vessels that landed summer flounder and black sea bass in 2005, the average decrease in revenue is approximately $6,181/vessel. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2007 versus 2006 assumed static prices for summer flounder 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 2007 under this alternative will likely result in revenue reduction for summer flounder and black sea bass. However, it is possible that given the potential decrease in summer flounder 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 and/or 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 2007 for quota overages in 2006 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 and 2005, recreational landings were 0.45 (4 percent) and 1.96 million lb (2 percent) below the limits for those years, respectively (Table 31).

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 indicate that summer flounder has shown an upward trend in importance in the U.S. from Maine through North Carolina combined. The number of trips for which recreational anglers targeted summer flounder have shown an upward trend from the early 1990s to the early 2000s. Summer flounder recreational trips averaged 5.1 million for the 1991 to 2005 period, ranging from 3.8 million in 1992 to 6.1 in 2001. For the 2002 to 2005 period, summer flounder recreational fishing trips were estimated at 4.6, 5.6, 5.1, and 5.8 million, respectively (Table 31).

Under this alternative, the summer flounder 2007 recreational harvest limit (adjusted for RSA) is 7.73 million lb. Thus, the harvest limit in 2007 would represent a decrease of approximately 17 percent (1.56 million lb) from the 2006 limit. If recreational landings are the same in 2006 as in 2005 (10.02 million lb), the adjusted recreational harvest limits will not constrain recreational landings in 2007. 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 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 2007, 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 (see recreational fishing trends below). 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 73 percent from 1991 to 1998, and then increased by 127 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 have targeted other species that were relatively more abundant than scup (e.g., striped bass), thus accounting for the decrease in the number of fishing trips in this fishery in the 1990s. Recreational landings decreased from 5.44 million lb in 2000 to 3.62 million lb in 2002 (33 percent decrease). In 2003, recreational landings increased to 8.43 million lb (133 percent), these landings were the highest for the 1991 to 2005 period. Recreational landings decreased in 2004 and 2005 to 4.41 and 2.8 million lb respectively. The number of trips for which recreational anglers targeted scup have shown a slight upward trend from the early 1990s to the early 2000s. Scup recreational trips averaged 454 thousand for the 1991 to 2005 period, ranging from 199 thousand in 1997 to 972 thousand in 2003. For 2004 and 2005, scup recreational fishing trips were estimated at 568 and 458 thousand, respectively (Table 32).

Under this alternative, the scup 2007 recreational harvest limit (adjusted for RSA) is 3.59 million lb. Thus, the harvest limit in 2007 would represent a decrease of approximately 13 percent from the 2006 recreational limit. However, if 2006 scup landings are the same as the 2005 landings (2.38 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 2007. Specific recreational management measures will be determined in December when recreational landings for 2006 are complete. However, it is not expected that such measures will result in a decrease in recreational satisfaction.

Black sea bass recreational fishing trips have shown a flat trend from the early to Mid-1990's (Table 33). However, black sea bass recreational landings have shown a slight upward trend from 1991 to 1997. Black sea bass landings decreased considerably from 1995-1996 to 1998-1999, but then substantially increased in 2002 to 4.35 million lb. In 2003, 2004, 2005 recreational landings were 3.29, 1.67, and 1.77 million lb, respectively. Black sea bass recreational fishing trips have averaged 247 thousand for the 1991 to 2005 period, ranging from approximately 136,000 in 1999 to 311,000 in 1997. In 2005, recreational trips for this species were approximately 166 thousand, the third lowest value in the 1991 to 2005 time series (Table 33). Under this alternative, the black sea bass 2007 recreational harvest limit (adjusted for RSA) is 3.25 million lb. Thus, the harvest limit in 2007 would represent a decrease of 19 percent from the 2006 recreational harvest limit. However, if 2006 black sea bass landings are the same as the 2005 or 2004 landings (1.79 and 1.94 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 2007.

General Effort Trends

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 has remained relatively stable with a slight upward trend for the 1990 to 2005 time period. On average, for the 1990-2005 period, approximately 24 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 2004 and 2005, 27 and 29 million marine recreational fishing trips, respectively, were taken in the two regions combined.

The number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic subregions combined has fluctuated throughout the 1990-2005 period showing a downward trend for the 1990 to 2005 period. On average, for the 1990-2005 period, 1.7 million party/charter marine fishing trips were taken in the North Atlantic and Mid-Atlantic sub-regions combined, ranging from 1.0 million trips in 2005 to 2.6 million trips in 1993. In 2002, 2003, and 2004, 1.2, 1.5, and 1.6 million party/charter boat trips, respectively, were taken in the North Atlantic and Mid-Atlantic subregions combined.

The number of anglers participating in marine recreational trips in the North Atlantic and Mid-Atlantic subregions combined has shown an upward trend for the 1990 to 2005 period. On average, for the 1990 to 2005 period, 3.2 million anglers fished in the North Atlantic and Mid-Atlantic sub-regions combined, ranging from 2.5 million trips in 2001 to 4.7 million trips in 2005 (the highest value in time series). In 2002, 2003, and 2004, 3.0, 3.7, and 3.8 million anglers, respectively, fished in the North Atlantic and Mid-Atlantic subregions combined.

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 2007, 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, and seasonal closures) for summer flounder, scup, and black sea bass will be analyzed when the Council and Board submit recommendations for 2007 recreational measures. The Council and the Board will meet in December 2006 to

adopt 2007 recreational management measures, when more complete data regarding 2006 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 summer flounder no changes to the existing current minimum fish size, minimum mesh regulations, or minimum mesh threshold regulations will be made for 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

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 and Winter II possession limits, winter period mesh threshold regulations, and GRA management measures will remain unchanged in 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

For the black sea bass fishery, the current minimum fish size, minimum mesh regulation, minimum mesh threshold, and minimum vent size regulations will remain unchanged in 2007. The continuation of these alternatives is not expected to result in changes to the economic and social aspects of the fishery in 2007 relative to 2006.

Effects of the RSA

The background information regarding the conditionally approved Mid-Atlantic RSA research proposals for these species for 2007 fishing year is presented in section 7.4.2 of the EA. A summary of the scope of work for 2007 Mid-Atlantic RSA projects is presented in Appendix B. The economic effects of the RSA were discussed in detail is section 7.4.2.4 of the EA.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.1.4, 7.2.1.4, and 7.3.1.4 of the EA were based on adjusted commercial quotas accounting for the RSA proposed under this alternative. More specifically, a maximum RSA of 567,062 lb (340,237 lb for commercial and 226,825 lb for recreational) was assumed for summer flounder alternative 1, 480,000 lb (368,898 lb for commercial and 118,102 lb for recreational) was assumed for scup alternative 1, and 131,858 lb (64,610 lb for commercial and 67,248 lb for recreational) was assumed for black sea bass alternative 1.

Assuming 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2006 RSA for the commercial component of the fishery under alternative 1 could be worth as much as $578,403, $276,674, and $164,109 for summer flounder, scup, and black sea bass respectively. As such, on a per vessel basis, the commercial RSAs could result in

a potential decrease in summer flounder, scup, and black sea bass revenues of $771, $630, and $291, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. The calculated losses in revenues are relative to commercial quotas without RSA in place. The values estimated above assume an equal decrease in revenue among all active vessels in 2005, i.e., 750, 439, and 563 commercial vessels that landed summer flounder, scup, and black sea bass, respectively.

The overall reduction in ex-vessel gross revenue associated with the three species combined under alternative 1 in 2007 as the result of the research set asides is $1,019,186 compared to commercial quotas without RSA in place. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $1,125/vessel. If RSAs 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 7.96 to 7.73 million lb (a 2.9 percent decrease) for summer flounder; from 3.70 to 3.59 million lb (a 3.0 percent decrease) for scup; and from 3.32 to 3.25 million lb (a 2.1 percent decrease) for black sea bass in 2007 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this RSA, 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 A). The Council proposed to continue the GRAs in 2007. 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 RSA. However, given the level of the RSA, 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 $276,674, $164,109, and $329,304 dockside for scup, black sea bass and *Loligo* squid based on 2005 prices, respectively. Assuming an equal reduction among all active vessels (i.e., 439, 563, and 340 commercial vessels that landed scup, black sea bass, and *Loligo* in 2005, respectively), this may mean a reduction of $630, $291, and $969 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 RSAs 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.

5.1.1.4 Summary of Impacts

In sum, the proposed 2007 adjusted commercial quotas in preferred alternative 1 for summer flounder and black sea bass for the year 2007 are 16 and 19 percent lower, respectively, relative to the adjusted quotas for year 2006. The scup specifications would result in no change in allowable commercial landings in 2007 compared to 2006. The recreational harvest limits (adjusted for RSAs) in preferred alternative 1 for summer flounder, scup, and black sea bass for the year 2007 are 17, 13 and 19 percent lower relative to the adjusted recreational harvest limits for year 2006. 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 target 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 on the order of < 5 percent for 34 vessels that landed combinations of black sea bass or summer flounder with scup, or landed combinations of summer flounder, scup, and black to 10-19 percent for 755 vessels that landed all combinations of summer flounder, scup, and/or black sea bass (except scup only). While the analysis presented above indicates that in relative terms a large number of vessels (859) are likely to be impacted with revenue reductions of more than 5 percent or more, 34 percent of these vessels (296 vessels) had gross sales of $1,000 or less and 56 percent of the impacted vessels (481 vessels) had gross sales of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels is very small.

Assuming 2005 ex-vessel prices and the effect of potential changes in fishing opportunities in 2007 versus 2006, the 2007 quotas in alternative 1 (after overages and RSA have been applied) would decrease summer flounder and black sea bass revenues by approximately $3.72 and $1.80

million, respectively, relative to the quota implemented in 2006. No changes in scup revenues are expected in 2007 relative to 2006.

On a per vessel level, the average decrease in revenue associated with the decrease in summer flounder and black sea bass quotas is $4,960 and $3,197. The overall reduction in ex-vessel gross revenue associated with summer flounder and black sea bass combined in 2007 relative to quotas implemented in 2006 is approximately $5.52 million or approximately $6,181/vessel.

It is important to stress that these are potential changes, i.e., based on available data and assumptions made in order to conduct this analysis. 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 2007 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 target fishing mortality rates 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 because they are consistent with the requirement to eliminate overfishing and to attain the rebuilding target fishing mortality rates 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, gear regulations and/or minimum threshold regulations will remain unchanged in 2007 for all three species. In addition, scup measures regarding scup transfer from Winter I to Winter II period, possession limits for Winter I and Winter II periods, and GRA management measures will remain unchanged. As such, these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2007 relative to 2006.

The social and economic impacts of RSAs should be minimal. The RSAs are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the RSAs 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 3.04, 8.90, and 2.39 million lb for summer flounder, scup, and black sea bass, respectively. This alternative also specifies adjusted recreational landings limits of 2.03, 2.74, and 2.48 million lb for flounder, scup, and black sea bass, respectively.

Under this alternative, the summer flounder specifications would result in an aggregate 78 percent decrease in both allowable commercial landings and harvest limit relative to the 2006 allocations (Tables 27 and 31). The scup specifications would result in an aggregate 25 percent decrease in allowable commercial landings and a 34 percent decrease in the recreational harvest limit relative to the 2006 allocations (Tables 27 and 32). The black sea bass specifications would result in an aggregate 38 percent decrease in both allowable commercial landings and recreational harvest limit relative to the 2006 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 $\geq$ 5 percent. The economic impacts ranged from expected revenue losses in the order of 20-29 percent for 24 vessels; 30-39 percent for 180 vessels; 40-49 percent for 31 vessels; and $\geq$ 50 percent for 671 vessels (Table 22). The majority of the revenue losses of 50 percent or higher are attributed to quota reductions associated with the summer flounder fishery.

