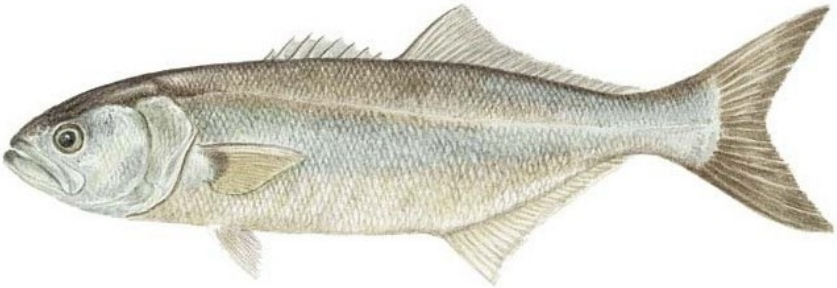
2011
Bluefish Specifications, Environmental Assessment, Regulatory Impact Review, and Initial Regulatory Flexibility Analysis



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1.0 EXECUTIVE SUMMARY

The purpose of this action is to analyze bluefish management measures for fishing year 2011 and to establish that the proposed measures will ensure that the annual fishing mortality target specified in the Bluefish Fishery Management Plan (FMP) will not be exceeded. The 2011 management measures include total annual landings (TAL), a commercial quota and annual recreational harvest limit (RHL), as well as a recreational bag limit. According to the FMP, the TAL is initially split with 17 percent going to the commercial quota and 83 percent available for recreational harvest. If recreational landings in the upcoming year are expected to be less than 83 percent of the TAL, then a "transfer" of quota can be made to increase the commercial allocation. For the 2011 bluefish fishing year, the Council reviewed a range of management alternatives and received public comments on those alternatives. Additionally, the Council took into consideration recommendations from its Scientific and Statistical Committee (SSC) and Bluefish Monitoring Committee.

Based on the updated estimate of bluefish stock biomass (June 2010), the bluefish stock is not considered overfished: Biomass in 2009 (B_{2009}), estimated at 343.901 M lb (million pounds; 155,991 mt), is greater than the minimum biomass threshold = 162.096 M lb (73,525.5 mt) and is actually above the biomass target (324.192 M lb or 147,051 mt). Biomass has been above the target since 2007 and the bluefish stock was formally declared rebuilt by the National Marine Fisheries Service (NMFS) in October 2009. The assessment update also concluded that the Atlantic stock of bluefish is not experiencing overfishing; i.e., the fishing mortality rate in 2009 (F_{2009} = 0.10) is less than the maximum F overfishing threshold ($F_{threshold}$ = 0.19) specified by the 41st stock assessment review committee (SARC-41). There are various sources of scientific uncertainty associated with the updated stock assessment. For example, the SSC noted that most of the uncertainty relates to the data used to establish the age-length key (ALK), a central source of information for developing the catch-at-age (CAA) matrix that the age-structured assessment program (ASAP) model attempts to replicate; the SSC also noted that assumptions about mean weights at age could have significant implications on total biomass relative to the biomass target Given this scientific uncertainty, the Monitoring Committee and SSC recommended setting total allowable catch (TAC) for 2011 at a level consistent with the status quo target fishing mortality rate (F = 0.15). The Council responded in kind and recommended management measures consistent with target F =0.15. The various management alternatives considered by the Council are briefly characterized below. Under all of the alternatives, a status quo recreational bag limit of 15 fish would remain in place for 2011.

Alternative 1 (preferred) specifies a TAC of 31.744 M lb, which is projected to achieve target F in 2011. Subtracting average discards for 2007-2009 (4.451 M lb) from the TAC generates a TAL of 27.293 M lb. The TAL under this alternative would result in an initial commercial quota of 4.640 M lb and an RHL of 22.653 M lb. It is assumed that recreational landings in 2011 will approximate average 2007-2009 recreational landings (17.882 M lb). Under this scenario, a transfer of quota to the commercial fishery would be allowable (see 1st paragraph) since projected recreational landings (17.882 M lb) are less than 83 percent of the TAL (projected recreational landings are 66 percent of the TAL). The Council recommended a transfer of 4.772

M lb; this would result in an adjusted commercial quota of 9.411 M lb and an RHL of 17.882 M lb.

Adjusting these values for research set-aside (RSA[1]; 0.819 M lb) would result in a Council-adjusted commercial quota of 9.129 M lb and an RHL of 17.345 M lb. The Council-adjusted commercial quota under this alternative (9.129 M lb) represents an 11 percent decrease in available commercial landings compared to 2010 (quota = 10.213 M lb) and a 31 percent increase compared to complete year 2009 commercial landings (6.526 M lb). The Council-adjusted recreational harvest limit under this alternative (17.345 M lb) represents a 7 percent decrease in available recreational landings compared to 2010 (RHL = 18.631 M lb) and a 31 percent increase compared to actual 2009 recreational landings (13.583 M lb). It is important to note that the RSA amount used to evaluate the alternatives presented in this document is the maximum RSA allowed (3 percent of the TAL). The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete.

It is also important to note that projected recreational landings for 2011 were based on average (2007-2009) recreational landings. Generally, an algorithm is used to estimate recreational harvest for an upcoming year based on an assumption of constant [proportional] landings by wave in the fishery. Under this assumption, the recreational bluefish landings from the complete waves in a given year (L_t) are divided by the proportion of total recreational landings comprised by those previous n years (P_{t-n}). The ratio (L_t/P_{t-n}) is used to project total recreational landings for the current year, and these landings, it was assumed, would be continued into the subsequent fishing year. The data presented to the Monitoring Committee and Council for discussion had landings data available for waves 1 and 2 of 2010. Landings for waves 1 and 2 comprise less than 5% on average of the total recreational landings since 2000. Therefore, it is suggested that this type of projection be postponed until more complete data are available. In the meantime, it is suggested that average recreational landings for 2007-2009 be used until a projection can be made. It is likely that updates of recreational landings projections completed by NMFS during rulemaking (and when more data are available, e.g., following wave 5 of the Marine Recreational Fishery Statistics System (MRFSS data) will result in transfers different from those presented in this specifications package. Landings data available at the submission of this document are through waves 4 of 2010 (9.177 M lb) and are about 97% of wave 1-4 landings from 2009 (9.462 M lb) where total annual landings were 13.583 M lb.

Alternative 2 reflects the Council's option to not recommend a transfer of bluefish landings from the recreational to the commercial fishery. Under this alternative, the initial 17 / 83% split of the TAL between the commercial and recreational fisheries, respectively, would be maintained. This would result in a commercial quota of 4.640 M lb and an RHL of 22.653 M lb. Recreational landings at this level would constitute an increase of 67% in 2011 relative to their

[1] For analysis of the alternatives in this specifications document, the research set-aside (RSA) amount deducted from each TAL is 3 percent of the TAL. See section 5.0 for further discussion.

2009 level (13.583 M lb). This is considered unlikely since recreational landings have declined each year since 2007. Commercial landings, on the other hand have been fairly stable around 7 M lb since 2000. As such, constraining the commercial fishery to 4.640 M lb would likely reduce overall landings relative to Alternative 1. Adjusting these values for RSA (0.819 M lb) would result in a Council-adjusted commercial quota of 4.501 M lb and an RHL of 21.974 M lb. The absence of a quota transfer under this alternative would result in decreased commercial fishing opportunity compared to 2010, and is therefore associated with a higher probability of commercial revenue losses compared to Alternative 1 (preferred).

Alternative 3 (No Action) is considered to be synonymous with "status quo" management measures for 2010 since the alternative interpretation (failure to specify management measures) would be in violation of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA. Therefore, Alternative 3 would maintain the 2010 TAL (29.264 M lb) and the transfer of 5.387 M lb from the recreational to the commercial fishery. This results in a commercial quota of 10.362 M lb and an RHL of 18.902 M lb which are further reduced to 10.051 M lb and 18.335 M lb, respectively to accommodate the 3% RSA (0.878 M lb). Working backwards to calculate a TAC under status quo management measures, the revised discards estimate for 2011 (4.451 M lb) would be added to the TAL to get a TAC of 33.715 M lb. This is slightly lower than the TAC that was specified for 2010 (34.376 M lb). This alternative is not recommended by the Council because the TAC reflects catch above the level associated with the SSC-recommended acceptable biological catch (ABC).

Alternatives 4.1 and 4.2: Research Set-Aside Alternatives

Alternative 4.1 would not accommodate any RSA projects in 2011 through a deduction of the specified TAL (i.e., No Action Alternative). Alternative 4.2, however, would specify a maximum RSA of 3 percent of the bluefish TAL for 2011 (0.819 and 0.878 M lb, the former under quota Alternatives 1 and 2, and the latter under Alternative 3). It is not expected that Alternative 4.2 would change the level of fishing effort, cause effort to be redistributed by gear type, or change the manner in which the bluefish fisheries are prosecuted since the RSA is a subset of overall quota, not an addition to it. In addition, knowledge gained through the research may benefit resources and the fishery in the longer term which makes Alternative 4.2 generally more positive.

Impacts of the Alternatives

Impacts to the bluefish stock and other biological or physical resources are related to potential changes in landings and fishing effort relative to current conditions such that marginally negative impacts are expected as landings and effort increase. None of the alternatives, however, is associated with negative impacts because none of the alternatives are expected to increase landings. Alternative 1 (preferred) is associated with a 7% decrease in total allowable landings relative to the current specification year. A decrease in total landings beyond the 7% decrease associated with the TAL is expected under Alternative 2 because the absence of a transfer would

likely result in early closure of the commercial fishery. Alternative 3 is, by definition, associated with maintaining status quo landings and effort.

With regard to impacts to human communities, Alternative 2 would negatively affect the commercial bluefish fishery since it decreases fishing opportunities compared to Alternatives 1 and 3. The magnitude of any economic impacts will range among individuals according to the relative importance of revenue from bluefish harvest compared to all other revenue sources and cumulatively to the degree that other revenue losses occur.

Note: It is possible that future updates of recreational landings projections completed by NMFS (when more data is available, e.g., following wave 5 of the MRFSS data) could result in adjustment transfers different from those presented in this specifications package. Furthermore, the actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete.

Cumulative Impacts

The Council analyzed the biological, habitat (i.e., essential fish habitat - EFH), protected resources, social and economic impacts of the Council-considered alternatives. When the proposed action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future fishing and non-fishing actions, it is not expected to result in any significant impacts, positive or negative; therefore, there are no significant cumulative effects associated with the action proposed in this document (section 7.5 of the EA).

Box ES-1 presents a qualitative summary of the expected direct and indirect impacts of the various alternatives. The environmental impacts of the proposed measures were analyzed and the anticipated level of significance of these impacts is discussed in accordance with the National Environmental Policy Act (NEPA) and National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6, "Environmental Review Procedures for Implementing the National Environmental Policy Act." This action builds on actions taken in the original Bluefish FMP, Amendment 1, and the annual specification process for the 2010 fishing year. Based on the information and analyses presented in these documents and this document, there are no significant cumulative effects associated with the proposed 2011 bluefish specifications.