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 32 percent of the vessels (213 out of 671 vessels) projected to incur revenue reductions of 50 percent or greater had total gross sales (all possible species combined not just summer flounder, scup, and black sea bass) of $1,000 or less and 52 percent of the same vessels (348 out of 671 vessels) had total gross sales of $10,000 or less. Furthermore, 67 percent of the vessels (16 out of 24 vessels) projected to incur revenue reductions of 20-29 percent had total gross sales of $1,000 or less and 100 percent of the same vessels (24 out of 24 vessels) had total gross sales of $10,000 or less; 43 percent of the vessels (78 out of 180 vessels) projected to incur revenue losses of 30-39 percent had total gross sales of approximately $1,000 or less and 64 percent of the same vessels (115 out of 180 vessels) had total gross sales of $10,000 or less; and 13 percent of the vessels (4 out of 31 vessels) projected to incur revenue losses of 40-49 percent had total gross sales of approximately $1,000 or less and 23 percent of the same vessels (7 out of 31 vessels) had total gross sales of $10,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (906) are likely to be impacted with revenue reductions of more than 5 percent or more, 34 percent of these vessels (311 vessels) had gross sales of $1,000 or less and 54 percent of the impacted vessels (491 vessels) had gross sales of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels is very small.

Since Alterative 2 is the most restrictive alternative, impacts of other alternatives will be less than the impacts under this alternative.

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 4 in Maine to 158 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, 659 are identified as holders of federal summer flounder, scup, or black sea bass permits. The 659 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, squid-mackerel-butterfish, dogfish, skate, herring (non-VMS), and tilefish incidental. 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 659 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, Rhode Island, New Jersey, New York, and North Carolina (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 (75-98 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, 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 Jersey, New York, Rhode Island, North Carolina, and Virginia (Table 27). Within these states, the most impacted counties (largest number of impacted vessels) are: Bristol, Suffolk, and Barnstable counties in Massachusetts; Ocean, Cape May, and Monmouth counties in New Jersey; Suffolk, New York City, and Nassau counties in New York; Washington and Newport counties in Rhode Island; Dare, Pamlico, and Carteret counties in North Carolina; and City of Norfolk and City of Newport News counties in Virginia. 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; Cape May (Cape May county), Barnegat Light and Point Pleasant (Ocean county), and Belford (Monmouth county) in New Jersey; Montauk and Shinnecock (Suffolk county) and New York (New York City county) in New York; Point Judith (Washington county) and Newport (Newport county) in Rhode Island; Wanchese (Dare county), and Oriental (Pamlico county) in North Carolina; and Norfolk (City of Norfolk county) and Newport News (City of Newport News county) in Virginia. Other ports with a large number of impacted vessels (9 or more) are: Stonington (New London county in CT), Ocean City (Worcester county in MD), Provincetown (Barnstable county in MA); Other (Suffolk county in NY); Beaufort (Carteret county); and Other (Suffolk county in NY). 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 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 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2007 quotas associated with alternative 2 would decrease summer flounder, scup, and black sea bass revenues by approximately $18.28, $2.27, and $3.64 million, respectively, relative to the quota implemented in 2006.

Assuming the decrease in summer flounder total ex-vessel gross revenues associated with alternative 2 is distributed equally between the 750 vessels that landed summer flounder in 2005, the average decrease in revenue associated with the decrease in summer flounder quota is $24,373/vessel. Assuming the decrease in scup total ex-vessel gross revenues associated with this alternative is distributed equally between the 439 vessels that landed scup in 2005, the average decrease in revenue associated with the decrease in scup quota is $5,170/vessel. Finally, if the decrease in black sea bass total ex-vessel gross revenues associated with this alternative is distributed equally between the 563 vessels that landed black sea bass in 2005, the average decrease in revenue associated with the decrease in black sea bass quota is $6,465/vessel.

The overall reduction in ex-vessel gross revenue associated with the three species combined in 2007, relative to 2006, is approximately $24.19 million (assuming 2005 ex-vessel prices) under alternative 2. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $26,700/vessel. The changes in gross revenues associated with the potential changes in quotas in 2007 versus 2006 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 RSA) is 2.03 million lb. This limit represents a 78 percent decrease from the 2006 recreational harvest limit (Table 31). The scup recreational harvest limit (adjusted for RSA) for 2007 would be set equal to 2.74 million lb. This is a 34 percent decrease over the 2006 recreational harvest limit (Table 32). Finally, this alternative would set the black sea bass recreational harvest limit (adjusted for RSA) for 2006 at 2.48 million lb. This level represents a 38 percent decrease from the 2006 recreational harvest limit (Table 33).
The information regarding trends in recreational participation (trends in effort) presented under section 7.5.6 of the EA and section 5.1.1.2 if the RIR/IRFA also apply here.

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. It is likely that proposed management measures may restrict the recreational fishery for 2007, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season). This is due to the substantial decrease in the recreational harvest limits associated with this alternative, especially those for summer flounder.

There is no information regarding how the potential decrease in the recreational harvest limits for these species will affect the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable; however, it is likely that given the proposed recreational harvest limits associated with this alternative (especially for summer flounder), the demand for party/charter boat trips may be negatively impacted. Nevertheless, some party/charter recreational anglers may likely target other species when faced with potential reductions in the amount of summer flounder, scup, or black sea bass they are allowed to catch. As previously indicated, the Council and the Board will meet in December 2006 to adopt 2007 recreational management measures, when more complete data regarding 2006 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.

5.1.2.3 Other Impacts

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

The impacts of these non-quota management measures described in alternative 1 above (section 5.1.1.3) also apply here.

Effects of the RSA

The background information regarding the conditionally approved Mid-Atlantic RSA research proposals for these species for 2007 fishing year is presented in section 7.4.2 of the EA. A summary of the scope of work for 2007 Mid-Atlantic RSA projects is presented in Appendix B. The economic effects of the RSA were discussed in detail is section 7.4.2.4 of the EA.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.2.4, 7.2.2.4, and 7.3.2.4 of the EA were based on adjusted commercial quotas accounting for the RSA proposed under this alternative. More specifically, a maximum RSA of 156,600 lb (93,960 lb for commercial and 62,640 lb for recreational) was assumed for summer flounder alternative 2, 360,000 lb (275,298 lb for commercial and 84,702 lb for recreational) was assumed for scup alternative 2, and 131,858 lb (64,610 lb for commercial and 67,248 lb for recreational) was assumed for black sea bass alternative 2.

Assuming 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2006 RSA for the commercial component of the fishery under alternative 2

could be worth as much as $159,732, $206,474, and $164,109 for summer flounder, scup, and black sea bass respectively. As such, on a per vessel basis, the commercial RSAs could result in a potential decrease in summer flounder, scup, and black sea bass revenues of $213, $470, and $291, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. The calculated losses in revenues are relative to commercial quotas without RSA in place. The values estimated above assume an equal decrease in revenue among all active vessels in 2005, i.e., 750, 439, and 563 commercial vessels that landed summer flounder, scup, and black sea bass, respectively.

The overall reduction in ex-vessel gross revenue associated with the three species combined under alternative 2 in 2007 as the result of the research set asides is $530,315 compared to commercial quotas without RSA in place. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $585/vessel. If RSAs 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.

The limits will changes from 2.09 to 2.03 million lb (a 2.9 percent decrease) for summer flounder; from 2.82 to 2.74 million lb (a 2.8 percent decrease) for scup; and from 2.55 to 2.48 million lb (a 2.7 percent decrease) for black sea bass in 2007 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this RSA, 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

The impacts of this non-quota management measure described in alternative 1 above (section 5.1.1.3) 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 2007 versus 2006. Recreational harvest limits would also be significantly reduced relative to the 2006 limits.

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 RSA have been applied) under this alternative are approximately 8.56, 3.03, and 0.73 million lb lower than the limits specified under alternative 1, respectively. Recreational

harvest limits under this alternative are 5.7, 0.85, and 0.77 million lb lower than the limits specified under alternative 1, respectively.

The analysis of the harvest levels under this alternative indicate that all vessels will incur in revenue losses of ≥ 5 percent.

Assuming 2005 ex-vessel prices, and the effect of the potential changes in fishing opportunities in 2007 versus 2006, the 2007 quotas associated with alternative 2 (after overages and RSAs have been applied) would decrease summer flounder, scup, and black sea bass revenues by approximately $18.28, $2.27, and $3.64 million, respectively, relative to the quota implemented in 2006.

On a per vessel level, the average decrease in revenue associated with the decrease in summer flounder, scup, and black sea bass quotas is $24,373, $5,170, and $6,465, respectively. The overall reduction in ex-vessel gross revenue associated with summer flounder, scup, and black sea bass combined in 2007 relative to quotas implemented in 2006 is approximately $24.19 million or approximately $26,700/vessel.

Under this alternative, the current minimum fish size, gear regulations and/or minimum threshold regulations will remain unchanged in 2007 for all three species. In addition, scup measures regarding scup transfer from Winter I to Winter II period, possession limits for Winter I and Winter II periods, and GRA management measures will remain unchanged. As such, these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2007 relative to 2006.

Recreational landings for all three fisheries under this alternative are substantially lower than those implemented in 2006. It is likely that the proposed limits under this alternative will restrict the fishery for 2007, 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 RSAs should be minimal. The RSAs are, conceptually, available for commercial vessels to participate in research, as well as for other vessels. Also, the RSAs 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 2007 relative to 2006 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 RSA 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.

While the quota and recreational harvest limits under this alternative 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.

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 13.81, 12.13, 3.86 million lb for summer flounder, scup, and black sea bass, respectively. This alternative also specifies adjusted recreational landings limits of 9.21, 3.65, and 4.01 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 both allowable commercial landings and recreational harvest limit relative to the 2006 allocations (Tables 27 and 31). The scup specifications would result in an aggregate 2 percent increase in allowable commercial landings relative to the 2006 quota and a 12 percent decrease in recreational harvest relative to the 2006 limit (Tables 27 and 32). The black sea bass specifications would result in an aggregate < 1 percent increase in both allowable commercial landings and recreational harvest limit relative to the measures specified for 2006 (Tables 27 and 33). Again, this alternative makes the same assumptions about landings as are made in the previous analyses.

Even though the overall 2007 TAL for summer flounder, scup, and black sea bass under this alternative are the same as in 2006, the adjusted commercial quotas and recreational harvest limits are slightly different than the allocations implemented in 2006 mainly due to differences in the RSAs used to derive adjusted allocations during those two time periods and/or other adjustments due to overages/quota restorations, and the manner in which discard rates were calculated for the scup fishery.

5.1.3.1 Commercial Impacts

The result of the analysis for this alternative indicates that across all vessel classes, a total of 488 vessels were projected to be impacted by revenue increase (relative to 2006). In addition, 418 vessels were projected to incur revenue losses of less than 5 percent relative to 2006 (Table 34).

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 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2007 quotas associated with alternative 3 would increase summer flounder, scup, and black sea bass revenue by $0.03 million, $0.15 million, and $0.08 million, respectively, relative to the quota implemented in 2006.

Assuming the increase in summer flounder, scup, and black sea bass total ex-vessel gross revenues associated with alternative 3 is distributed equally between the vessels that landed summer flounder (750), scup (439), and black sea bass (563) in 2005, the average increase in revenue associated with the increase in quotas is $40, $342, and $142 per vessel for summer flounder, scup, and black sea bass, respectively.

The overall increase in ex-vessel gross revenue associated with the three species combined in 2007, relative to 2006, is approximately $0.26 million (assuming 2005 ex-vessel prices) under alternative 3. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average increase in revenue is approximately $287/vessel. 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 2007 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 2007 are almost identical to the limits implemented in 2006. For scup, the 2007 limit is approximately 12 percent lower than the limit implemented in 2006 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 2007 relative to 2006, 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

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

The impacts of these non-quota management measures described in alternative 1 above (section 5.1.1.3) also apply here.

Effects of the RSA

The background information regarding the conditionally approved Mid-Atlantic RSA research proposals for these species for 2007 fishing year is presented in section 7.4.2 of the EA. A summary of the scope of work for 2007 Mid-Atlantic RSA projects is presented in Appendix B. The economic effects of the RSA were discussed in detail is section 7.4.2.4 of the EA.