Box ES-1. Overall qualitative summary of the expected direct and indirect impacts of various alternatives considered in this document as compared to status quo. A minus sign (-) signifies an expected negative impact, a plus sign (+) signifies a positive impact, a plus/minus (+/-) is used for mixed impact, a zero is used for null impact.					
	Environmental Dimension				
	Biological	**Habitat/ EFH [a]**	**Protected Resources**	**Economic**	**Social**
Alternative 1 (2nd Least Restrictive Commercial Quota)	+	0	0	+	+
Alternative 2 (No Transfer – Most Restrictive Commercial Quota)	+	0	0	-	-
Alternative 3 (No Action, Status Quo, Least Restrictive Commercial Quota)	+	0	0	+/-	+/-
Alternative 4.1 (No RSA/No Action)	0	0	0	0	0
Alternative 4.2 (*Preferred*; RSA up to 3 percent of TAL)	0	0	0	0	+/-
[a]If an increase in the TAL results in an increase in bottom-gear contact time, there would be a potential for a slightly higher negative impact to this VEC.					

Conclusions

A detailed description and discussion of the expected environmental impacts resulting from each of the alternatives, as well as any cumulative impacts, considered in this specifications document are provided in section 7.0 of the EA. Alternative 1 is the Council-preferred alternative because conservation requirements of the FMP would be met, while maintaining economic and social benefits to the human communities. None of the Council-preferred action alternatives are associated with significant impacts to the biological, social or economic, or physical environment individually or in conjunction with other actions under NEPA; therefore, a "Finding of No Significant Impact" is determined.

2.0 LIST OF ACRONYMS

A+B1+B2	Total estimated recreational catch from MRFSS (definition of MRFSS below), where "A" is landings that were observed and measured by a MRFSS field operator and "B1" is landings that were reported, but not measured. "B2" is catch that was discarded (reported, and obviously not measured)
ABC	Acceptable Biological Catch
ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ACL	Annual Catch Limits
ALK	Age-Length Key
ASAP	Age Structured Assessment Program
ASMFC	Atlantic States Marine Fisheries Commission or Commission
B	Biomass (may be used in conjunction with various subscripts, i.e., "target", "msy", “2009”, etc)
BDTRP	Bottlenose Dolphin Take Reduction Plan
CAA	Catch-at-Age
CEQ	Council on Environmental Quality
CPUE	Catch Per Unit Effort
CV	Coefficient of Variance
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 (may be used in conjunction with various subscripts, i.e., "target", "msy", etc)
FR	Federal Register
FRFA	Final Regulatory Flexibility Analysis
FMP	Fishery Management Plan
GRA	Gear Restricted Area
GRT	Gross Registered Tonnage
HPTRP	Harbor Porpoise Take Reduction Plan
IRFA	Initial Regulatory Flexibility Analysis
LOF	List of Fisheries
LTPC	Long-term Potential Catch
LWTRP	Large Whale Take Reduction Plan
M	Natural Mortality Rate
MA	Mid-Atlantic
MAFMC	Mid-Atlantic Fishery Management Council
MARMAP	Marine Resources Monitoring, Assessment, and Prediction
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
MU	Management Unit
N	Number (often associated with various subscripts)
NAO	NOAA Administrative Order
NE	New England
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	NOAA's National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	Optimal Yield
PBR	Potential Biological Removal
ppt	Parts Per Thousand
PRA	Paperwork Reduction Act
PREE	Preliminary Regulatory Economic Evaluation
RHL	Recreational Harvest Limit
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
SMA	Small Business Administration
SSB	Spawning Stock Biomass
SSC	Scientific and Statistical Committee
SFA	Sustainable Fisheries Act
TAC	Total Allowable Catch
TAL	Total Allowable Landings
TED	Turtle Excluder Device
TL	Total Length
USFWS	U.S. Fish and Wildlife Service
VEC	Valuable Ecosystem Component
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis
VTR	Vessel Trip Report
WNA	Western North Atlantic

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4.0 INTRODUCTION AND BACKGROUND OF SPECIFICATION PROCESS

4.1 Purpose and Need of the Action

The purpose of this action is to analyze bluefish management measures for fishing year 2011 and to establish that the proposed measures will ensure that the annual fishing mortality target specified in the bluefish Fishery Management Plan (FMP) will not be exceeded. The 2011 management measures include total allowable landings (TAL), a commercial quota and annual recreational harvest limit, as well as a recreational possession limit. The Council met jointly with the Atlantic States Marine Fisheries Commission's Bluefish Board and recommended the proposed measures at their August 2010 meeting.

The need for this action is to set the annual fishing control measures to maintain commercial and recreational fisheries while adequately minimizing the risk of overfishing the bluefish stock. Without these control measures, unregulated fishing for bluefish may increase to the point that could ultimately lead to an overfished stock.

The bluefish fisheries in U.S. waters of the western Atlantic Ocean are managed under the Bluefish FMP that was prepared cooperatively by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission). The plan was approved by the National Marine Fisheries Service (NMFS) in March 1990 and adopted by the Commission in October 1989. The FMP was amended in 1999 to bring it into compliance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1976 as amended by the Sustainable Fisheries Act (SFA) and the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). The SFA requires that the management measures proposed in a FMP be consistent with ten national standards for fishery conservation and management. Under ACFCMA, if a state does not implement management measures required by an FMP or amendment, the Federal government may impose a moratorium on the landing of the species covered by the FMP in that state.

Comprehensive measures enacted by Amendment 1 to the Bluefish FMP (MAFMC 1999; the final rule became effective in August 2000; 50 CFR Part 902) were designed to rebuild the bluefish stock. Amendment 1 regulations require that a commercial quota and recreational harvest limit be based on projected stock size estimates as derived from the latest stock assessment information. Estimates of stock size coupled with the target fishing mortality rate allow for a calculation of total allowable catch (TAC). This is reduced by recent discards levels to calculate total allowable landings (TAL). Based on the historic proportion of commercial and recreational landings for the period 1981 to 1989, 17 percent of the TAL is allocated to the commercial fishery. Amendment 1 stipulates that if 17 percent of the TAL is less than 10.500 M lb, then the commercial quota can be increased up to 10.500 M lb if the recreational fishery is projected to land less than 83 percent of the TAL for the upcoming year and provided that the combination of the projected recreational landings and the commercial quota does not exceed the TAL. The recreational harvest limit would then be adjusted downward so that the TAL would be unchanged.

The Amendment also established a Monitoring Committee (MC) which meets annually to review the best available data and make recommendations regarding the TAL and other management measures in the plan. The MC's recommendations are intended to achieve the target fishing mortality rate established in the amendment to reduce overfishing. The MC bases its review and recommendations on best available data including, but not limited to, commercial and recreational catch/landing statistics, current estimates of fishing mortality, stock abundance, discards for the recreational fishery, and juvenile recruitment. This year, the MC's review was informed by the recommendations of the Council's SSC. The SSC met prior to the MC in accordance with the Magnuson-Stevens Reauthorization Act (MSRA) which places greater emphasis on the SSC's involvement in the management process.

Based on the recommendations of the SSC and the MC, the Council's Bluefish Committee makes a recommendation to the Council which in turn makes a recommendation to the Regional Administrator. The NMFS 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 Bluefish Board (Board) adopts complementary measures.

Framework Adjustment 1 to the Bluefish FMP, which was approved by NMFS on August 10, 2001 (66 FR 42156), established a procedure through which RSA amounts would be set annually as part of Council's quota-setting process. The research is to support the collection of new information that will benefit both the commercial and recreational fisheries for this species. The program encourages collaborative efforts among the public, research institutions, and the government subsidized by a percentage set-aside from the TAL of selected species, including bluefish, under management by the Council.

4.2 Management Objectives of the FMP

1) Increase understanding of the stock and of the fishery;
2) Provide the highest availability of bluefish to U.S. fishermen while maintaining, within limits, traditional uses of bluefish;
3) Provide for cooperation among the coastal states, the various regional marine fishery management councils, and Federal agencies involved along the coast to enhance the management of bluefish throughout its range;
4) Prevent recruitment overfishing; and
5) Reduce the waste in both the commercial and recreational fisheries.

To attain these management objectives, the FMP (as modified by Amendment 1) specifies the following measures that may be specified annually:

- Permit and reporting requirements for commercial fishermen, dealers, and party/charter boat operators.
- Commercial fish size limitations and minimum mesh requirements.
- Commercial quota with state allocations.
- *De minimus* specifications for the commercial quota.
- Recreational size, possession, and seasonal limits.
- A recreational harvest limit.

4.3 Methods of Analysis

The basic approach adopted in this analysis is an assessment of various management measures from the standpoint of determining the impacts upon the environment. This includes impacts with and without a deduction landings limits to accommodate the likely RSA allocation. The NMFS Quota Report as of the week ending August 31, 2010 indicated that bluefish commercial landings were well within the 2010 coast-wide quota for (42 percent of quota landed). It is anticipated that the commercial quota will not be exceeded in 2010, and therefore; discussion of the 2011 commercial quotas in this document does not include an adjustment for overages.

Box 4.3.1 describes the alternatives for bluefish including the Council-preferred alternative (specified at the August 2010 Council meeting), a status quo alternative, and any additional alternatives under consideration. These recommendations and their impacts relative to 2009 landings are shown in Box 4.3.2.

The MSA requires each Council establish an SSC to assist it by providing it with, among other things, ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch (ABC), preventing overfishing, and maximum sustainable yield. The FMP established a Monitoring Committee which annually review the best available scientific information and provide recommendations regarding annual specifications for this species. The Monitoring Committee crafts recommendations and considers a broad range of relevant information which may include, but is not limited to, stock status updates from the most recent stock assessment; estimates of fishing mortality; recruitment, landings and catch information; and impacts of specific commercial and recreational fishery regulations (i.e., fish size, possession limits, and seasonal closures), including non-compliance rates for those regulations.

Each Council must then develop catch levels that do not exceed the fishing level recommendations of its SSC or its peer review process. Based on SSC and Monitoring Committee's recommendations, the Council makes a recommendation to the NMFS Northeast Regional Administrator. The Regional Administrator reviews the recommendation forwarded through this specifications document and may revise it if necessary to achieve FMP objectives and statutory requirements. Because the FMP is cooperatively managed with the Commission, the Commission's Bluefish Board (Board) typically adopts complementary measures. The Council met jointly with the Board in August 2010 and recommended complementary management measures for bluefish for 2011.

This specifications document serves a dual purpose, as it is a vehicle to convey the Council recommendations to the Regional Administrator. It also serves as a decision document for the Regional Administrator, who reviews the analysis of impacts of the various management alternatives presented here and determines which alternative achieves the FMP objectives as well as the objectives and statutory requirements under MSA and other applicable law.

This environmental assessment (EA) examines the impacts of each proposed action on the affected environment. The aspects of the affected environment that are likely to be directly or indirectly affected by the actions proposed in this document are described as *valued ecosystem components* (VECs; Beanlands and Duinker 1984). These VECs comprise the affected environment and are specifically defined as the managed resources (bluefish) and any non-target species; habitat, including essential fish habitat (EFH) for the managed resource and non-target species; endangered and protected resources; and any human communities (social and economic aspects of the environment). The impacts of the alternatives are evaluated with respect to these VECs.