The socioeconomic discussion of the evaluated commercial quotas discussed in sections 7.1.3.4, 7.2.3.4, and 7.3.3.4 of the EA were based on adjusted commercial quotas accounting for the RSA proposed under this alternative. More specifically, a maximum RSA of 567,062 lb (340,237 lb for commercial and 226,825 lb for recreational) was assumed for summer flounder alternative 3, 488,100 lb (375,216 lb for commercial and 112,884 lb for recreational) was assumed for scup alternative 3, and 131,858 lb (64,610 lb for commercial and 67,248 lb for recreational) was assumed for black sea bass alternative 3.

Assuming 2005 ex-vessel prices (summer flounder -- $1.70/lb; scup -- $0.75/lb; and black sea bass -- $2.54/lb), the 2006 RSA for the commercial component of the fishery under alternative 3 could be worth as much as $578,403, $281,412, and $164,109 for summer flounder, scup, and black sea bass respectively. As such, on a per vessel basis, the commercial RSAs could result in a potential decrease in summer flounder, scup, and black sea bass revenues of $771, $641, and $291, respectively. However, if a vessel is participating in two or more of these fisheries, the revenue reduction could be greater. The calculated losses in revenues are relative to commercial quotas without RSA in place. The values estimated above assume an equal decrease in revenue among all active vessels in 2005, i.e., 750, 439, and 563 commercial vessels that landed summer flounder, scup, and black sea bass, respectively.

The overall reduction in ex-vessel gross revenue associated with the three species combined under alternative 3 in 2007 as the result of the research set asides is $1,023,924 compared to commercial quotas without RSA in place. If this is distributed among the 906 vessels that landed summer flounder, scup, and black sea bass in 2005, the average decrease in revenue is approximately $1,130/vessel. If RSAs 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.

The limits will changes from 9.44 to 9.21 million lb (a 2.4 percent decrease) for summer flounder; from 3.76 to 3.65 million lb (a 2.9 percent decrease) for scup; and from 4.08 to 4.01 million lb (a 1.7 percent decrease) for black sea bass in 2007 if the proposed set-asides are used. It is unlikely that the possession, size or seasonal limits will change as the result of this RSA, 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

The impacts of this non-quota management measure described in alternative 1 above (section 5.1.1.3) 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 2006 and the scup recreational limits is approximately 12 percent lower than the 2006 limit for that species.

The threshold analysis indicates that a total of 488 vessels were projected to be impacted by revenue increase (relative to 2006), and that 418 vessels were projected to incur revenue losses of less than 5 percent.

Assuming 2005 ex-vessel prices, and the effect of the potential changes in fishing opportunities in 2007 versus 2006, the 2007 quotas associated with alternative 3 (after overages and RSAs have been applied) would increase summer flounder, scup, and black sea bass revenues by approximately $0.03 million, $0.15 million, and $0.08 million, respectively, relative to the quota implemented in 2006.

On a per vessel level, the average increase in revenue associated with the increase in summer flounder, scup, and black sea bass quotas is $40, $342, and $142, respectively. The overall increase in ex-vessel gross revenue associated with summer flounder, scup, and black sea bass combined in 2007 relative to quotas implemented in 2006 is approximately $0.26 million or approximately $287/vessel. 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.

Recreational harvest limits for all three fisheries under this alternative are not substantially lower than those implemented in 2006. It is not expected that the proposed limits under this alternative

will restrict the fishery for 2007, and these measures may cause some decrease in recreational satisfaction (i.e., low bag limit, larger fish size or closed season) when compared to 2006.

Under this alternative, the current minimum fish size, gear regulations and/or minimum threshold regulations will remain unchanged in 2007 for all three species. In addition, scup measures regarding scup transfer from Winter I to Winter II period, possession limits for Winter I and Winter II periods, and GRA management measures will remain unchanged. As such, these measures are not expected to result in changes to the economic and social aspects of the fisheries in 2007 relative to 2006.

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

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 2007 for quota overages in 2006 that were not accounted for here.

The proposed TALs under this alternative would result in the greatest short-term economic benefic relative to alternatives 1 and 2. However, the TALs under this alternative are not realistic. As such, it they result in an exploitation rate that most likely will exceed the targets for 2007. 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 2007: New London, CT; Sussex, DE; Cumberland, ME; Worcester, MD; Barnstable, Bristol, Dukes, Plymouth, and Suffolk, MA; Cape May, Monmouth, and Ocean, NJ; Nassau, New York, and Suffolk, NY; Beaufort, Carteret, Craven, Dare, Hyde, and Pamlico, NC;

Newport, and Washington, RI; City of Newport News, City of Norfolk, Virginia Beach City, and York, VA. Counties not included in this analysis (e.g., Essex and Nantucket, MA; Atlantic, NJ; Accomac, 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 2007). 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 2005, 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)
616	15.68	45.36	7.27
537	13.87	8.69	2.00
622	12.98	2.38	22.57
626	10.78	0.56	8.47
612	7.95	0.47	1.30
621	5.52	1.04	19.90
613	5.46	11.43	3.94
611	4.72	12.86	4.40
539	3.66	8.23	2.81
538	2.08	2.56	9.16

Table 2. Statistical areas that accounted for at least 5 percent of the summer flounder, scup, or black sea bass trips in 2005, 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	19.99	44.65	18.36
612	14.49	5.48	11.33
539	14.45	15.99	17.14
613	12.89	13.47	11.10
537	7.95	3.95	5.14
538	6.48	9.74	11.82
616	4.48	4.03	5.50
621	3.96	0.35	6.32

Table 3. Top ports of landing (in lb) for summer flounder (FLK), scup (SCP), and black sea bass (BSB), based on NMFS 2005 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	2,343,826	108	1,705,766	104	162,202	115
HAMPTON, VA	1,741,231	50	119,692	25	153,114	30
WANCHESE, NC	1,166,728	38	58,272	7	173,908	32
NEWPORT NEWS, VA	1,067,364	35	9,023	15	102,193	16
PT. PLEASANT, NJ	1,008,052	28	1,377,122	22	78,320	23
BELFORD, NJ	935,853	24	238,998	21	8,575	18
BEAUFORT, NC	929,473	19	1,062	9	56,367	17
MONTAUK, NY	902,345	47	1,079,390	40	95,103	48
CHINCOTEAGUE, VA	869,475	50	157,113	8	86,337	16
ENGELHARD, NC	851,348	13	50,671	5	87,862	9
NEW BEDFORD, MA	820,619	115	776,366	38	148,542	25
ORIENTAL, NC	692,472	14	0	0	42,976	10
CAPE MAY, NJ	508,475	83	311,970	15	348,051	43
HAMPTON BAY, NY	443,710	43	467,737	38	67,162	45
STONINGTON, CT	383,115	20	299,057	18	8,616	16
NEWPORT, RI	308,319	41	410,537	31	11,507	31
OCEAN CITY, MD	238,736	23	452	4	312,004	17
LOWLAND, NC	214,472	5	C	1	9,496	4
LITTLE COMPTON, RI	105,306	18	1,120,495	16	109,613	15
MATTITUCK, NY	103,575	6	77,055	6	34,314	5
GREENPORT, NY	72,956	6	120,574	8	14,729	7
POINT LOOKOUT, NY	42,701	8	165,163	8	9,658	10
CHATHAM, MA	22,125	17	134,710	13	20,515	20

Table 4. MRFSS preliminary estimates of 2005 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	0	0	0	0	0
MA	237,765	539,045	365,786	870,350	123,236	190,289
CT	210,705	1,039,857	681,814	1,342,759	34	41,063
RI	169,229	482,684	416,245	1,059,327	51,406	100,750
NY	1,041,266	8,363,243	648,245	1,856,342	142,827	1,072,432
NJ	1,311,482	10,845,647	121,756	643,695	590,036	2,770,992
DE	82,561	855,006	3,710	6,712	50,029	275,984
MD	85,881	520,522	1,691	3,741	78,880	900,987
VA	564,490	2,822,047	4,630	35,862	68,860	998,066
NC	126,697	128,317	1,460	1,923	176,152	1,161,519

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), 2005.

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	9	21	21	77	21	605	795
FLK Only	328	3	1	0	0	1	2	3	338
SCP Only	57	0	0	1	0	1	0	9	68
BSB Only	150	4	0	3	4	6	1	15	183
FLK/ SCP	109	0	0	0	0	0	0	2	111
FLK/ BSB	48	0	0	0	0	3	0	1	52
SCP/ BSB	151	5	0	0	0	1	1	29	187
FLK/ SCP/ BSB	479	3	0	0	1	0	0	17	500
Column Total	1,330	56	10	25	26	89	25	681	2,242

Table 6. Federal northeast region permits held by summer flounder, scup, and black sea bass commercial and recreational vessels, 2005.

	Commercial Only (n= 1,330)		Party/Charter Only (n= 795)		Commercial and Party/Charter (n= 117)	
Northeast Permits	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**
Surfclam	804	60.45	142	17.86	27	23.08
Ocean Quahog	765	57.52	136	17.11	22	18.80
Scallop	319	23.98	0	0.00	0	0.00
Non-trap Lobster	735	55.26	24	3.02	16	13.68
Lobster Trap	389	29.25	60	7.55	26	22.22
Party/ Charter Lobster	1	0.08	20	2.52	7	5.98
Party/ Charter Multi-Species	412	30.98	599	75.35	54	46.15
Comm. Multi-species	694	52.18	62	7.80	34	29.06
Party/ Charter Squid/ Mackerel/ Butterfish	3	0.23	636	80.00	81	69.23
Comm. Squid/ Mackerel/ Butterfish	1,180	88.72	333	41.89	88	75.21
Comm. Bluefish	1,222	91.88	386	48.55	110	94.02
Party/ Charter Bluefish	11	0.83	731	91.95	99	84.62
Tier 1 Tilefish	2	0.15	0	0.00	0	0.00
Tier 2 Tilefish	3	0.23	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, 2005.

	Commercial Only (n= 12,506)		Party/Charter Only (n= 5,227)		Commercial and Party/Charter (n= 1,006)	
Northeast Permits	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**	**Vessels (No.)**	**Percent of Total**
Part-time Tilefish	10	0.75	0	0.00	1	0.85
Incidental Tilefish	914	68.72	387	48.68	74	63.25
Herring VMS	75	5.64	1	0.13	0	0.00
Herring Non-VMS	852	64.06	382	48.05	75	64.10
Spiny Dogfish	1,172	88.12	470	59.12	94	80.34
Monkfish	537	40.38	4	0.50	7	5.98
Incidental Monkfish	657	49.40	405	50.94	76	64.96
Skate	1,053	79.17	319	40.13	77	65.81
Red Crab Incidental	696	52.33	130	16.35	38	32.48
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, 2005.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	GA	Other
No. of Permits by Mailing Address State	26	10	3	424	19	67	134	18	209	149	2	155	111	2	1
No. of Permits by Home Port State	26	14	6	452	16	57	129	17	204	161	7	133	107	0	1
No. of Permits by Principal Port State	29	8	2	432	17	63	123	19	211	154	1	151	119	0	1
Average Length by Principal Port	61	41	73	57	48	41	64	48	58	43	64	56	62	NA	NA
Average Tonnage by Principal Port	85	20	102	81	27	45	86	39	74	36	109	67	91	NA	NA
Average Horse Power by Principal Port	556	351	868	487	371	309	492	353	503	332	850	443	521	NA	NA
Percent Home Port Equal Principal Port	100	80	66	100	74	82	81	94	92	100	0	82	84	NA	NA

Table 8. Descriptive data from northeast region permit files for party/charter vessels, 2005.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	Other
No. of Permits by Mailing Address State	30	50	7	206	27	33	23	28	154	109	25	56	41	6
No. of Permits by Home Port State	24	66	7	211	26	33	28	26	144	117	15	55	40	3
No. of Permits by Principal Port State	27	62	3	210	28	37	24	24	159	106	5	64	44	2
Average Length by Principal Port	45	38	44	35	40	35	41	35	43	44	51	33	40	NA
Average Tonnage by Principal Port	27	20	39	18	25	19	24	15	28	30	33	16	24	NA
Average Horse Power by Principal Port	663	596	1047	433	651	439	657	391	644	611	736	417	666	NA
Percent Home Port Equals Principal Port	70	85	43	99	85	100	96	86	92	93	0	98	98	NA

Table 9. Descriptive data from northeast region permit files for combination commercial/recreational vessels, 2005.

	CT	DE	FL	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA
No. of Permits By Mailing Address State	3	5	2	14	1	0	9	1	14	42	1	11	14
No. of Permits By Home Port State	0	5	2	19	1	0	10	1	12	44	2	8	13
No. of Permits by Principal Port State	1	5	1	14	1	0	10	1	15	43	0	13	13
Average Length by Principal Port	42	49	34	35	56	0	39	42	48	38	NA	41	40
Average Tonnage by Principal Port	13	34	7	14	56	0	18	5	32	24	NA	31	22
Average Horse Power by Principal Port	700	677	500	291	350	0	395	357	525	415	NA	533	515
Percent Home Port Equal Principal Port	0	100	50	100	100	0	90	100	86	100	N/A	73	93

Table 10. Dealers reporting buying summer flounder, scup, and/or black sea bass, by state (from NMFS commercial landings database) in 2005.

	MA	NJ	NY	NC	RI	VA	MD	CT	DE	ME	Other
Number of Dealers	54	32	68	28	36	31	7	9	3	3	1

Table 11. Comparison of habitat impacts and considerations for selecting summer flounder alternatives.

Alternative	Quota in mil lb	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
Preferred Alternative 1	**19.90**	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. There are no adverse impact habitats expected under this alternative.	Maximizes landings but does not achieve rebuilding target by 2010, no to slightly decreased habitat impacts, potential for negative short-term financial impacts, but long-term financial benefits to industry.
Alternative 2	**5.22**	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, but will achieve rebuilding target by 2010, reduced short-term yields, no to slightly decreased habitat impacts, negative short-term financial impacts to industry, but long-term financial benefits to industry.
Alternative 3 (Status Quo)	**23.59**	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. There are no adverse impact habitats expected under this alternative.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, similar habitat impacts compared to 2006, short-term benefit to industry.

Table 12. Comparison of habitat impacts and considerations for selecting scup alternatives.

Alternative	Quota in mil lb	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
Preferred Alternative 1	**16.00**	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. There are no adverse habitat impacts expected under this alternative.	Maximizes landings, no expected negative habitat impacts, financial benefit to industry may range from no change to slightly negative.
Alternative 2	**12.00**	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)	**16.27**	Based upon species abundance, impacts may remain the same as existing or decrease. There are no adverse habitat impacts expected under this alternative.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, similar habitat impacts, potential financial impacts from no change to slightly positive.

Table 13. Comparison of habitat impacts and considerations for selecting black sea bass alternatives.

Alternative	Quota in mil lb	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
Preferred Alternative 1	**6.50**	Impacts may range from maintaining existing levels to decreasing impacts. There are no adverse habitat impacts expected under this alternative.	Maximizes landings but may not achieve target exploitation rate, minimal to no increased habitat impacts, similar to slightly negative short-term financial benefits to industry.
Alternative 2	**5.00**	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, decreased short-term financial benefit to industry.
Alternative 3 (Status Quo)	**8.00**	Impacts may remain the same as existing, or may decrease. There are no adverse habitat impacts expected under this alternative.	Maximizes landings to greatest extent, may not achieve the target exploitation rate, similar habitat impacts to 2006, potential for highest short-term financial benefits to industry.

Table 14. Research set-aside requested amounts for 2007, 3% of the TAL under each alternative, and the value analyzed under each alternative.

Values (million lb)		Initial TAL	Research Set-Aside Requested	Research Set-Aside 3% of TAL	Value Analyzed
Summer Flounder	**Alternative 1 (Preferred)**	19.90	0.567	0.597	0.567
	Alternative 2 (Most Restrictive)	5.22	0.567	0.157	0.157
	Alternative 3 (Least Restrictive / Status Quo)	23.59	0.567	0.708	0.567
Scup	**Alternative 1 (Preferred)**	16.00	0.531	0.480	0.480
	Alternative 2 (Most Restrictive)	12.00	0.531	0.360	0.360
	Alternative 3 Least Restrictive / Status Quo)	16.27	0.531	0.488	0.488
Black Sea Bass	**Alternative 1 (Preferred)**	6.50	0.132	0.132	0.132
	Alternative 2 (Most Restrictive)	5.00	0.132	0.132	0.132
	Alternative 3 (Least Restrictive / Status Quo)	8.00	0.132	0.132	0.132

Table 15. Status of stock for potential non-target species for all proposed 2007 Mid-Atlantic research set-aside projects as of June 30, 2006 (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	-
Butterfish	Overfished
Clearnose Skate	-
Haddock	GOM-Overfished GB-Overfished
Illex	-
Little Skate	-
Monkfish	Northern-Overfishing, Overfished Southern-Overfishing, Overfished
Offshore Hake	-
Rosette Skate	-
Silver Hake	-
Smooth Skate	-
Spiny Dogfish	Undefined
Thorny Skate	Overfished
Weakfish	-
Winter Flounder	GB-Overfishing SNE/MA-Overfishing, Overfished
Yellowtail Flounder	GB-Overfishing, Overfished 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 16. Threshold analysis of revenue impacts for participating vessels associated with the 2007 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	13	0	0	13	0	0	0	0	0	0	0
2	BSB Only	82	82	0	0	0	0	82	0	0	0	0
3	FLK Only	303	303	0	0	0	21	282	0	0	0	0
4	SCP/BSB	61	56	0	0	5	7	49	0	0	0	0
5	SCP/FLK	27	21	0	0	6	2	19	0	0	0	0
6	BSB/FLK	82	82	0	0	0	11	71	0	0	0	0
7	SCP/BSB/FLK	338	315	0	0	23	63	252	0	0	0	0
	Totals	906	859	0	13	34	104	755	0	0	0	0

Table 17. Review of revenue impacts under quota alternative 1 (preferred; associated with the 2007 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	15	14	0	1	0	1	13	0	0	0	0
DE	7	7	0	0	0	0	7	0	0	0	0
MA	158	155	0	2	1	8	147	0	0	0	0
MD	10	10	0	0	0	0	10	0	0	0	0
ME	4	4	0	0	0	1	3	0	0	0	0
NC	86	86	0	0	0	0	86`	0	0	0	0
NJ	110	109	0	0	1	4	105	0	0	0	0
NY	112	87	0	3	22	57	30	0	0	0	0
RI	104	102	0	0	2	6	96	0	0	0	0
VA	49	48	0	0	1	0	48	0	0	0	0
OTHER[a]	4	4	0	0	0	0	4	0	0	0	0
NOT KNOWN[b]	247	233	0	7	7	27	206	0	0	0	0
Total	906	859	0	13	34	104	755	0	0	0	0

[a]States with fewer than 3 vessels were aggregated.
[b]Vessels have shown landings of either of those three species in 2005, but did not hold any of the requisite federal permits in 2005. 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 2005 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	315	86	67	13	69	53	23	233

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

Table 19. Other 2005 permits held by the 626 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 2007.

	Northeast Region Permit Status	Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	373	60
	Surfclam	362	58
	Scallop	105	17
	Lobster, trap gear	189	30
	Lobster, non-trap gear	374	60
	Squid/Mackerel/Butterfish	571	91
	Quahog	341	54
	Bluefish	597	95
	Dogfish	569	91
	Tilefish (full-time)	1	<1
	Tilefish (part-time)	7	1
	Tilefish Incidental	456	73
	Herring VMS	29	5
	Herring non-VMS	436	70
	Atl. Deep-Sea Red Crab (Incidental)	323	52
	Skate	524	84
	Monkfish (Limited Access)	267	43
	Monkfish (Open Access)	307	49
Recreational	Multispecies	150	24
	Squid/Mackerel/Butterfish	22	4
	Bluefish	27	4
	Lobster	3	<1

Table 20. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2007) based on 2005 descriptive data from NMFS permit files under alternative 1 (preferred). No vessel characteristics data are reported for states with fewer than 3 permits.

	CT	DE	MA	MD	ME	NC	NJ	NY	RI	VA	Other
# Permits by Home Port State	14	7	155	10	4	86	109	87	102	48	4
# Permits by Principal Port State	16	5	142	12	5	77	111	83	116	56	3
# Permits by Mailing Address State	17	6	142	12	4	83	107	82	115	52	6
Avg. Length in Feet by Principal Port	65	42	62	50	71	67	56	46	56	65	NA
Avg. GRT by Principal Port	90	21	88	31	130	95	64	42	69	94	NA
Avg. Vessel Horsepower	529	521	459	401	541	479	453	363	446	539	NA
% of Vessels where Home Port State = Principal Port State	88	83	98	83	75	83	94	99	87	86	NA

Table 21. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 1 (preferred; in 2007; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2005 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	9
		Other	5
Delaware	Sussex	Other	6
Maine	Cumberland	Portland	4
Maryland	Worcester	Ocean City	10
Massachusetts	Barnstable	Chatham	3
		Harwich	4
		Provincetown	9
		Woods Hole	3
		Other	5
	Bristol	Fairhaven	7
		New Bedford	70
		Other	3
	Dukes	Other	6
	Essex	Other	3
	Plymouth	Plymouth	5
		Other	3
	Suffolk	Boston	31
New Jersey	Atlantic	Other	3
	Cape May	Cape May	30
		Sea Isle City	4
		Other	4

Table 21 (Continued). Distribution of commercial vessels showing revenue reductions in

the 5 percent or more range under alternative 1 (preferred; in 2007; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2005 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 Jersey	Monmouth	Belford	16
		Other	4
	Ocean	Barnegat Light	26
		Pt. Pleasant	16
		Other	6
New York	Nassau	Freeport	3
		Other	6
	New York City	New York	23
	Suffolk	Hampton Bays	4
		Montauk	32
		Shinnecock	10
		Other	9
North Carolina	Beaufort	Belhaven	5
	Carteret	Atlantic	4
		Beaufort	9
	Craven	New Bern	4
	Dare	Manteo	3
		Wanchese	21
		Other	3
	Hyde	Englehard	4
		Swan Quarter	4

Table 21 (Continued). Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 1 (preferred; in 2007; holding permits for

summer flounder, scup, and black sea bass) by state, county and home port, from 2005 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	Pamlico	Bayboro	4
		Lowland	5
		Oriental	11
Rhode Island	Newport	Little Compton	4
		Newport	17
		Sakonnet Point	5
		Tiverton	3
	Washington	Narragansett	8
		Point Judith	54
		Wakefield	4
		Other	4
Virginia	Accomac	Chincoteague	3
	City of Newport News	Newport News	10
	City of Norfolk	Norfolk	15
	Virginia Beach City	Virginia Beach	5
	York	Seaford	3

Table 22. Threshold analysis of revenue impacts for participating vessels associated with the 2007 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)	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	13	13	0	0	0	0	0	13	0	0	0
2	BSB Only	82	82	0	0	0	0	0	0	82	0	0
3	FLK Only	303	303	0	0	0	0	0	0	0	0	303
4	SCP/BSB	61	61	0	0	0	0	0	7	54	0	0
5	SCP/FLK	27	27	0	0	0	0	0	2	1	1	23
6	BSB/FLK	82	82	0	0	0	0	0	0	14	1	67
7	SCP/BSB/FLK	338	338	0	0	0	0	0	2	29	29	278
	Totals	906	906	0	0	0	0	0	24	180	31	671

Table 23. Review of revenue impacts under quota alternative 2 (most restrictive; associated with the 2007 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	15	15	0	0	0	0	0	2	0	0	13
DE	7	7	0	0	0	0	0	0	4	0	3
MA	158	158	0	0	0	0	0	2	22	6	128
MD	10	10	0	0	0	0	0	0	6	0	4
ME	4	4	0	0	0	0	0	0	0	1	3
NC	86	86	0	0	0	0	0	0	10	2	74
NJ	110	110	0	0	0	0	0	0	16	8	86
NY	112	112	0	0	0	0	0	9	21	6	76
RI	104	104	0	0	0	0	0	0	11	4	89
VA	49	49	0	0	0	0	0	0	17	0	32
OTHER[a]	4	4	0	0	0	0	0	0	1	1	2
NOT KNOWN[b]	247	247	0	0	0	0	0	11	72	3	161
Total	906	906	0	0	0	0	0	24	180	31	671

[a]States with fewer than 3 vessels were aggregated.
[b]Vessels have shown landings of either of those three species in 2005, but did not hold any of the requisite federal permits in 2005. 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 2005 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	335	87	67	13	78	55	24	247

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

Table 25. Other 2005 permits held by the 659 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 2007.