To conduct a concise analysis of each of the quota alternatives, an RSA amount is deducted from the TAL for each alternative. Framework 1 to the FMP established a procedure through which research set-aside amounts up to 3 percent are set annually as part of the Council's quota-setting process, to support collaborative research projects among the public, research institutions, and NMFS. The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects, but cannot exceed 3 percent of the TAL. Therefore, the maximum 3 percent RSA was analyzed for each alternative and reduced impacts would be anticipated with RSA amounts less than the maximum allowable 3 percent. While the Council-adjusted TALs given in this document deduct RSA, they were not adjusted for 2010 partial-year overages. NMFS will adjust quotas based on updated information on overages (and final approved RSA projects) as part of the final rule that implements the 2011 specifications late in 2010 when the data are more complete.

It is also important to stress that projected recreational landings from 2011 were used to compare the Council-adjusted recreational harvest limit for 2011 to projected landings for that year and potential quota transfers from the recreational fishery to the commercial fishery. Generally, an algorithm is used to estimate recreational harvest for an upcoming year based on an assumption of constant [proportional] landings by wave in the fishery. Under this assumption, the

recreational bluefish landings from the complete waves in a given year (L_t) were divided by the proportion of total recreational landings comprised by those previous n years (P_{t-n}). The ratio (L_t/P_{t-n}) was used to project total recreational landings for the current year, and these landings, it was assumed, would be continued into the subsequent fishing year. The data presented to the Monitoring Committee and Council for discussion had landings data available for waves 1 and 2 of 2010. Landings for waves 1 and 2 comprised an average 4.9% of the total recreational landings since 2000. It is suggested that this type of projection be postponed until more complete data are available. In the meantime, it is suggested that average recreational landings for 2007-2009 (17.882 M lb) be applied to 2011 for calculation of the recreational harvest limit (RHL) as a placeholder until a projection can be made. 2009 landings (13.583 M lb) are not suggested for use since recreational landings dropped 28% relative to the previous year.

All management alternatives under consideration for bluefish were analyzed for 2011 only. A full description of each of these alternatives, including a discussion of a No Action Alternative, is given in section 5.0 of the EA.

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Box 4.3.1. Comparison of the alternatives under consideration in this specification package. All units are in pounds.						
Alternative	**2011 Initial TAL**	**2011 Initial Commercial Quota**	**2011 Initial Recreational Harvest Limit**	**2011 Research Set-Aside[a]**	**2011 Council-Adjusted Commercial Quota[b]**	**2011 Council-Adjusted Recreational Harvest Limit**
Alternative 1 (Preferred Alternative)						
2nd Least Restrictive Comm. Quota	27,293,228	4,639,849	22,653,379	818,797	9,129,068	17,345,363
Alternative 2 (No Transfer)						
Most Restrictive Comm. Quota	27,293,228	4,639,849	22,653,379	818,797	4,500,654	21,973,778
Alternative 3 (Status Quo/No Action)						
Status Quo TAL - Least Restrictive Comm. Quota	29,264,161	4,974,907	24,289,253	877,925	10,051,112	18,335,124

[a]Note that this RSA amount represents 3 percent of the TAL associated with the respective alternative; therefore, the conditionally-approved project amounts may be less than or equal to this value.

[b]Note that the Council-adjusted quotas are provisional and may be modified in the NMFS final rule to account for 2010 overages and/or transfers when 2010 data are more complete.

Box 4.3.2. Commercial quotas under each alternative compared to actual 2009 landings.		
	Council-Adjusted 2011 Commercial Quota (lb)	**Percent Change compared to 2009 landings (6,525,642 lb)**
Alternative 1 (Preferred Alternative)		
2nd Least Restrictive Comm. Quota	9,129,068	+ 41%
Alternative 2 (No Transfer)		
Most Restrictive Comm. Quota	4,500,654	- 31%
Alternative 3 (Status Quo/No Action)		
Status Quo TAL - Least Restrictive Comm. Quota	10,051,112	+56%

5.0 MANAGEMENT ALTERNATIVES

According to the FMP, the bluefish TAL is initially split with 17 percent designated as commercial quota and 83 percent as recreational harvest. If recreational landings in the upcoming year are expected to be less than 83 percent of the TAL, then a "transfer" of quota can be made to increase the commercial allocation. Additionally, according to the FMP, up to 3 percent of the TAL can be allocated as RSA. If a project is approved that requests a bluefish RSA, the approved amount is deducted proportionally from the commercial quota and recreational harvest limit. Nevertheless, the RSA alternatives presented in this document are independent actions and not alternatives to the management actions considered in Alternatives 1 through 3.

The most recent stock assessment update (Shepherd and Nieland 2010) resulted in an estimate of bluefish biomass for 2009 that is above B_{MSY} (B_{MSY} = 147,051 mt; B_{2009} = 155,991 mt). 2009 is the third consecutive year in which the stock has been above the B_{MSY} target. In October 2009, the Council was formally informed of the rebuilt status of the bluefish stock via a letter from the NMFS Northeast Regional Administrator.

After reviewing the assessment results, the Council's SSC made note of several sources of uncertainty in some of the assessment model data inputs. Given the scientific uncertainty, the SSC and monitoring committee recommended setting total allowable catch (TAC) for 2011 at a level consistent with maintaining the status quo target fishing mortality rate (F = 0.15) rather than increasing F target to the level specified in the FMP for a recovered stock (90%F_{MSY}; F = 0.17). The Council responded in kind and recommended management measures consistent with the more risk-averse target F (0.15).

The various management alternatives considered by the Council are characterized below. Under all of the alternatives, a status quo recreational bag limit of 15 fish would remain in place for 2011. The Council did not believe that any benefit to the stock or recreational fishing community would be achieved by either decreasing or increasing the bag limit.

5.1 Alternative 1 (Preferred Alternative)

Alternative 1 specifies a TAC of 31.744 M lb, which is projected to achieve target F in 2011. Subtracting average discards for 2007-2009 (4.451 M lb) from the TAC generates a TAL of 27.293 M lb. Estimated recreational landings for 2010 are 17.882 M lb (section 4.3 of the EA). Under this scenario, a transfer of quota to the commercial fishery would be allowable (see 1st paragraph) since the projected recreational landings (17.882 M lb) are less than 83 percent of the TAL (projected recreational landings are 66 percent of the TAL). The TAL under this alternative would result in an initial commercial quota of 4.640 M lb and an RHL of 22.653 M lb. The Council recommended a transfer of 4.772 M lb; this would result in an adjusted commercial quota of 9.411 M lb and an RHL of 17.882 M lb.

Adjusting these values (post transfer commercial quota and recreational harvest limit) for the maximum allowable 3% research set-aside (RSA; 0.819 M lb) would result in a Council-adjusted commercial quota of 9.129 M lb and an RHL of 17.345 M lb. The Council-adjusted commercial quota under this alternative (9.129 M lb) represents an 11 percent decrease in available commercial landings compared to 2010 (quota = 10.213 M lb) and a 31 percent increase compared to complete year 2009 commercial landings (6.990 M lb). The Council-adjusted recreational harvest limit under this alternative (17.882 M lb) represents a 4 percent decrease in available recreational landings compared to 2010 (RHL = 18.631 M lb) and a 31 percent increase compared to actual 2009 recreational landings (13.583 M lb). It is important to stress that the RSA amount used to evaluate the alternatives presented in this document is the maximum RSA allowed (3 percent of the TAL) to support collaborative research projects among the public, research institutions, and NMFS. The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete.

5.2 Alternative 2 – (Non-Preferred Alternative; No Transfer)

Alternative 2 reflects the Council's option to not recommend a transfer of bluefish landings from the recreational to the commercial fishery. Had this option been exercised, the initial 17 / 83% split of the TAL between the commercial and recreational fisheries, respectively, would be maintained. This would result in a commercial quota of 4.640 M lb and an RHL of 22.653 M lb. Recreational landings at this level would constitute an increase of 67% in 2011 relative to their 2009 level (13.583 M lb). This is not expected to occur since recreational landings have declined each year since 2007. Commercial landings, on the other hand have been fairly stable around 7 M lb since 2000. As such, constraining the commercial fishery to 4.640 M lb would likely reduce overall landings relative to Alternative 1. Adjusting these values for RSA (0.819 M lb) would result in a Council-adjusted commercial quota of 4.501 M lb and an RHL of 21.974 M lb. The absence of a quota transfer under this alternative would result in decreased commercial fishing opportunity compared to 2009, and is therefore associated with a higher probability of commercial revenue losses compared to Alternative 1 (preferred).

5.3 Alternative 3 - (Non-Preferred Alternative; Status Quo/No Action)

Alternative 3 (No Action) is considered to be synonymous with "status quo" management measures for 2010 since the alternative interpretation (failure to specify management measures) would be in violation of the MSFCMA. Therefore, Alternative 3 would maintain the 2010 TAL (29.264 M lb) and the transfer of 5.387 M lb from the recreational to the commercial fishery. This results in a commercial quota of 10.362 M lb and an RHL of 18.902 M lb which are further reduced to 10.051 M lb and 18.335 M lb, respectively to accommodate the 3% RSA (0.878 M lb). Another approach would be to apply the status quo RSA (419,750 lb), however, this is a quota alternative, not an RSA alternative, and status quo RSA would be inconsistent with the Council's recommendation for up to 3% of the TAL. Working backwards to calculate a TAC under status quo management measures, the revised discards estimate for 2011 (4.451 M lb)

would be added to the TAL to get a TAC of 33.715 M lb. This is slightly lower than the TAC that was specified for 2010 (34.376 M lb). This alternative is not recommended by the Council because the TAC reflects catch above the level associated with the SSC-recommended ABC.

5.4 Research Set-Aside Alternatives

Framework Adjustment 1 to the Bluefish FMP established a program in which research projects can be funded through the sale of fish that has been set-aside from the total annual quota. Through the Mid-Atlantic RSA Program, the Council encourages collaborative efforts among the public, research institutions, and government agencies in broadening the scientific base upon which management decisions are made. Reserving a small portion of the annual harvest as RSA quota to subsidize the research costs of vessel operations and scientific expertise is considered an important investment in the future of the nation's fisheries.

In addition, the Mid-Atlantic RSA Program assures that research endeavors selected and funded under this program will receive the peer-review and analysis necessary to be utilized in improving the management of public fisheries resources. The annual RSA amount may vary between 0 and 3 percent of each species' quota. For those species that have both a commercial quota and an RHL, the set-aside calculation shall be made from the combined TAL.

5.4.1 Alternative 4.1 - No Research Set-Aside (No Action)

Under this alternative, no RSA will be implemented for bluefish in 2011. Thus, the quotas and RHL would not be adjusted downward for the RSAs.