	Northeast Region Permit Status	Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	394	60
	Surfclam	370	56
	Scallop	106	16
	Lobster, trap gear	193	29
	Lobster, non-trap gear	392	59
	Squid/Mackerel/Butterfish	601	91
	Quahog	350	53
	Bluefish	628	95
	Dogfish	596	90
	Tilefish (full-time)	1	<1
	Tilefish (part-time)	7	1
	Tilefish Incidental	477	72
	Herring VMS	30	5
	Herring non-VMS	461	70
	Atl. Deep-Sea Red Crab (Incidental)	337	51
	Skate	550	83
	Monkfish (Limited Access)	275	42
	Monkfish (Open Access)	326	49
Recreational	Multispecies	153	23
	Squid/Mackerel/Butterfish	23	3
	Bluefish	29	4
	Lobster	3	<1

Table 26. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2007) based on 2005 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	NJ	NY	RI	VA	Other
# Permits by Home Port State	15	7	158	10	4	86	110	112	104	49	4
# Permits by Principal Port State	17	5	145	12	5	77	112	108	118	57	3
# Permits by Mailing Address State	18	6	145	12	4	83	108	107	117	53	3
Avg. Length in Feet by Principal Port	63	44	61	50	71	67	56	45	57	64	NA
Avg. GRT by Principal Port	85	21	87	31	130	95	64	41	69	93	NA
Avg. Vessel Horsepower	517	521	456	401	541	479	452	353	448	536	NA
% of Vessels where Home Port State = Principal Port State	89	83	98	83	75	83	93	98	86	88	NA

Table 27. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 2 (most restrictive; in 2007; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2005 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	New London	3
		Stonington	9
		Other	4
Delaware	Sussex	Other	6
Maine	Cumberland	Portland	4
Maryland	Worcester	Ocean City	10
Massachusetts	Barnstable	Chatham	3
		Harwich	4
		Provincetown	9
		Woods Hole	3
		Other	5
	Bristol	Fairhaven	7
		New Bedford	70
		Other	3
	Dukes	Other	6
	Essex	Gloucester	3
	Nantucket	Nantucket	3
	Plymouth	Plymouth	5
		Other	4
	Suffolk	Boston	31

Table 27 (Continued). Distribution of commercial vessels showing revenue reductions in

the 5 percent or more range under alternative 2 (most restrictive; in 2007; holding permits for summer flounder, scup, and black sea bass) by state, county and home port, from 2005 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 Jersey	Atlantic	Other	3
	Cape May	Cape May	30
		Sea Isle City	4
		Other	4
	Monmouth	Belford	16
		Other	4
	Ocean	Barnegat Light	26
		Point Pleasant	17
		Other	6
New York	Nassau	Freeport	5
		Other	7
	New York	New York	29
	Suffolk	Greenport	3
		Hampton Bays	4
		Montauk	40
		Shinnecock	12
		Other	9
North Carolina	Beaufort	Belhaven	5
	Carteret	Atlantic	4
		Beaufort	9
	Craven	New Bern	4

Table 27 (Continued). Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under alternative 2 (most restrictive; in 2007; holding permits

for summer flounder, scup, and black sea bass) by state, county and home port, from 2005 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	Dare	Manteo	3
		Wanchese	21
		Other	3
	Hyde	Englehard	4
		Swan Quarter	4
	Pamlico	Bayboro	4
		Lowland	5
		Oriental	11
Rhode Island	Newport	Little Compton	4
		Newport	17
		Sakonnet Point	5
		Tiverton	3
	Washington	Narragansett	8
		Point Judith	56
		Wakefield	4
		Other	4
Virginia	Accomac	Chincoteague	3
	City of Newport News	Newport News	11
	City of Norfolk	Norfolk	16
	Virginia Beach City	Virginia Beach	5
	York	Seaford	4

Table 28. Percentage changes associated with allowable commercial landings for various alternatives in 2007 (adjusted for overages and RSA) relative to the adjusted quotas for 2006[a].

	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	
Delaware[b]	-100%	-100%	-100%
New York	-5%	-75%	+13%
Massachusetts	-15%	-78%	+1%
New Hampshire	-17%	-78%	no change
States other than DE, NY, MA, NH	-17%	-78%	< -1%
Aggregate Change	-16%	-78%	< +1%
		Scup	
Aggregate Change[c]	no change	-25%	< +2%
		Black Sea Bass	
Aggregate Change	-19%	-38%	<+1 %

[*]Denotes status quo management measures.
[a]2006 quotas adjusted for research set-aside and other adjustments due to transfers, overages, and/or quota restorations.
[b]Delaware has no quota allocation in 2007.
[c]Quota changes by period (i.e., Winter I, Summer, and Winter II) are near identical as those under the aggregate change.

Table 29. Qualitative comparative summary of economic effects of 2007 regulatory alternatives relative to the base line "adjusted quotas for 2006".

Feature	Alternative 1 Preferred	Alternative 2 Most Restrictive	Alternative 3 Least Restrictive
Landings	FLK -1	FLK -1	FLK +1/0
	SCP 0	SCP -1	SCP +1/0
	BSB -1	BSB -1	BSB +1/0
Prices	FLK +1	FLK +1	FLK 0
	SCP 0	SCP +1	SCP 0
	BSB +1	BSB +1	BSB 0
Consumer Surplus	FLK -1	FLK -1	FLK 0
	SCP 0	SCP -1	SCP 0
	BSB -1	BSB -1	BSB 0
Harvest Costs	0	0	0
Producer Surplus	FLK +1 (?)	FLK +1 (?)	FLK 0
	SCP 0	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 2005.

Landings Class	Landings Combinations	Commercial Vessels (#)
1	Scup Only	13
2	Black Sea Bass Only	82
3	Summer Flounder Only	303
4	Scup/Black Sea Bass	61
5	Scup/Summer Flounder	27
6	Black Sea Bass/Summer Flounder	82
7	Scup/Black Sea Bass/Summer Flounder	338
	Total	906

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	4,536,651	None	7.96
1992	3,820,071	None	7.15
1993	4,671,638	8.38	8.83
1994	5,769,037	10.67	9.33
1995	4,683,754	7.76	5.42
1996	4,885,179	7.41	9.82
1997	5,595,636	7.41	11.87
1998	5,268,926	7.41	12.48
1999	4,219,909	7.41	8.37
2000	5,802,215	7.41	16.47
2001	6,130,383	7.16	11.64
2002	4,564,011	9.72	8.01
2003	5,624,387	9.28[c]	11.64
2004	5,129,166	11.21[c]	10.80
2005	5,776,788	11.98[c]	10.02
2006	N/A	9.29[c]	N/A
2007	-	7.73[c]	-

[a]Estimated number of recreational fishing trips (expanded) where the primary target species was summer flounder, Maine through North Carolina. Source: Scott Steinback, NMFS/NER/NEFSC.
[b]From Maine 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	793,593	None	8.09
1992	499,780	None	4.41
1993	499,703	None	3.20
1994	435,625	None	2.63
1995	242,956	None	1.34
1996	241,322	None	2.16
1997	198,754	1.95	1.20
1998	213,842	1.55	0.88
1999	231,596	1.24	1.89
2000	485,039	1.24	5.44
2001	484,604	1.77	4.26
2002	481,716	2.71[c]	3.62
2003	971,770	4.01[c]	8.43
2004	567,518	4.01[c]	4.41
2005	457,675	3.96[c]	2.38
2006	N/A	4.15[c]	N/A
2007	-	3.59[c]	-

[a]Estimated number of recreational fishing trips (expanded) where the primary target species was scup, Maine through North Carolina. Source: Scott Steinback, NMFS/NEFSC.
[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	288,691	None	4.32
1992	263,957	None	2.91
1993	299,404	None	4.99
1994	253,888	None	3.05
1995	313,537	None	6.34
1996	231,090	None	4.13
1997	310,898	None	4.40
1998	137,734	3.15	1.29
1999	136,452	3.15	1.70
2000	255,789	3.15	4.12
2001	293,191	3.15	3.57
2002	283,537	3.43[c]	4.42
2003	285,861	3.43[c]	3.45
2004	186,038	4.01[c]	1.94
2005	166,367	4.13[c]	1.79
2006	N/A	3.99[c]	N/A
2007	-	3.25[c]	-

[a]Estimated number of recreational fishing trips (expanded) where the primary target species was black sea bass, Maine through North Carolina. Source: Scott Steinback, NMFS/NEFSC.
[b]From Maine to Cape Hatteras, North Carolina.
[c]Adjusted for research set-aside.
N/A = Data not available.

Table 34. Threshold analysis of revenue impacts for participating vessels associated with the 2007 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	13	0	13	0	0	0	0	0	0	0	0
2	BSB Only	82	0	82	0	0	0	0	0	0	0	0
3	FLK Only	303	0	120	0	183	0	0	0	0	0	0
4	SCP/BSB	61	0	61	0	0	0	0	0	0	0	0
5	SCP/FLK	27	0	14	0	13	0	0	0	0	0	0
6	BSB/FLK	82	0	31	0	51	0	0	0	0	0	0
7	SCP/BSB/FLK	338	0	167	0	171	0	0	0	0	0	0
	Totals	906	0	488	0	418	0	0	0	0	0	0

Table 35. Counties identified as having >= 4 commercial vessels showing revenue reductions of 5 percent or more as a consequence of the most restrictive 2007 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	Plymouth	481,059	231,023	8,362.61	287	.06%	18	.01%
MA	Suffolk	682,062	703,540	29,633.35	447	.07%	494	.09%
ME	Cumberland	266,988	223,061	7,834.43	1,189	.12%	125	.05%
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	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.

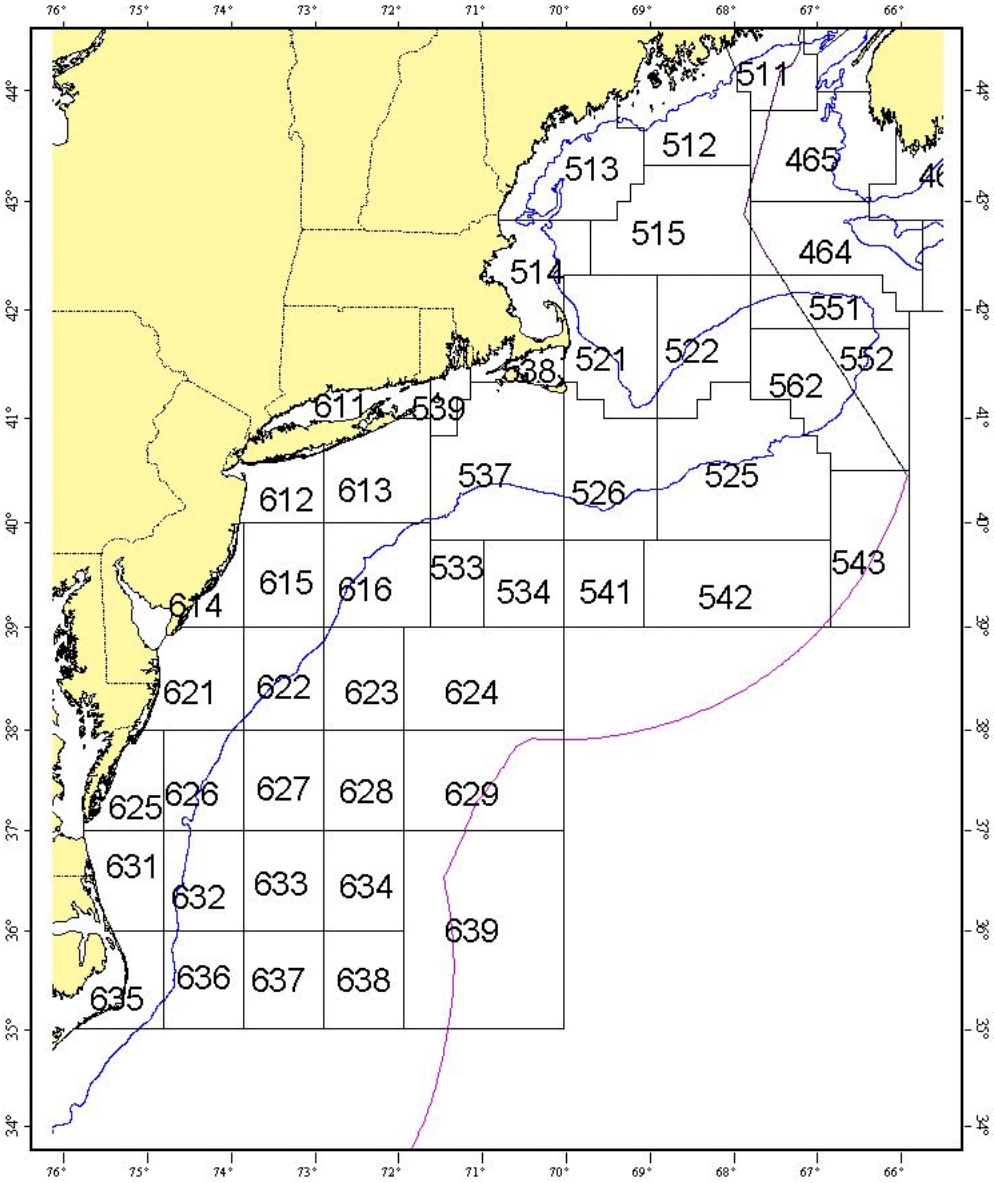
c = Includes both full-time and part-time workers.

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

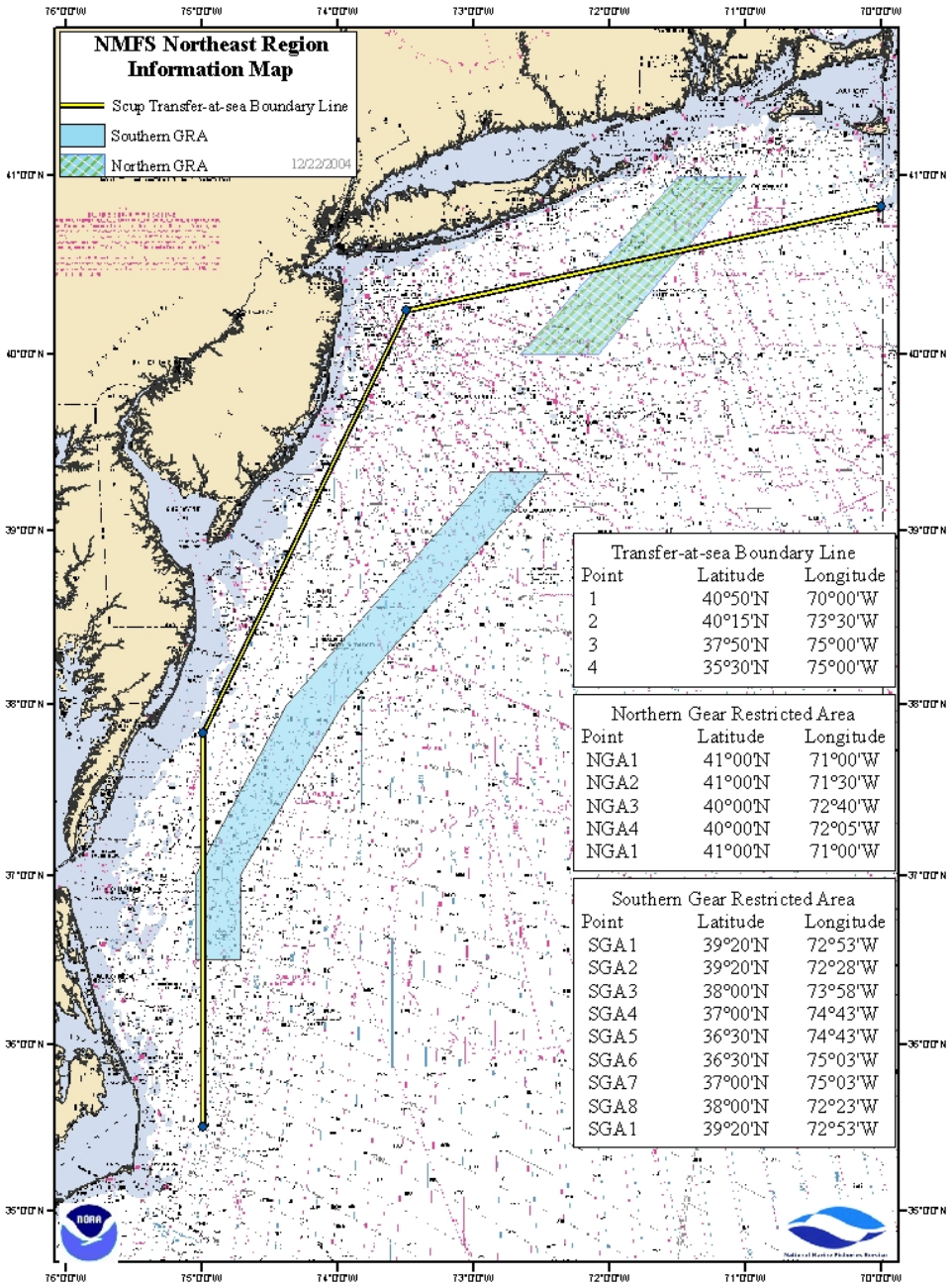
Source: Scott Steinback (NEFSC).

FIGURES

Figure 1. NMFS Northeast statistical areas.



APPENDIX A. Northern and Southern gear restricted areas (GRAs).


NMFS Northeast Region
Information Map
Scup Transfer-at-sea Boundary Line
Southern GRA
Northern GRA
12/22/2004
76°00'W
75°00'W
74°00'W
73°00'W
72°00'W
71°00'W
70°00'W
41°00'N
40°00'N
39°00'N
38°00'N
37°00'N
36°00'N
35°00'N
Transfer-at-sea Boundary Line
Point Latitude Longitude
1 40°50'N 70°00'W
2 40°15'N 73°30'W
3 37°50'N 75°00'W
4 35°30'N 75°00'W
Northern Gear Restricted Area
Point Latitude Longitude
NGA1 41°00'N 71°00'W
NGA2 41°00'N 71°30'W
NGA3 40°00'N 72°40'W
NGA4 40°00'N 72°05'W
NGA1 41°00'N 71°00'W
Southern Gear Restricted Area
Point Latitude Longitude
SGA1 39°20'N 72°53'W
SGA2 39°20'N 72°28'W
SGA3 38°00'N 73°58'W
SGA4 37°00'N 74°43'W
SGA5 36°30'N 74°43'W
SGA6 36°30'N 75°03'W
SGA7 37°00'N 75°03'W
SGA8 38°00'N 72°23'W
SGA1 39°20'N 72°53'W
NOAA

APPENDIX B. Scope of Work for 2007 Mid-Atlantic Research Set-Aside (RSA) Projects

[This information was provided by Paul Perra, NMFS/NERO]

<u>06-RSA-001</u> - 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.

<u>Project Abstract:</u> To obtain fifth 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.

> <u>RSA Amount:</u> 223,140 lbs (101,215 kg) Summer Flounder, 221,581 lbs (101,508 kg) Scup, 61,500 lbs (27,896 kg) Black Sea Bass, 281,089 lbs (127,500 kg) *Loligo,* 363,677 lbs (164, 961 kg) Bluefish

<u>Project Description:</u> 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 2007 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). The Transect sampling may 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. Stations shallower than 150 fm (274 m) will be only sampled during daylight, deeper stations during the night. Primary target species will be summer flounder, scup, black sea bass, monkfish, silver hake and offshore hake, Loligo squid, 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. Samples of scup, summer flounder, and black sea bass will be saved for weight and length measurements. Based on request by mackerel and *Illex* assessment groups, Atlantic mackerel will be measured , and *Illex* squid will be used in the adaptive station selection process in May. 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.

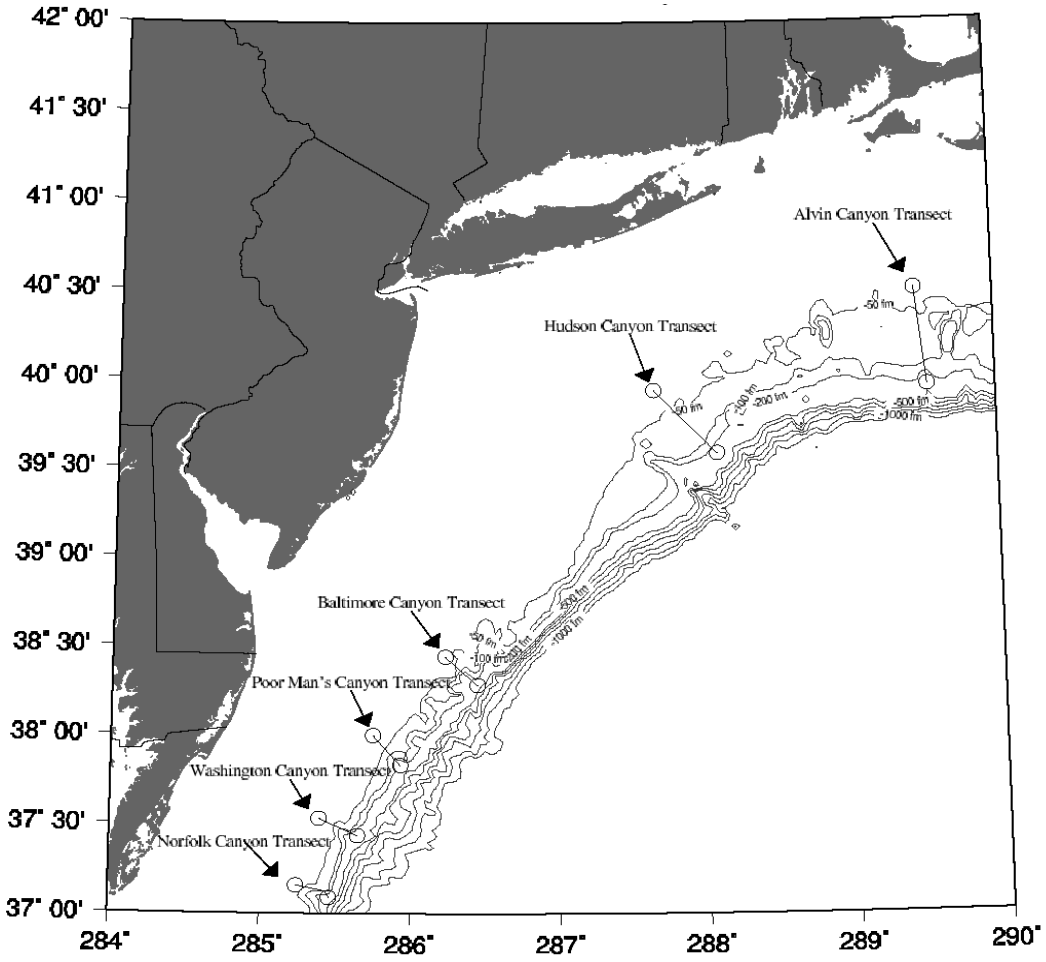
Additionally, approximately 25 more vessels will be harvesting the RSA amounts allocated to the project. These vessels will need exemptions to closed seasons and trip limits for the RSA species listed under the project. The most likely ports for landings will be in Rhode Island, New York, New Jersey, and Virginia.