5.4.2 Alternative 4.2 - Specify a Research Set-Aside for 2011 (Preferred/Status Quo Alternative)

The Council has recommended that 3 percent of the 2011 bluefish TAL, which is 818,797 lb (371 mt), be set-aside to fund projects selected under the 2011 Mid-Atlantic RSA Program. The project selection and award process for the 2011 Mid-Atlantic RSA Program has not concluded and therefore, the bluefish research quota award is not known. NMFS will return any un-awarded set-aside amount to the commercial fishery either through the 2011 bluefish specification rulemaking process or through the publication of a separate notice in the *Federal Register* notifying the public of a quota adjustment.

In order to expedite the implementation of the 2011 Mid-Atlantic RSA Program, the environmental impact of this program and the selected projects are analyzed in this document. With the exception of the research activities of Project #2, for which the NEPA and Endangered Species Act analysis occurred through a separate EA completed April 20, 2010, and a Section 7 Consultation completed April 13, 2010, this document analyzes all research activities, compensation fishing activities, and regulatory exemptions with respect to the bluefish FMP. MSA requires that interested parties are provided an opportunity to comment on all proposed exempted fishing permits. Potential environmental impacts of this program on summer flounder,

scup, black sea bass, *Ilex, Loligo*, butterfish, and Atlantic mackerel are addressed in those respective specification documents. Additional consultation and analysis with respect to NEPA, ESA, MSA, and other applicable law may be necessary if the statement of work changes or additional exemptions are requested.

6.0 DESCRIPTION OF AFFECTED ENVIRONMENT

The Valued Ecosystem Components (VECs) affected by the alternatives include the biological components of the environment including the managed resource (bluefish) and other non-target species. The other VECs described below are habitat including EFH, endangered and protected resources, and human communities/socio-economic environment, all of which are described below.

6.1 Description of the Managed Resource

6.1.1 Landings

The commercial and recreational fisheries for bluefish are fully described in section 2.3 of Amendment 1 to the Bluefish FMP (MAFMC 1999). Among these two fishery sectors, the recreational fishery has consistently been the larger. For the 1981 through 2009 period, recreational landings have ranged from 86 percent of total landings in 1986 to 53 percent in 1999. On average for the 2005 through 2009 period, recreational landings represented 72 percent of the total landings for this species (Table 1). The absolute magnitude of landings has varied much more in the recreational fishery than in the commercial fishery. In 1981, estimated recreational landings were 95.288 M lb. A protracted decline reduced recreational harvest to less than one tenth that amount (8.253 M lb) by 1999 although no recreational harvest limits were in place during that period. Over the same time period, commercial landings decreased as well, but only by a factor of two (16.454 M lb in 1981; 7.309 M lb in 1999). In recent years (1999-2008), recreational landings have generally increased; while commercial landings have remained more or less stable (Table 1). Recreational landings in 2009 represented a 28% decline compared to 2008. It is not clear what caused the decline.

6.1.2 Status of the Stock

The most recent benchmark stock assessment for bluefish was conducted in June 2005 and was peer-reviewed by the 41st SARC (NEFSC 2005). An "age-structured assessment program" (ASAP model) was used to estimate bluefish fishing mortality and biomass as well as update the biological reference points. According to the assessment, bluefish were not overfished (B_{2004} = 104,136 mt which is greater than the minimum biomass threshold or ½ B_{MSY} = 73,526 mt) and overfishing was not occurring (F_{2004} = 0.15 which is less than the maximum fishing mortality threshold or F_{MSY}= 0.19).

Based on the updated assessment of bluefish stock biomass (Shepherd and Nieland 2010), the bluefish stock is not considered overfished: Biomass in 2009 (B_{2009}), estimated at 343.901 M lb

(million pounds; 155,991 mt), is greater than the minimum biomass threshold = 162.096 M lb (73,525.5 mt) and is actually above the biomass target (324.192 M lb or 147,051 mt). Biomass has been above the target since 2007 and the bluefish stock was formally declared rebuilt by NMFS NERO in October 2009. The assessment update also concluded that the Atlantic stock of bluefish is not experiencing overfishing; i.e., the fishing mortality rate in 2009 ($F_{2009} = 0.10$) is less than the maximum F overfishing threshold ($F_{threshold} = 0.19$) specified by SARC-41. There are various sources of scientific uncertainty associated with the updated stock assessment. For example, the SSC noted that most of the uncertainty relates to the data used to establish the ALK, a central source of information for developing the CAA matrix that the ASAP model attempts to replicate; the SSC also noted that assumptions about mean weights at age could have significant implications on total biomass relative to the biomass target Given this scientific uncertainty, the Monitoring Committee and SSC recommended setting the TAC for 2010 at a level consistent with the status quo target fishing mortality rate (F = 0.15). The Council responded in kind and recommended management measures consistent with target F =0.15.

6.1.3 Stock Conditions

A full description of stock conditions for bluefish is found in section 2.1.3 of Amendment 1. Additional information can be found in the 41st Stock Assessment Workshop (NEFSC 2005) document. The following excerpt is taken from the 41st SAW Summary Report, which is available via the internet at http://www.nefsc.noaa.gov/nefsc/publications/crd/crd0514/

"New biological reference points were developed for comparison to current stock status. The preferred ASAP model output estimated F_{MSY}=0.19. The model also estimated F_{MAX} = 0.28, $F_{0.1}$ = 0.18 and $F_{30\%}$ as 0.28"

"F_{MULT} is the estimate of full F. The 2004 F_{MULT} value equals 0.149. The trend in F has steadily declined since 1991 when F reached 0.41. The time series of F from the VPA shows less variability since 1990, bounded between 0.1 and 0.23. If the average VPA F for ages 1-4 is compared to ASAP average F for the same ages, the resulting F trends between the two models are very similar."

"January 1st population sizes show a general increase in overall abundance since 1997. Abundance estimates peaked in 1982 at 176 million fish, declined to 57 million in the mid-1990s, and has since increased to 92 million fish. Biomass estimates peaked in 1982 at 229,000 mt then declined to 65,000 mt by 1997 before increasing to the 2004 level of 104,000 mt. The magnitude of population estimates are similar to those produced in the VPA."

6.2 Habitat (Including Essential Fish Habitat)

According to 50 CFR 600.815(a)(2)(i)(A), an initial inventory of available environmental and fisheries data sources relevant to the managed species should be used in describing and identifying EFH. This inventory on the physical and biological characteristics of the environment in the mid-Atlantic subregion is found in sections 2.2 and 2.2.1 of Amendment 1.

An additional inventory of the physical and biological characteristics of specific habitats found within the jurisdiction of the Northeast Region can be found in Stevenson *et al*. (2004).

Bluefish spawning occurs in offshore areas principally from April to May in southern waters and June through August in the mid-Atlantic Bight. Eggs are pelagic and highly buoyant with hatching and early larval development occurring in oceanic waters. Larvae are strongly associated with the surface and have been sampled during every season of the year in offshore waters from Cape Cod, Massachusetts to Palm Beach, Florida. Young-of-year bluefish move inshore with estuaries serving as the chief habitat during the juvenile life stage. In general, adult bluefish travel northward in spring and summer, and southward in fall and winter. Tagging studies indicate that the southerly migration route may be closer to shore than the northerly migration in spring and both migration periods are characterized by some offshore-inshore movement. Estuarine and near shore waters are important habitat for juvenile and adult bluefish from Florida to Maine.

Specific habitats that are designated as bluefish EFH are detailed in section 6.2.2 of this EA. Bluefish are a predominantly pelagic species (NMFS 2006). Life history data show that there are only loose associations of bluefish with any particular substrate or submerged aquatic vegetation (SAV; NMFS 2006). Juveniles are the only life stage that spatially and temporally co-occur on a regular basis with SAV. Bluefish juveniles and adults commonly occur in estuarine areas during the period of the year when eelgrass is present and prey on species which are associated with SAV. Some degree of linkage with SAV is likely, but given the extent to which the life cycle of bluefish occurs offshore outside the range of SAV, it is probably less than for other species (Laney 1997).

6.2.1 Other Species Potentially Impacted by the Action

Any species that could potentially be impacted by these actions is considered part of the affected environment. Species that could be potentially impacted by the action include prey species (section 2.2.6 of Amendment 1), species with overlapping EFH (section 6.2.2 of this EA), bycatch species of this fishery (section 3.1.3.9 of Amendment 1), and protected species (section 5.1.3.1 of Amendment 1 and section 6.3 of this EA). Additionally, general faunal assemblages specific to North and Mid-Atlantic habitat types are identified in Stevenson *et al*. (2004).

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

Bluefish is primarily a recreational fishery caught by hook and line. The commercial fishery for bluefish is primarily prosecuted with gillnets, otter trawls, and handlines. This fishery often harvests mixed species, including bonito, Atlantic croaker, weakfish, spiny dogfish, and other species. Among these species, weakfish are considered to be depleted, however, natural mortality rather than fishing mortality is implicated as constraining stock size. Atlantic croaker and spiny dogfish are not overfished, nor is overfishing occurring. Bonito are unregulated and stock status is unknown. Given the mixed species nature of the bluefish fishery, incidental catch of other species does occur. The bluefish fisheries are managed principally through the specification of annual commercial quotas and recreational harvest levels.

6.2.2 Bluefish EFH

Bluefish EFH was defined in Amendment 1 to the bluefish FMP. The definitions for each lifestage are repeated below:

Eggs: 1) North of Cape Hatteras, pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ) at mid-shelf depths, from Montauk Point, NY south to Cape Hatteras in the highest 90 percent of the area where bluefish eggs were collected in the MARMAP surveys; and 2) South of Cape Hatteras, 100 percent of the pelagic waters over the Continental Shelf (from the coast out to the eastern wall of the Gulf Stream) through Key West, Florida at mid-shelf depths. Bluefish eggs are generally not collected in estuarine waters and thus there is no EFH designation inshore. Generally, bluefish eggs are collected between April through August in temperatures greater than 64 °F (18 °C) and normal shelf salinities (>31 ppt).

Larvae: 1) North of Cape Hatteras, pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ) most commonly above 49 ft (15 m), from Montauk Point, New York south to Cape Hatteras, in the highest 90 percent of the area where bluefish larvae were collected during the MARMAP surveys; 2) South of Cape Hatteras, 100 percent of the pelagic waters greater than 15 meters over the Continental Shelf (from the coast out to the eastern wall of the Gulf Stream) through Key West, Florida; and 3) the "slope sea" and Gulf Stream between latitudes 29° 00 N and 40° 00 N. Bluefish larvae are not generally collected inshore so there is not EFH designation inshore for larvae. Generally, bluefish larvae are collected April through September in temperatures greater than 64 °F (18 °C) in normal shelf salinities (>30 ppt).

Juveniles: 1) North of Cape Hatteras, pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ) from Nantucket Island, Massachusetts south to Cape Hatteras, in the highest 90 percent of the area where juvenile bluefish are collected in the NEFSC trawl survey; 2) South of Cape Hatteras, 100 percent of the pelagic waters over the Continental Shelf (from the coast out to the eastern wall of the Gulf Stream) through Key West, Florida; 3) the "slope sea" and Gulf Stream between latitudes 29° 00 N and 40° 00 N; and 4) all major estuaries between Penobscot Bay, Maine and St. Johns River, Florida. Generally juvenile bluefish occur in North Atlantic estuaries from June through October, Mid-Atlantic estuaries from May through

October, and South Atlantic estuaries March through December, within the "mixing" and "seawater" zones (Nelson *et al.* 1991, Jury *et al.* 1994, Stone *et al.* 1994). Distribution of juveniles by temperature, salinity, and depth over the continental shelf is undescribed (Fahay 1998).

Adults: 1) North of Cape Hatteras, over the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Cod Bay, Massachusetts south to Cape Hatteras, in the highest 90 percent of the area where adult bluefish were collected in the NEFSC trawl survey; 2) South of Cape Hatteras, 100 percent of the pelagic waters over the Continental Shelf (from the coast out to the eastern wall of the Gulf Stream) through Key West, Florida; and 3) all major estuaries between Penobscot Bay, Maine and St. Johns River, Florida. Adult bluefish are found in North Atlantic estuaries from June through October, Mid-Atlantic estuaries from April through October, and in South Atlantic estuaries from May through January in the "mixing" and "seawater" zones (Nelson *et al.* 1991, Jury *et al.* 1994, Stone *et al.* 1994). Bluefish adults are highly migratory and distribution varies seasonally and according to the size of the individuals comprising the schools. Bluefish generally found in normal shelf salinities (> 25 ppt).

6.2.3 EFH for Species Overlapping With This FMP

All of the areas listed in section 6.2.2 above overlap to some degree with EFH for other MAFMC managed species including surfclams and ocean quahogs, squid, mackerel, butterfish, and dogfish, as well as the New England Fishery Management Council (NEFMC) species of groundfish within the Northeast Multispecies FMP (Atlantic cod, haddock, ocean pout, American plaice, pollock, redfish, white hake, windowpane flounder, winter flounder, witch flounder, yellowtail flounder, and Atlantic halibut), monkfish, seven species of skates, and Atlantic sea scallops. Numerous species within the NMFS Highly Migratory Species Division and the South Atlantic Fishery Management Council (SAFMC) have EFH identified in areas also identified as EFH for bluefish.

6.2.4 Baseline Impact of the Bluefish Fishery on EFH

According to 50 CFR Section 600 (a)(2)(i):

"Each FMP must contain an evaluation of the potential adverse effects of fishing on EFH designated under the FMP, including effects of each fishing activity regulated under the FMP or other FMPs. This evaluation should consider the effects of each fishing activity on each type of habitat found within each FMP. FMPs must describe each fishing activity, review and discuss all available relevant information (such as information regarding the intensity, extent, and frequency of any adverse effect on EFH; the type of habitat within EFH that may be affected adversely; and the habitat functions that may be disturbed), and provide conclusions regarding whether and how each fishing activity adversely affects EFH."

The baseline fishing effects analysis is provided in the Mid-Atlantic Council's specification of management measures for the 2004 fishing year (MAFMC 2003). This analysis considered

1995-2001 as the baseline time period. Baseline conditions (i.e., the distribution and intensity of bottom otter trawling in the commercial bluefish fishery) have not changed significantly since 2001. As indicated in Table 1, commercial landings since 2001 have actually declined as recreational landings have increased. The 2004 evaluation of the habitat impacts of bottom otter trawls, gillnets, and handlines used in the commercial bluefish fishery indicated that the baseline impact of the fishery was minimal and temporary in nature. Therefore, it was concluded that adverse effects of the bluefish fishery on EFH did not need to be minimized. Since commercial landings of bluefish have declined since 2001, the adverse impacts of the bluefish fishery have continued to be minimal during the time period 2002-2009. Potential impacts of the proposed 2011 commercial quota are evaluated in section 7.1 of this EA.

6.3 Endangered and Other Protected Species

There are numerous species inhabiting the environment, within the management unit of Atlantic bluefish under NMFS' jurisdiction, that are afforded protection under the Endangered Species Act (ESA) of 1973 (i.e., for those designated as threatened or endangered) or the Marine Mammal Protection Act of 1972 (MMPA). Fourteen are classified as endangered or threatened under the ESA and are listed below in Table 9. A more detailed description of the species listed as endangered or threatened, including ecological relationships and life history information, is presented in the Appendix. The potential impacts to protected species associated with the proposed measures under this specifications document are discussed in section 7.0.

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. (2009). The most recent information on the stock assessment of various marine mammals through 2009 can be found at:
http://www.nmfs.noaa.gov/pr/sars/.
Three other useful websites on marine mammals are:
http://www.nmfs.noaa.gov/pr/recovery, which provides information on recovery plans,
http://spo.nwr.noaa.gov/mfr611/mfr611.htm, provides history and status of endangered whales,
and http://www.nmfs.noaa.gov/pr/species/mammals, which provides updates of stock status.

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 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).

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Box 6.3.1. Species protected by the ESA or MMPA that are found in the environment utilized by the managed resources fisheries under NMFS' jurisdiction.

Species	Common name	Scientific Name	Status
Cetaceans	Northern right	*Eubalaena glacialis*	Endangered
	Humpback	*Megaptera novaeangliae*	Endangered
	Fin	*Balaenoptera physalus*	Endangered
	Blue	*Balaenoptera musculus*	Endangered
	Sei	*Balaenoptera borealis*	Endangered
	Sperm	*Physeter macrocephalus*	Endangered
Sea Turtles	Leatherback	*Dermochelys coriacea*	Endangered
	Kemp's ridley	*Lepidochelys kempii*	Endangered
	Green	*Chelonia mydas*	Endangered
	Hawksbill	*Eretmochelys imbricata*	Endangered
	Loggerhead	*Caretta caretta*	Threatened
Fish	Shortnose sturgeon	*Acipenser brevirostrum*	Endangered
	Atlantic salmon	*Salmo salar*	Endangered
	Smalltooth sawfish	*Pristis pectinata*	Endangered

If the total annual mortality and serious injury of all fisheries that interact with a stock is less than 10 percent of the Potential Biological Removal[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. 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.

All types of commercial fishing gear are required to meet the gear restrictions detailed in the: Atlantic Large Whale Take Reduction Plan at http://www.nero.noaa.gov/whaletrp/, the Harbor Porpoise Take Reduction Plan at http://www.nero.noaa.gov/prot_res/porptrp/, the MMPA and ESA respectively at http://www.nmfs.noaa.gov/pr/laws/mmpa/ and http://www.nmfs.noaa.gov/pr/laws/esa/. These restrictions are intended to reduce fishery interactions and incidental injury or mortality of protected resources.

Recreational Fisheries

The principle gears used in the recreational fishery for bluefish are rod and reel and handline. Recreational fisheries, in general, have very limited interaction with marine mammals and endangered or threatened species. However, recreational fishermen do contribute to difficulties for endangered and threatened marine species in that it is estimated that recreational fishermen

[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).

[3] A commercial fishery with a "remote likelihood" of causing incidental mortality and serious injury of marine mammals is one that collectively with other fisheries is responsible for the annual removal of: (1) 10% or less of any marine mammal stock's potential biological removal level, or (2) More than 10% of any marine mammal stock's PBR level, yet that fishery by itself is responsible for the annual removal of 1 percent or less of that stock's PBR level.

discard over 227 million lb (103 million kg) of litter each year (O'Hara et al. 1988). More than nine million recreational vessels are registered in the United States. The greatest concentrations of recreational vessels in the United States are found in the waters off New York, New Jersey, the Chesapeake Bay, and Florida (O'Hara et al. 1988). As previously stated, recreational fishermen are a major source of debris in the form of monofilament fishing line. The amount of fishing line lost or discarded by the 17 million U.S. fishermen during an estimated 72 million fishing trips in 1986 is not known, but if the average angler snares or cuts loose only one yard of line per trip, the potential amount of deadly monofilament line is enough to stretch around the world (O'Hara et al. 1988). Although the recreational fishery may impact these marine species, nothing in this document would modify the manner in which the fishery is prosecuted. Potential impacts to protected species associated with the proposed measures are discussed in section 7.0.

Commercial Fisheries

The bluefish commercial fishery are prosecuted by bottom otter trawls, gillnets, and handlines. The 2011 LOF indicates that sink gill nets deployed in the Mid-Atlantic gillnet and Northeast sink gillnet are classified as Category I, with potential to result in incidental injury and mortality of bottlenose dolphin stocks, common dolphin, Risso's dolphin, white-sided dolphin, short-finned pilot whale, long-finned pilot whale, fin whales, right whales, gray seal, harp seal, harbor seal, hooded seal, , humpback whales, harbor porpoise, and minke whale. The Mid-Atlantic bottom trawl fishery is also a Category II fishery with potential to result in incidental injury and mortality of bottlenose dolphin, Risso's dolphin, common dolphins, white-sided dolphin, short-finned pilot whales, and long-finned pilot whales. The Northeast/Mid-Atlantic bottom longline/hook and line fisheries in the Mid-Atlantic are all Category III fisheries, with no known injury and mortality to marine mammals.

The NMFS observer data for the period of January 2007 to December 2009 indicate no marine mammal or turtle interactions where bluefish was the species being targeted.

NMFS announced in May 2009 (74 FR 21627, May 8, 2009) its intention to prepare an Environmental Impact Statement (EIS) and to conduct public scoping meetings to comply with NEPA by assessing potential impacts resulting from the proposed implementation of new sea turtle regulations in the Atlantic and Gulf of Mexico trawl fisheries. These requirements are proposed to protect threatened and endangered sea turtles in the western Atlantic Ocean and Gulf of Mexico from incidental capture, and would be implemented under the Endangered Species Act (ESA). NMFS announced consideration of rulemaking for these new sea turtle regulations in an Advance Notice of Public Rulemaking (72 FR 7382, February 15, 2007). NMFS will evaluate a range of alternatives in the Draft EIS to reduce sea turtle bycatch and mortality in trawl fisheries along the Atlantic Coast.

Murray (2008) evaluated fisheries observers documented interactions between bottom otter trawl gear and sea turtles in the U.S. Mid-Atlantic region (i.e., south of 41°30'N/66°W to approximately 35º00'N/75°30'W) during 1996-2004. Bycatch rates and total mortality were only estimated for loggerhead turtles, the species involved in the majority of interactions. Vessel

Trip Reports (VTR) from fishermen operating bottom otter trawl gear in the Mid-Atlantic were used to expand predicted bycatch rates to total estimated bycatch. Predicted bycatch rates were stratified by a combination of significant variables, which included latitude zone, depth, sea surface temperature, and the use of a working TED. Estimated average annual bycatch of loggerhead turtles in Mid-Atlantic bottom otter trawl gear during 1996-2004 was 616 animals (C.V.=0.23, 95% C.I. over the 9 year period: 367-890). Murray (2006) provided an estimate of loggerhead bycatch in all fisheries using bottom otter trawl fish gear in Mid-Atlantic waters; estimated bycatch in scallop trawl gear is reported separately in Murray (2007). In Murray (2006), there was not enough evidence to suggest that bycatch rates differed significantly among target species groups; thus, rates were not stratified, nor total mortality estimates reported in this manner. However, in Murray (2008) NERO requested this information by FMP group to support their ESA Section 7 consultations for various FMPs. This information, evaluated from 2000-2004, suggests that less than 1 percent of the loggerhead takes for that period were by the Mid-Atlantic bottom otter trawl fish gear targeting bluefish (Murray 2008). It should be noted that Murray (2008) highlights extensive data and analysis caveats, which include but are not limited to, assumptions about bycatch rates within expansion stratum, assumptions about bycatch rates across fisheries and years, as well as the representativeness of VTR data. The original report should be consulted when interpreting these results.