EFH Concerns
The area affected by the proposed action has been identified as EFH for species managed by the following FMPs: NE Multispecies; Atlantic Sea Scallop; Monkfish; Atlantic Herring; Summer Flounder, Scup, and Black Sea Bass; Squid, Atlantic Mackerel, and Butterfish; Spiny Dogfish; Atlantic Surfclam and Ocean Quahog; Atlantic Bluefish; Northeast Skates; and Atlantic Tunas, Swordfish, and Sharks Fishery Management Plans. 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.

Figure 1. Supplemental Finfish Trawl Survey Transects


42° 00'
41° 30'
41° 00'
40° 30'
40° 00'
39° 30'
39° 00'
38° 30'
38° 00'
37° 30'
37° 00'
284°
285°
286°
287°
288°
289°
290°
Alvin Canyon Transect
Hudson Canyon Transect
Baltimore Canyon Transect
Poor Man's Canyon Transect
Washington Canyon Transect
Norfolk Canyon Transect
-50 fm
-100 fm
-200 fm
-500 fm
-1000 fm

06-RSA-007 – Charles Borden, "2007 Fishery Independent Scup Survey of Hard Bottom Areas in Southern New England Waters" Principal Investigator – Laura Skrobe, University of Rhode Island.

Project Abstract: To conduct a fourth 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 and 2 scup spawning ground sites (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: 2,289 lbs (1,038 kg) Summer Flounder, 40,000 lbs (18,144 kg) Scup, 30,000 lbs (13,608 kg) Black Sea Bass

Project Description: This project is a fishery independent study to survey scup at 10 rocky bottom areas in southern New England waters that are currently not typically sampled by state or Federal finfish trawl surveys. In addition, 2 sites on the scup spawning grounds in Vineyard Sound, will be sampled for a one month period. The project involves research and compensation fishing in state and Federal waters. Field work will be conducted off the coast of Rhode Island and Massachusetts from June 1 through November 7, 2004. The resultant data will be compared to finfish trawl data collected by NMFS.

This project includes the cooperative efforts of 1 to 2 vessels in the 30 to 60 ft (9.1 to 18.3 m) size range, the University of Rhode Island, and the Rhode Island Department of Environmental Management, Division of Fish and Wildlife. The vessel(s) will conduct the research and some compensation fishing. Research and compensation fishing will take place in state and Federal waters off of Rhode Island and Massachusetts.

The scope of work is separated into a western and eastern sampling design. At the beginning of the project, the research vessel(s) will fish at each collection site in order to focus the sampling activity on areas with a high abundance of scup. The sampling sites will generally correspond to the following:

Western sampling sites:

- 1st site: south of Sakonnet Point, RI (most likely inner Mayo Ledge or Elisha Ledge) – loran numbers 14330/43957;
- 2nd site: will be at the western end of Buzzards Bay (most likely south of Old Cock rock or in the proximity of Buzzards Bay Tower) – loran numbers 14285/43953;
- 3rd site: Browns ledge (approximately ten miles southwest of Westport Harbor, Mass. in federal waters) – loran numbers 14315/43920;
- 4th site: west or south of Nomans Island – loran numbers14250/43850;
- 5th site: south of Newport, RI, Elbow Ledge – loran numbers 14368/43975.

Eastern sampling sites (all east of Oak Bluffs on the Vineyard):

- 1st site: Horse Shoals – loran numbers 14025/34915;
- 2nd site: Cape Pogue – loran numbers 14075/43895;
- 3rd site: Hart Haven/East Chop – loran numbers 14105/43915;
- 4th site : Mink Meadows/West Chop – loran numbers 14115/43930;
- 5th site: Cedar Tree Neck/Norton Rock – loran number 14167/43917.

Spawning sampling sites in the Eastern zone:

- 1st site: Collier's Ledge – loran number 13995/43948;
- 2nd site: Bishops and Clercks – loran number 13970/43935.

Table 1. lists lat. and long. for project sites.

Scup will be collected from each site utilizing standard fish traps (2 x 2 x 2 foot) made with 1½ x 1½ inch coated wire mesh, and identical in all respects to the traps used in the 2006 study. Traps will be un-vented, in order to retain all size classes of scup. The sampling protocol will require that the commercial vessels take 30 traps to each sampling site once during each four-week sampling cycle. Research fishing effort would be (30 traps x 10 sites fished for a total of 24 to 48 hours = 300 to 600 trap/days with a trap day equaling a 24 hour fishing period for 1 trap). This effort for each four week period x 5 four week periods (June through October) = 1,500 to 3,000 trap/days of research effort for the regular sites. Traps will be baited with clams, which fish very quickly, and set on the sampling sites. Traps will then be allowed to fish for one to two days at each site. The 2006 project modified the sampling format to require a minimum of 24 hour set over period. This should substantially increase the number of fish captured as compared to earlier study years.

The 24 hour set over period will also require that each site must be visited twice instead of once. The date, area, depth, set over days, and catch will be recorded and fish measured utilizing the standard NMFS sea sampling protocols. At the conclusion of each sampling cycle, traps will be placed on the vessel for transport back to port. As the gear will be removed from the water at the end of the sampling cycle, there will little possibility of entanglements with other species. This same sampling format will be followed every four weeks from June 15 through October 15 for five complete cycles. In addition, the 2 spawning areas will also be sampled each week from May 15 to June 15 following the identical sampling protocol (30 traps x 2 sites fished for 24 to 48 hours = 60 - 120 trap/days x 7 weeks = 420 - 840. trap/days). Maximum estimated research fishing effort trap/days for the project including both spawning sites and regular sites = 3,840 trap/days (840 for the spawning grounds sampling and 3,000 for the regular site sampling).

Data collected as part of the project will be formatted in a manner consistent with the NMFS and ACCSP formats.

The vessel(s), when conducting research, will need to be exempt form, scup closure restrictions, black sea bass closure restrictions, scup possession limit restrictions, black sea bass 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.

Additionally, a second research/RSA harvest vessel in the same size range as the research vessel may conduct research or harvest some of the RSA amounts allocated to the project, if the primary research vessel is unavailable. Therefore, both vessels will need exemptions to closed seasons and trip limits for the RSA listed under the project. 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 have an adverse effect on EFH.

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.

Table 1. Scup Survey Research Sites - Lat. and Long:

Eastern sampling sites (all east of Oak Bluffs on the Vineyard);

* 1st site: Horse Shoals, loran numbers 14025/34915 (41, 32 north, 70,21 degrees west)
* 2nd site: Cape Pogue, loran numbers 14075/43895 (41,26 north, 70,26 west);
* 3rd site: Hart Haven/East Chop, loran numbers 14105/43915(41,27north, 70,33 west);
* 4th site : Mink Meadows/West Chop, loran numbers 14115/43930, (41,31 north, 70,36 west)
* 5th site: Cedar Tree Neck/Norton Rock, loran number 14167/43917, (41,25 north, 70,42,45" west)

Spawning sampling sites in the Eastern zone:

* 1st site: Collier's Ledge, loran number 13995/43948,(41,36 north, 70,20 west);
* 2nd site: Bishops and Clercks, loran number 13970/43935 (41, 34 north, 70,15 west)

Western sites:

* 1st site: south of Sakonnet Point, R. I. (most likely inner Mayo Ledge or Elisha Ledge)loran numbers 14330/43957 (Latitude 41.27, Longitude 71.09);
* 2nd site: will be at the western end of Buzzards Bay (most likely south of Old Cock rock or in the proximity of Buzzards Bay Tower)loran numbers 14285/43953 (Latitude 41.28, Longitude 70.02);
* 3rd site: Browns ledge (approximately ten miles southwest of Westport Harbor, Mass. in federal waters) loran numbers 14315/43920, (Latitude 41.22, Longitude 71.04);

* 4th site: west or south of Nomans Island, 14250/43850, (Latitude 41.16, Longitude 70.51);
* 5th site south of Newport, R.I., Elbow Ledge, 14368/43975, (Latitude 41.27,Longitude 71.09.

<u>06-RSA-005</u> – Cornell Cooperative Ext. of Suffolk County, "Evaluation of Summer Flounder Discard Mortality in the Bottom Trawl Fishery", Principal Investigator – Emerson Hasbrouck

RSA Amount: 178,000 lbs (80,737 kg) Summer Flounder

<u>Project Abstract:</u> The project would implement a program to improve and enhance fishery information relative to discard mortality of summer flounder in the bottom trawl fishery. With the cooperation of commercial bottom trawlers in NY, summer flounder will be collected. under various fishing conditions and held live. The summer flounder discard, both legal and sub-legal size will be measured, tagged and kept in a live holding pen (net-pen) for mortality monitoring. Mortality will be monitored on a weekly basis and fish will be released with tags after two weeks. Extended mortality and migration information will be collected upon recapture of tagged fish.

<u>Project Description:</u> The project will improve and enhance fishery information relative to discard issues, especially in the summer flounder commercial bottom trawl fishery. A random sample of summer flounder discards including both legal and sub-legal sized fish will be collected while on board bottom trawling vessels. Fish will be sampled from the summer flounder inshore fishery. Summer flounder mortality will be evaluated relative to tow duration , fish size, and length of time the fish are kept on deck of the vessel for each trip. Approximately 20 fish from each of 6 categories (120 fish) will be measured , tagged, and held in a dockside net pen for mortality monitoring for each trip. The 6 categories are a combination of parameters which include tow durations of 1 hour 2 hour and 3 hour tow times, and 2 different deck times including immediate culling, and a normal fishing practice cull (approximately 30 minutes).

The research trips will be one inshore day trip every 14 to 17 days from May to September for a total of 10 day trips. Overall, with 120 fish taken on each trip, a total of 1,200 fish will be collected from commercial vessels during the project. The trips will be inshore along the coast of southern Long Island from Jones Inlet to Montauk Point reaching depths of 240 ft (73 m). Areas sampled will include NMFS statistical areas 611, 612, 613, and 539. Trips will be made aboard vessels of opportunity engaged in the mixed trawl fishery. Vessels will be compensated to make 3 specific tows for summer flounder discard mortality. The tow duration will be 30 minutes . Subsampling will be according to NMFS At-Sea Observer Program Guidelines. Twenty fish will be randomly collected from each cull: 10 legal and 10 sub-legal. Fish condition, and information on tow duration, location, boat and gear specifics, fishing speed, total volume of catch and discard, fish condition, and water and air temperatures will recorded. If there are not 10 sub-legal fish in each catch then additional legal size fish will be kept to maintain a 20 fish sample. The summer flounder will be tagged and transported alive to the dock and kept in a 20 ft (6 m) diameter circular net-pen with 2 3/8 inch (6.67 cm) mesh moored in 10 ft (3 m) of water. The summer flounder will be tagged on the vessels, and will be fed and monitored in the net-pen one to two times per week, over a two week period. A health index will be calculated for each fish that is captured and released. The fish will be released in the area near the holding net-pen which is adjacent to Block Island Sound. Extended mortality and

migration/seasonal movements information will be collected upon future recapture of tagged fish. Collection of tags and payment of rewards for the fish will be over an extended 2 year period. Also, a control group of net-pen held summer flounder will be established for each scientific group through the collection of pond net caught fish, from pond nets in close proximity to the net-pen. Therefore, an additional 1,200 summer flounder will be collected from the pond nets for the control group portion of the project.

Approximately 15 cooperating commercial vessels (research vessels) will need exemptions from minimum size restrictions and possession limits to possess a limited number of sublegal summer, flounder and a limited number of legal size summer flounder above the trip limit for scientific purposes only (tagging and transport for net-pen holding).