Murray (2009) conducted a similar analysis with of sea turtle bycatch in U.S. Mid-Atlantic sink gillnet gear during 1995 through 2006. Highest predicted bycatch rates in this fishery occurred in warm waters of the southern Mid-Atlantic and in large-mesh gillnets. From 1995-2006, the average annual bycatch estimate of loggerheads was 350 turtles (C.V.= 0.20., 95% CI over the 12-year period: 234-504). For bluefish the average estimate of bycatch was 48. It should be noted that non-target species caught on trips with high estimated loggerhead bycatch will, based on these methods of analysis, also have a relatively high estimated loggerhead bycatch (Murray, 2009). Bluefish, for example, is often caught as a secondary or tertiary species on monkfish trips. While an average bycatch of 48 turtles was associated with landings of bluefish, observers from 1995-2006 did not document any loggerheads taken in Mid-Atlantic sink gillnet gear targeting bluefish (Murray, 2009). The original report should be consulted when interpreting these results.

The following provides brief descriptions of the protected resources with documented interactions with the managed resources fisheries in the most recent 3 years (2007-2009).

Sea Turtles

Loggerhead, leatherback, Kemp's ridley, and green sea turtles occur seasonally in southern New England and Mid-Atlantic continental shelf waters north of Cape Hatteras. In general, turtles move up the coast from southern wintering areas as water temperatures warm in the spring (James *et al*. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and Limpus 1997; Shoop and Kenney 1992; Keinath *et al.* 1987). The trend is reversed in the fall as water temperatures cool. By December, turtles have passed Cape Hatteras, returning to more southern waters for the winter (James *et al*. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and

Limpus 1997; Shoop and Kenney 1992; Keinath *et al.* 1987). Hard-shelled species are typically observed as far north as Cape Cod whereas the more cold-tolerant leatherbacks are observed in more northern Gulf of Maine waters in the summer and fall (Shoop and Kenney 1992; STSSN database).

Small Cetaceans (Dolphins, Harbor Porpoise and Pilot Whale)

Numerous small cetacean species (dolphins, pilot whales, harbor porpoise) occur within the area from Cape Hatteras through the Gulf of Maine. Seasonal abundance and distribution of each species in Mid-Atlantic, Georges Bank, and/or Gulf of Maine waters varies with respect to life history characteristics. Some species primarily occupy continental shelf waters (e.g., white sided dolphins, harbor porpoise), while others are found primarily in continental shelf edge and slope waters (e.g., Risso's dolphin), and still others occupy all three habitats (e.g., common dolphin, spotted dolphins, striped dolphins). Information on the western North Atlantic stocks of each species is summarized in Waring *et al*. (2009).

Pinnipeds

Of the four species of seals expected to occur in the area, harbor seals have the most extensive distribution with sightings occurring as far south as 30° N (Katona *et al*. 1993). Grey seals are the second most common seal species in U.S. EEZ waters, occurring primarily in New England (Katona *et al.* 1993; Waring *et al*. 2006). Pupping colonies for both species are also present in New England, although the majority of pupping occurs in Canada. Harp and hooded seals are less commonly observed in U.S. EEZ waters. Both species form aggregations for pupping and breeding off of eastern Canada in the late winter/early spring, and then travel to more northern latitudes for molting and summer feeding (Waring *et al*. 2006). However, individuals of both species are also known to travel south into U.S. EEZ waters and sightings as well as strandings of each species have been recorded for both New England and Mid-Atlantic waters (Waring *et al*. 2009).

6.4 Human Communities

A detailed description of historical fisheries for bluefish is presented in section 2.3 of Amendment 1. The information presented in this section is intended to briefly characterize recent fisheries trends, both commercial and recreational. Landings trends are provided in section 6.1 above.

6.4.1 Commercial Fishery

In 2009, commercial vessels landed about 6.53 M lb of bluefish valued at approximately $2.6 million. Average coastwide ex-vessel price of bluefish was $0.40/lb in 2009, a 9 percent decrease from the previous year (2008 price = $0.44/lb). Bluefish comprised 0.21 percent and 0.27 percent of the total ex-vessel value and pounds, respectively of all finfish and shellfish species landed along the Atlantic coast of the U.S. in 2009. For states where bluefish were commercially landed, the contribution of bluefish to the total value of all finfish and shellfish varied by state in 2009 (Table 2). Bluefish ranged from less than 0.01 percent of total

commercial value in Maine to 2.78 percent in North Carolina. There were no bluefish landings in Pennsylvania in 2009. Relative to total landings value, bluefish were most important in New York and North Carolina, contributing the largest percentage of ex-vessel value of all commercial landings in those states. This contribution did not change considerably from the previous complete fishing year (i.e., 2008), and it is not expected to change considerably in 2011.

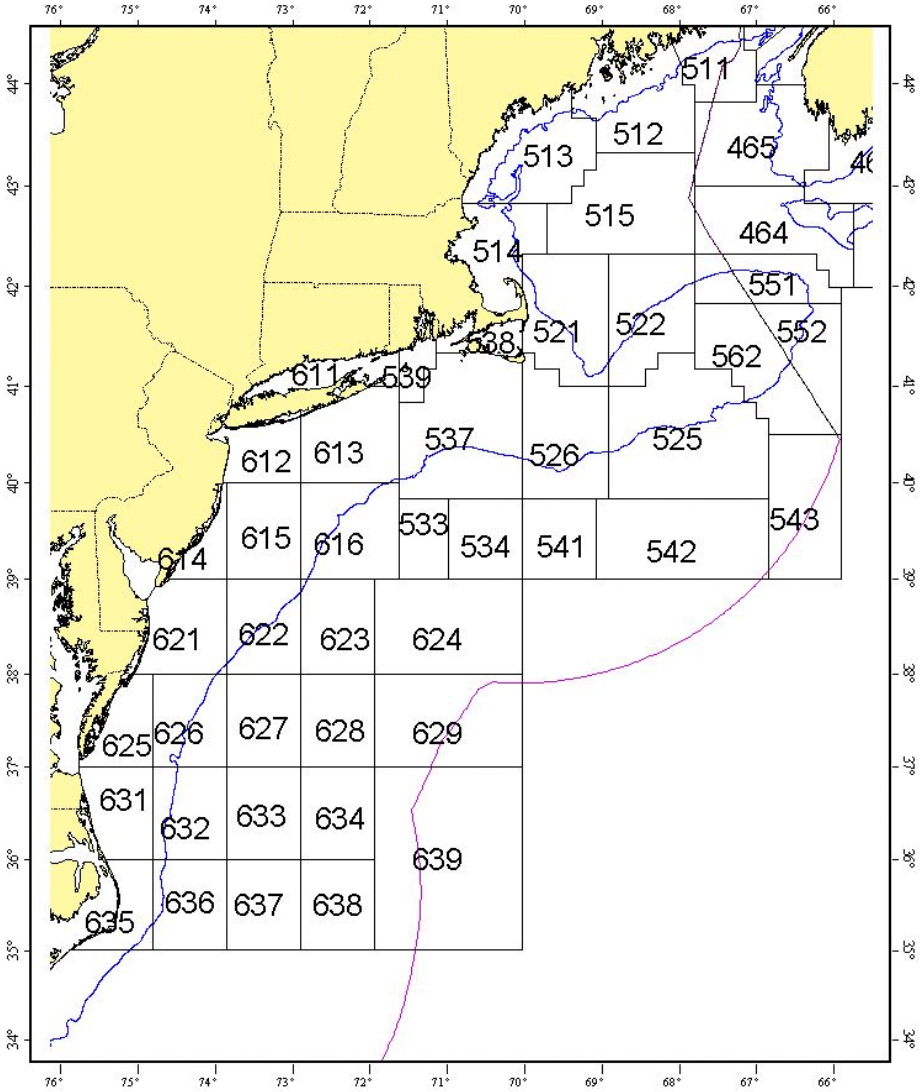
The economic impact of the commercial bluefish fishery relative to employment and wages is difficult to determine. According to NMFS data, commercial fishermen in the western Atlantic landed approximately 2.40 billion lb of fish and shellfish in 2009. Those landings have been valued at approximately $1.33 billion. Total landed value ranged from approximately $78 thousand in E. Coast Florida to $394 million in Massachusetts. However, it can be assumed that only a small amount of the region's fishing vessel employment, wages, and sales are dependent on bluefish since the relative contribution of bluefish to the total value and poundage of all finfish and shellfish is very small.

NMFS VTR data indicate that a total of 1,614 commercial trips targeting bluefish (bluefish ≥ 50 percent of total catch) resulted in landings of 2.511 M lb from Maine to North Carolina in 2009 (Table 3). Landings from directed trips are approximately 52 percent of total commercial landings for 2009 (6.526 M lb) in the Northeast region. Gillnets accounted for 94.3 of the total commercial directed catch. Hook gear and trawl gear accounted for 2.4 percent, and 3.12 percent respectively. The remaining gear types comprised less than 1 percent of the directed landings catch. Approximately 0.18% of all otter trawl trips in 2009 were directed bluefish trips.

Description of the Areas Fished

The Northeast Region is divided into 46 statistical areas for Federal fisheries management (Figure 1). According to VTR data, seven of these areas comprised at least 5 percent of the total commercial bluefish catch in 2009, and collectively accounted for 48.3 percent of the commercial trips that caught bluefish and 70.7 percent of the bluefish catch. These seven areas include 636, 612, 615, 613, 635, 539, and 626; the percentages associated with each area are provided in Table 4. It may be noted that the vessel log database used to characterize the distribution of commercial harvest does not extend outside of the Northeast Region (i.e., south of Cape Hatteras).

Figure 1. NMFS Northeast statistical areas.



6.4.2 Recreational Fishery

During the 1980s, a significant portion of Mid-Atlantic recreational participants depended upon bluefish, particularly those fishing from party/charter vessels. For example, in 1985 party/charter boats in the Mid-Atlantic region landed a total of 22.2 M lb of fish, over half of which were bluefish (12.3 M lb). In 1990, a Council survey was conducted of party and charter boat owners between Maine and Virginia. The survey indicated that bluefish ranked first in the catch and was the second most desired species for party boat owners, while for charter boats, bluefish ranked third in terms of desirability and second in terms of success rate. No survey exists for the more recent time-frame; however, from 2004 – 2009, the proportion of party and charter trips that targeted bluefish from Maine through Virginia has remained relatively constant.

MRFSS catch data by mode indicates that approximately 52.1 percent of bluefish were caught by private and rental boats between 1999 and 2009 (Table 5). In addition to private and rental boats, 41.1 percent of bluefish were caught from shore and 6.8 percent from party and charter boats for the same time period (Table 5).

Trends in directed fishing for bluefish from 1991 to 2009 are provided in Table 6. The lowest annual estimate of directed trips was 1.3 million in 1999; the highest annual estimate of directed trips was 5.8 million trips in 1991. In 2009, anglers targeted bluefish in 1.7 million trips.

Because of the importance of bluefish to recreational anglers, a change in expenditures by bluefish anglers would be expected to impact the sales, service, and manufacturing sectors for the overall recreational fishing industry. The total value recreational anglers place on the opportunity to fish can be divided into actual expenditures and a non-monetary benefit associated with satisfaction. In other words, anglers incur expenses to fish (purchases of gear, bait, boats, fuel, etc.), but do not pay for the fish they catch or retain nor for the enjoyment of many other attributes of the fishing experience (socializing with friends, being out on the water, etc.). Despite the obvious value of these fish and other attributes of the experience to anglers, no direct expenditures are made for them, hence the term "non-monetary" benefits. In order to determine the magnitude of non-monetary benefits, a demand curve for recreational fishing must be estimated. In the case of bluefish, as with many recreationally sought species, a demand curve is not available. Part of the problem in estimating a demand curve is due to the many and diverse attributes of a recreational fishing experience: socializing, weather, ease of access and site development, catch rates, congestion, travel expenditures, and costs of equipment and supplies, among others. A recreational angler's willingness-to-pay for bluefish must be separated from the willingness-to-pay for other attributes of the experience. Holding all other factors constant (expenditures, weather, etc.), a decrease in the catch (or retention rate) of bluefish could decrease demand and an increase in the catch (or retention rate) could increase demand. Each change will have an associated decrease/increase in expenditures and non-monetary benefits.

Recreational fishing contributes to the general well-being of participants by affording them with opportunities for relaxation, experiencing nature, and socializing with friends. The potential to catch and ultimately consume fish is an integral part of the recreational experience, though

studies have shown that non-catch related aspects of the experience are often as highly regarded by anglers as the number and size of fish caught. Since equipment purchase and travel-related expenditures by marine recreational anglers have a positive effect on local economies, the maintenance of healthy fish stocks is important to fishery managers.

6.4.2.1 Economic impact of the recreational fishery

Anglers' expenditures generate and sustain employment and personal income in the production and marketing of fishing-related goods and services. In 2006, saltwater anglers from Maine through Virginia spent an estimated $1.394 billion on trip-related goods and services (Gentner and Steinback 2008). Private/rental boat fishing comprised the majority of these expenditures ($669.7 million; Table 7), followed by shore fishing ($531.1 million) and party/charter fishing ($193.0 million). Survey results indicate that the average trip expenditure in 2006 was $40.34 for anglers fishing from a private/rental boat, $45.32 for shore anglers, and $149.14 for anglers that fished from a party/charter boat. Adjusted average expenditures in 2009 dollars are $158.71 for party/charter boat trips, $42.93 for private/rental boat trips, and $48.23 for shore trips.[1] Trip-related goods and services included expenditures on private transportation, public transportation, food, lodging, boat fuel, private boat rental fees, party/charter fees, access/boat launching fees, equipment rental, bait, and ice. Unfortunately, estimates of trip expenditures specifically associated with bluefish were not provided in the study. However, if average trip expenditures are assumed to be constant across fishing modes, estimates of the expenditures associated with bluefish can be determined by multiplying the proportion of total trips that targeted bluefish by mode (expanded estimates; Table 8) by the total estimated trip expenditures from the Gentner and Steinback study. According to this procedure, anglers fishing for bluefish from Maine through Virginia spent an estimated $87.95 million on trip-related goods and services in 2009. Approximately $22.73 million was spent by anglers fishing aboard private/rental boats, $49.36 million by those fishing from shore, and $15.86 million by anglers fishing from party/charter boats. Apart from trip-related expenditures, anglers also purchase fishing equipment and other durable items that are used for many trips (i.e., rods, reels, clothing, boats, etc.). Although some of these items may be purchased with the intent of targeting/catching specific species, the fact that these items can be used for multiple trips creates difficulty when attempting to associate durable expenditures with particular species. Therefore, only trip-related expenditures were used in this assessment.

The bluefish expenditure estimates can be used to reveal how anglers' expenditures affect economic activity such as sales, income, and employment from Maine through Virginia. During the course of a fishing trip, anglers fishing for bluefish purchase a variety of goods and services, spending money on transportation, food, boat fuel, lodging, etc. The sales, employment, and income generated from these transactions are known as the direct effects of anglers' purchases. Indirect and induced effects also occur because businesses providing these goods and services

[1]The 1998 estimate of expenditures by mode were adjusted to its 2009 equivalent by using the Bureau of Labor Statistics Consumer Price Index.

also must purchase goods and services and hire employees, which in turn, generate more sales, income, and employment. These ripple effects (i.e., multiplier effects) continue until the amount remaining in a local economy is negligible. A variety of analytical approaches are available for determining these impacts, such as input-output modeling. Unfortunately, a model of this kind was not available. Nonetheless, the total sales impacts can be approximated by assuming a multiplier of 1.5 to 2.0 for the Northeast Region (Scott Steinback, NMFS/NEFSC, pers. comm., 2009). Given the large geographical area of the Northeast Region, it is likely that the sales multiplier falls within those values. As such, the total estimated sales, income and employment generated from anglers that targeted bluefish in 2008 was likely to be between $134.93 million ($87.95 million * 1.5) and $175.90 million ($87.95 million * 2.0) from Maine through Virginia. A similar procedure could be used to calculate the total personal income, value-added, and employment generated from bluefish anglers' expenditures, but since these multiplier values have been quite variable in past studies, no estimates were provided here.

6.4.2.2 Value of the fishery to anglers

Behavioral models that examine travel expenditure, catch rates, accessibility of fishing sites, and a variety of other factors affecting angler enjoyment can be used to estimate the "non-monetary" benefits associated with recreational fishing trips. Unfortunately, a model of this kind does not exist specifically for bluefish. Data constraints often preclude researchers from designing species-specific behavioral models. However, a recent study by Hicks, *et. al.* (1999) estimated the value of access across states in the Northeast region (that is, what people are willing to pay for the opportunity to go marine recreational fishing in a particular state in the Northeast) and the marginal value of catching fish (that is, what people are willing to pay to catch an additional fish). Table 9 shows, on average, the amount anglers in the Northeast states (except for North Carolina which was not included in the study) are willing to pay for a one-day fishing trip. The magnitudes of the values in Table 9 reflect both the relative fishing quality of a state and the ability of anglers to choose substitute sites. The willingness to pay is generally larger for larger states, since anglers residing in those states may need to travel significant distances to visit alternative sites. Several factors need to be considered when examining the values in Table 9. First, note that Virginia has relatively high willingness to pay estimates given its relative size and fishing quality characteristics. In this study, Virginia defines the southern geographic boundary for a person's choice set, a definition that is arbitrary in nature. For example, an angler in southern Virginia is likely to have a choice set that contains sites in North Carolina. The regional focus of the study ignores these potential substitutes and therefore the valuation estimates may be biased upward (Hicks, *et. al.* 1999). Second, the values cannot be added across states since they are contingent upon all of the other states being available to the angler. If it were desirable to know the willingness to pay for a fishing trip within Maryland and Virginia, for example, the welfare measure would need to be recalculated while simultaneously closing the states of Maryland and Virginia.

Assuming the average willingness to pay values shown in Table 9 are representative of trips that targeted bluefish, these values can be multiplied by the number of trips that targeted bluefish by state to derive welfare values for bluefish. Table 10 shows the aggregate estimated willingness

to pay by state for anglers that targeted bluefish in 2009 (i.e., the value of the opportunity to go recreational fishing for bluefish). New York, New Jersey, Massachusetts and Maryland were the states with the highest estimated aggregate willingness to pay for bluefish day trips. Once again, note that the values cannot be added across states since values are calculated contingent upon all of the other states being available to the angler.

In the Hicks *et. al.* (1999) study, the researchers also estimated welfare measures for a one fish change in catch rates for 4 different species groups by state. One of the species groups was "small game," of which bluefish is a component. Table 11 shows their estimate of the welfare change associated with a one fish increase in the catch rate of all small game by state. For example, in Massachusetts, it was estimated that all anglers would be willing to pay $4.47 (the 1994 value adjusted to its 2009 equivalent) extra per trip for a one fish increase in the expected catch rate of all small game. The drawback to this type of aggregation scheme is that the estimates relate to the marginal value of the entire set of species within the small game category, rather than for a particular species within the grouping. As such, it is not possible to estimate the marginal willingness to pay for a one fish increase in the expected catch rate of bluefish from the information provided in Table 11.

However, it is possible to calculate the aggregate willingness to pay for a 1 fish increase in the catch rate of small game across all anglers. Assuming that anglers will not adjust their trip taking behavior when small game catch rates at all sites increase by one fish, the estimated total aggregate willingness to pay for a one fish increase in the catch rate of small game in 2009 was $126.59 million (total trips (30.29 million) x average per trip value ($4.18). This is an estimate of the total estimated welfare gain (or loss) to fishermen of a one fish change in the average per trip catch rate of all small game. Although it is unclear how much of this welfare measure would be attributable to bluefish, the results show that small game in general, in the Northeast, are an extremely valuable resource.

Although not addressed here, recreational fishing participants and non-participants may also hold additional intrinsic value out of a desire to be altruistic to friends and relatives who fish or to bequeath a fishery resource to future generations. A properly constructed valuation assessment would include both use and intrinsic values in the estimation of total net economic value. Currently, however, there have been no attempts to determine the altruistic value (i.e., non-use value) of bluefish in the Northeast.

6.4.2.3 Marine recreational descriptive statistics

In 1994, sport-fishing surveys were conducted by NMFS in the Northeast Region (Maine through Virginia) to obtain demographic and economic information on marine recreational fishing participants from Maine through Virginia. Data from the surveys were then used to access socioeconomic characteristics of these participants, as well as to identify their marine recreational fishing preferences and their perceptions of current and prospective fishery management regulations. The information that follows is excerpted and paraphrased from Steinback *et al.* (1999).

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

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

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

When anglers were asked to describe their racial or ethnic origin, almost all of the anglers interviewed in both subregions considered themselves to be white (NE=95 percent, MA=90 percent). "In the Mid-Atlantic, most of the remaining individuals were black (7 percent), leaving 3 percent to be of other ethnic origins. In New England, the remaining anglers were evenly distributed across other ethnic origins. The high occurrence of white fishermen is representative of the general population of the coastal states in New England. Approximately 94 percent of the

population in 1993 was estimated to be white. However, in the Mid-Atlantic, the percentage of white anglers was considerable higher than Bureau of Census populations estimates, and the percentage of black fishermen was 12 percent lower."