Additionally, approximately 25 vessels will be harvesting the RSA amounts allocated to the project. These vessels will need exemptions to closed seasons and trip limits for summer flounder. The most likely ports for landings will be in Rhode Island, New York, New Jersey, Virginia, and North Carolina.

Cornell Cooperative Extention will contact New York's DEC, Marine Fisheries Division to obtain New York State permits for possession of undersize fish in state waters, and for landing of the allocated RSA for the project.

06-RSA-002 – National Fisheries Institute "Bycatch Reduction and Gear Development in the Mid-Atlantic: Evaluation of Optimal Codend Mesh Size in the *Loligo* Fishery" Principal Investigator – Eric Powell

RSA Amount: 163,633 lbs (74,223 kg) Summer Flounder, 269,305 lbs (122,155 k) Scup, 40,358 lbs (18.306) Black Sea Bass, 331,000 lbs (150,139 kg) *Loligo*

Project Abstract: The project will address the significant discard issue in the small-mesh *Loligo* squid fishery. The project will evaluate the performance of intermediate codend mesh sizes above the present legal size of 1.875" and below 2.5". Researchers will also attempt to determine the influence of these intermediate mesh sizes on the catch of other species such as butterfish and silver hake and accompanying bycatch species as well as the primary target of the program, submarket size *Loligo* squid.

The project would continue and build upon Mid-Atlantic RSA project 04-RSA-002 which began February 1, 2005 and was designed to address escapement of submarket-size *Loligo* squid in the Loligo squid fishery.

Project Description: The project will use 2 similar vessels to test different mesh sizes in squid nets under commercial use. Exact tow number will depend on the time of each tow, which will be determined by the Captain during fishing. The project will conduct a total of 36 days at sea for up to 2 research vessels in the 75 to 100 ft (23 m to 30 m) range. Assuming a fishing trip of about 4 days dock to dock, this will provide for about 27 fishing days. Commercial vessels fishing for *Loligo* squid normally do not exceed 3- 4 tows per day. Thus, the field work would entail 108 to144 total tows (tows will not exceed 2-3 hours). The vessels conducting the research, preferably will be fishing in parallel, since this permits discriminating the time/location (always confounded) and boat effect statistically. Both vessels will use ABBA protocol, but offset, so all four comparisons can be made over a four tow sequence A1A2, B1B2,A1B2, and B1A2. The joint effort of the two vessels will be 54-72 tows paired tows per vessel, about 18 fishing days, and about 6 fishing trips for each vessel. Each vessel will carry a datalogger that will log vessel position and time in 1 minute intervals using GPS. Water temperature and depth data will be collected for every minute of tow time. Research scientists will be on board each vessel. The research protocol for handling the catch includes the measurement of catch weight for all caught species when possible, and using NMFS approved subsampling protocols when necessary to handle larger catches.

Field work is most likely to take place in February/March near the Hudson Canyon. High butterfish and silver hake discarding events in the *Loligo* fishery are recorded in the observer database in this area during January-March, but are much less common further south. Based on input from NMFS and Industry, field work may encompass a broader area in and/or near the Northern and Southern Gear Restricted Areas (Figure 2).

The legal mesh size for *Loligo* squid is 1.875 inches (4.76 cm). However, a 2.36-inch (6.0-cm) mesh is also commonly used. For this project mesh sizes of 2.125 (5.4 cm) and 2.25 inch (5.72 cm) will be tested against the legal mesh size.

The research vessel/s 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, Virginia, and North Carolina.

EFH Concerns
The area affected by the proposed action has been identified as EFH for species managed by the following FMPs: NE Multispecies; Atlantic Sea Scallop; Monkfish; Atlantic Herring; Summer Flounder, Scup, and Black Sea Bass; Squid, Atlantic Mackerel, and Butterfish; Spiny Dogfish; Atlantic Surfclam and Ocean Quahog; Atlantic Bluefish; Northeast Skates; and Atlantic Tunas, Swordfish, and Sharks Fishery Management Plans. 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.

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

North Atlantic Right Whale

Right whales have occurred historically in all the world's oceans from temperate to subarctic latitudes. NMFS recognizes three major subdivisions of right whales: North Pacific, North Atlantic, and Southern Hemisphere. NMFS further recognizes two extant subunits in the North Atlantic: eastern and western. 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 worlds oceans. The scarcity of right whales is the result of an 800-year history of whaling that continued into the 1960s (Klumov 1962). Historical records indicate that right whales were subject to commercial whaling in the North Atlantic as early as 1059. Between the 11th and 17th centuries, an estimated 25,000-40,000 right whales may have been harvested. The size of the western north Atlantic right whale population at the termination of whaling is unknown, but the stock was recognized as seriously depleted as early as 1750. However, right whales continued to be taken in shore-based operations or opportunistically by whalers in search of other species as late as the 1920's. By the time the species was internationally protected in 1935, there may have been fewer than 100 western north Atlantic right whales in the western Atlantic (Hain 1975; Reeves et al. 1992; Waring et al. 2002).

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 its 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 its 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 comprised

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 its 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; 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 and 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-1960s. 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 occur during 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 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 totaled 1,995 from 1904 to 1972. 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 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 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, (35.23oN-40.5oN), 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 farther 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 mark-recapture 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): $NMIN = N/\exp(0.842 \times [\ln(1+[CV(N)]2)]^{1/2})$. 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 List of Fisheries (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 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 gears 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 the summer of 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). 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 exceeded 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 reduces 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.

Loggerhead Sea Turtle

The loggerhead sea turtle occurs throughout the temperate and tropical regions of the Atlantic, Pacific and Indian Oceans (Dodd 1998). The loggerhead turtle was listed as "threatened" under the ESA on July 28, 1978, but is considered endangered by the World Conservation Union (IUCN) and under the Convention on International Trade in Endangered Species of Flora and Fauna (CITES). Loggerhead sea turtles are found in a wide range of habitats throughout the temperate and tropical regions of the Atlantic. These include open ocean, continental shelves, bays, lagoons, and estuaries (NMFS& FWS 1995).

Since they are limited by water temperatures, sea turtles do not usually appear on the summer foraging grounds in the Gulf of Maine until June, but are found in Virginia as early as April. They remain in these areas until as late as November and December in some cases, but the large majority leaves the Gulf of Maine by mid-September. 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).

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

The TEWG (1998) analysis also indicated the northern subpopulation of loggerheads is stable or declining. A recovery goal of 12,800 nests has been assumed for the Northern Subpopulation, but TEWG (1998) reported nest number at around 6,200 (TEWG 1998). More recently, the addition of nesting data from the years 1996, 1997 and 1998, did not change the assessment of the TEWG that the number of loggerhead nests in the Northern

Subpopulation is stable or declining (TEWG 2000). Since the number of nests has declined in the 1980's, the TEWG concluded that it is unlikely that this subpopulation will reach this goal given this apparent decline and the lack of information on the subpopulation from which loggerheads in the WNA originate. Continued efforts to reduce the adverse effects of fishing and other human-induced mortality on this population are necessary.

The most recent 5-year ESA sea turtle status review (NMFS & 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.

Hawksbill Sea Turtle

The following is a summary of information on the Hawksbill sea turtle made available by NMFS at the following website:
http://www.nmfs.noaa.gov/pr/species/turtles/hawksbill.html

The hawksbill occurs in tropical and subtropical seas of the Atlantic, Pacific and Indian Oceans. The species is widely distributed in the Caribbean Sea and western Atlantic Ocean, with representatives of at least some life history stages regularly occurring in southern Florida and the northern Gulf of Mexico (especially Texas); in the Greater and Lesser Antilles; and along the Central American mainland south to Brazil. Within the United States, hawksbills are most common in Puerto Rico and its associated islands, and in the U.S. Virgin Islands. In the continental U.S., the species is recorded from all the gulf states and from along the eastern seaboard as far north as Massachusetts, with the exception of Connecticut, but sightings north of Florida are rare.

The hawksbill is a small to medium-sized sea turtle. In the U.S. Caribbean, nesting females average about 62-94cm in straight carapace length. Weight is typically to 80 kg in the wider Caribbean, with a record weight of 127 kg. Hatchlings average about 42 mm straight carapace length and range in weight from 13.5-19.5 g. The following characteristics distinguish the hawksbill from other sea turtles: two pairs of prefrontal scales; thick, posteriorly overlapping scutes on the carapace; four pairs of coastal scutes; two claws on each flipper; and a beak-like mouth. The carapace is heart-shaped in very young turtles, and becomes more elongate or subovate with maturity. Its lateral and posterior margins are sharply serrated in all but very old individuals.

Hawksbills utilize different habitats at different stages of their life cycle. Posthatchling hawksbills occupy the pelagic environment, taking shelter in weedlines that accumulate

at convergence points. Hawksbills reenter coastal waters when they reach approximately 20-25 cm carapace length. Coral reefs are widely recognized as the resident foraging habitat of juveniles, subadults and adults. This habitat association is undoubtedly related to their diet of sponges, which need solid substrate for attachment. The ledges and caves of the reef provide shelter for resting both during the day and night. Hawksbills are also found around rocky outcrops and high energy shoals, which are also optimum sites for sponge growth. Hawksbills are also known to inhabit mangrove-fringed bays and estuaries, particularly along the eastern shore of continents where coral reefs are absent. In Texas, juvenile hawksbills are associated with stone jetties.

Hawksbills utilize both low- and high-energy nesting beaches in tropical oceans of the world. Both insular and mainland nesting sites are known. Hawksbills will nest on small pocket beaches, and, because of their small body size and great agility, can traverse fringing reefs that limit access by other species. They exhibit a wide tolerance for nesting substrate type. Nests are typically placed under vegetation.

The hawksbill turtle's status has not changed since it was listed as endangered in 1970. It is a solitary nester, and thus, population trends or estimates are difficult to determine. The decline of nesting populations is accepted by most researchers. In 1983, the only known apparently stable populations were in Yemen, northeastern Australia, the Red Sea, and Oman. Commercial exploitation is the major cause of the continued decline of the hawksbill sea turtle. There is a continuing demand for the hawksbill's shell as well as other products including leather, oil, perfume, and cosmetics. Prior to being certified under the Pelly Amendment, Japan had been importing about 20 metric tons of hawksbill shell per year, representing approximately 19,000 turtles. A negotiated settlement was reached regarding this trade on June 19, 1992. The hawksbill shell commands high prices (currently $225/kilogram), a major factor preventing effective protection.

Incidental catch of hawksbill turtles during fishing operations is an unquantified and potentially significant source of mortality. Gill nets, longlines and shrimp trawls all take turtles in Gulf of Mexico waters. The extent to which hawksbills are killed or debilitated after becoming entangled in marine debris are unknown, but it is believed to be a serious and growing problem. Hawksbills have been reported entangled in monofilament gill nets, "fish nets", fishing line and rope. Hawksbill turtles eat a wide variety of debris such as plastic bags, plastic and styrofoam pieces, tar balls, balloons and plastic pellets. Effects of consumption include interference in metabolism or gut function, even at low levels of ingestion, as well as absorption of toxic byproducts.

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 areas 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 20°C 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 mollusks, crustaceans (amphipods, chironomids, isopods), and oligochaete worms (Vladykov and Greeley 1963; Dadswell 1979). Shortnose sturgeon are long-lived (30 years) and mature at relatively old ages. In northern areas, males reach maturity at 5-10 years, while females reach sexual maturity between 7 and 13 years.

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

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

Shortnose sturgeon spawn in freshwater sections of rivers, typically below the first impassable barrier on the river (e.g., dam). Spawning occurs over channel habitats containing gravel, rubble, or rock-cobble substrates (NMFS 1998). 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. Piping plover are listed as threatened and their critical habitat includes prairie alkali wetlands and surrounding shoreline; river channels and associated sandbars and islands; and reservoirs and inland lakes and their sparsely vegetated shorelines, peninsulas, and islands. These areas provide primary courtship, nesting, foraging, sheltering, brood-rearing and dispersal habitat for piping plovers.

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.