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

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

On average, it was found that New England anglers spent more on boat fees, lodging, and travel expenses than Mid-Atlantic anglers. "During the follow-up telephone portion of the survey, anglers that fished from a party/charter boat or a private/rental boat were asked how much they <u>personally</u> spent on boat fees for the trip in which they were interviewed. Boat fees averaged $61.00 per trip in New England and $51.00 in the Mid-Atlantic." Two categories of lodging expenses were obtained. "The first category (Lodging (>0)) is an estimate of the mean lodging expense per night for those anglers who indicated they spent at least one night away from their residence and personally incurred a lodging cost. Subsequently, the second category (Lodging (all)) is an estimate of mean lodging expenses across all overnight anglers, regardless of whether an angler incurred a lodging expense. Per night costs were estimated by dividing total lodging costs for the trip by the number of days the angler was away from his/her residence on the trip." Anglers that personally incurred lodging expenses spent $58.00 on average per night in New England and $47.00 per night in the Mid-Atlantic. "Across all overnight anglers, per night lodging expenses in New England averaged $29.00 and in the Mid-Atlantic, $21.00." Anglers' expenditures also included money spent on gas, travel fares, tolls, and ferry and parking fees. "One-way travel expenditures averaged $11.00 in New England and $8.00 in the Mid-Atlantic per trip. Therefore, if arrival costs are tantamount to departure costs, average round-trip travel expenses would approximate $22.00 in New England and $16.00 in the Mid-Atlantic."

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

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

"Respondents were asked why they chose to fish at the site they were interviewed... 'Convenience' and 'better catch rates' were the main reasons why anglers chose fishing sites in both subregions. Forty-nine percent of the anglers in New England and 57 percent of the anglers in the Mid-Atlantic indicated 'convenience' as either first or second reason for site choice. 'Better catch rates' was the first or second stated reason for site choice by 51 percent of the anglers in New England and 50 percent of the anglers in the Mid-Atlantic. Other notable responses were 'always go there,' 'boat ramp,' 'access to pier,' and 'scenic beauty.'...Results indicate that although anglers chose fishing sites for many different reasons, sites that offered good catch rates and were convenient attracted the most anglers."

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

Recreational anglers' ratings of reasons (7 pre-established reasons) for marine fishing are presented in Table 12. More than 65 percent of the anglers in both subregions said that it was very important to go marine fishing because it allowed them to: spend quality time with friends and family (NE=81 percent, MA=85 percent); enjoy nature and the outdoors (NE=89 percent, MA=87 percent); experience or challenge of sport fishing (NE=69 percent, MA=66 percent); and relax and escape from my daily routine (NE=83 percent, MA=86 percent). "The reasons that were rated as not important by the largest proportion of anglers consisted of: catch fish to eat (NE=42 percent), to be alone (NE=55 percent, MA=58 percent), and to fish in a tournament or when awards were available (NE=79 percent, MA=73 percent). In the Mid-Atlantic, although to catch fish to eat was rated as being somewhat important by the largest proportion of anglers (40 percent), approximately 31 percent felt that catching fish to eat was very important. However, in New England, only 20 percent concurred. It is clear from these responses that marine recreational fishing offers much more than just catching fish to anglers. Over 80 percent of the respondents in both subregions perceived recreational fishing as a time to spend with friends and family, a time to escape from their daily routine, and time to enjoy nature and outdoors. While

catching fish to eat is somewhat important to anglers, findings of this survey generally concur with previous studies that found non-catch reasons are rated highly by almost all respondents while catch is very important for about a third and catching to eat fish is moderately important for about another third."

"The economic survey sought to solicit anglers opinions regarding four widely applied regulatory methods used to restrict total recreational catch of the species of fish for which they typically fish: (1) limits on the minimum size of the fish they can keep; (2) limits on the number of fish they can keep; (3) limits on the times of the year when they can keep the fish they catch; and (4) limits on the areas they fish. Anglers were asked whether or not they support or opposed the regulations." As indicated in Table 13, strong support existed for all regulatory methods in both subregions. Limits on the minimum size of fish anglers could keep generated the highest support in both regions (NE=93 percent, MA=93 percent), while limits on the area anglers can fish, although still high, generated relatively lower support (NE=68 percent, MA=66 percent).

Regulations which limit the number of fish anglers can keep ranked second (NE=91 percent, MA=88 percent). The results from this solicitation indicate that recreational anglers in the Northeast Region appear to be conservation oriented and generally support regulations employed to restrict total catch. Not surprisingly, when analyzing anglers' opinions regarding the four widely applied regulatory methods, it was found that anglers in all modes indicated strong support for the regulatory measures, with minimum size limits generating the strongest support, followed by catch limits, seasonal closures, and lastly, area closures (Table 14). "Although party/charter, private/rental, and shore respondents did offer varying degrees of support for each of a selection of regulatory measures, similar support existed across all modes. Support was highest for common regulatory methods currently being implemented in New England and the Mid-Atlantic (e.g., size and bag limits), than for area and seasonal closures."

6.4.3 Port and Community Description

Ports and communities that are dependent on bluefish are fully described in the 2002 Bluefish Specification Document (section 4.3; MAFMC 2001) and are available via the internet at http://www.nero.noaa.gov/ro/doc/nr02.htm. This information has not been updated since 2001.

NMFS dealer data from 2009 were used to rank fishing ports in order of importance for bluefish commercial landings. Ten ports qualified as "top bluefish ports", i.e., those ports where 100,000 pounds or more of bluefish were landed (Table 15). Wanchese, NC was the most important commercial bluefish port with over 1.693 M lb landed. The ranking of recreational fisheries landings (numbers of fish and pounds of fish) by state in 2009 is provided in Table 16.

6.4.4 Permit Data

Federally Permitted Vessels

NMFS/NERO Federal permit data indicate that a total of 3,125 commercial and 971 recreational (party/charter) bluefish permits were issued in 2009. Among these, 501 vessels had both commercial and party/charter bluefish permits.

A subset of federally-permitted vessels was active in 2009. Dealer reports indicate that 571 vessels with commercial bluefish permits actually landed bluefish. According to VTR data, 380 party/charter vessels reported catching bluefish from Maine through North Carolina with 339 of these vessels retaining bluefish.

Dealers

There were 160 dealers who bought bluefish in 2009. They were distributed by state as indicated in Table 17. Employment data for these specific firms are not available. In 2009, these dealers bought approximately $2.6 million worth of bluefish.

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7.0 ANALYSIS OF (DIRECT AND INDIRECT) IMPACTS

Impacts of the alternatives evaluated in this specifications package on each of the VECs are discussed below. It is important to note that the RSA amount used to evaluate the alternatives presented in this document is the maximum RSA allowed (3 percent of the TAL) to support collaborative research projects among the public, research institutions, and NMFS. The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 management measures when the data are more complete.

7.1 Impacts of Alternative 1 (Preferred Alternative)

7.1.1 Biological Impacts

The Council recommended a coastwide TAC of 31.744 M lb for 2011 in order to achieve the SSC's recommended ABC (i.e., TAC = ABC). The preferred alternative would set the TAL at 29.264 M lb which is 6.7 percent lower than the TAL implemented in 2010. Under Alternative 1, after subtracting 3 percent from the TAL to accommodate the full RSA amount (0.819 M lb), the adjusted commercial quota is 9.129 M lb, and the adjusted recreational harvest limit is 17.345 M lb. The derivation of the TAL and its allocation to the commercial and recreational sectors are fully described in section 5.0 of the EA.

Because the TAL associated with this alternative is based on achieving a fishing mortality target of 0.15 in 2011, and estimated fishing mortality in 2009 was 0.10, this alternative is expected to increase fishing mortality for bluefish relative to 2009. The 0.15 fishing mortality target, however, is less than the 0.17 fishing mortality target allowed under the FMP and reflects the SSC's recommendation to maintain fishing mortality at the level specified for the last several years. A low 2009 year class is expected to have a dampening effect on bluefish availability as these fish will be age 2 in 2011 and age 1 and 2 bluefish comprise the majority of bluefish landings. Bluefish age structure is not truncated, however, and a single low year class is not expected to compromise the health of the overall population. The fishing mortality rate associated with the TAC is expected to keep bluefish biomass above B_{msy}.

In two of the three quota alternatives evaluated in this EA, a transfer from the recreational sector to the commercial sector was made (section 5.0 of the EA). A significant portion of bluefish commercial landings are bycatch (MAFMC 1990). If the transfer from the recreational fishery to the commercial fishery was not made, large regulatory discards of bluefish by commercial fishing activities would be expected.

It is not expected that the combined commercial and recreational landings in 2011 will surpass the TAL established under this alternative. Coastwide commercial landings are consistently below the limit established by the quota. Recreational landings are less stable. In 2009, recreational landings were 30% less than the coastwide limit.

With regard to impacts on other federally-managed species, bluefish are caught primarily through recreational hook and line fishing, however, the smaller commercial bluefish fishery typically operates as a mixed-species gillnets and otter trawl fishery with harvest including bonito, Atlantic croaker, weakfish, and spiny dogfish (MAFMC 2001). The decrease in commercial quota under Alternative 1 would be expected to decrease rather than increase directed fishing effort on bluefish relative to "No Action / Status Quo". However, as stated in Section 6.1, a weak 2009 year class may limit bluefish availability which could increase the directed effort needed for vessels to achieve a desired catch level. These offsetting influences make it difficult to predict exactly how effort will change. It is likely that whatever the direction of the change is, the magnitude will not be substantial. As such fishing mortality on non-target species is not expected to increase significantly relative to "No Action / Status Quo".

The TAL under this alternative was recommended by the Council and Board and is likely to achieve the target F in 2010. Overall this alternative would be expected to positively affect the bluefish stock because stock size is expected to stay above Bmsy.

7.1.2 Habitat Impacts

Bluefish are caught primarily through hook and line recreational fishing, which has not been implicated in having effects on EFH for any federally-managed species. In the commercial fishery, impacts to benthic EFH are greatest for bottom trawls, lowest for hook and line, and intermediate for bottom gillnets.

This preferred alternative would decrease the commercial quota by 10.6 percent relative to 2010. Because this alternative would make it possible for commercial fishermen to land less bluefish, there could be a decrease in commercial bottom trawling activity and a corresponding decrease in adverse impacts on EFH for demersal species of fish managed by other FMPs (Table 18). (Since bluefish are pelagic species, bluefish EFH is not vulnerable to mobile, bottom-tending gear). However, the habitat impacts of Alternative 1 are not anticipated to differ significantly from the No Action alternative because only a small percentage of the directed commercial bluefish landings are taken in bottom trawls (5.18 percent in 2009, Table 3). Furthermore, because bluefish are caught incidentally as a non-target species in the commercial trawl fishery, the historic response by the commercial bluefish fishery to changes in fishing opportunity has not generally been to increase or decrease landings or bottom trawling effort. If there is a change in the landings of bluefish taken by commercial trawlers in 2011, it is likely that other gears, especially gill nets, will account for most of the directed commercial fishing activity. Given the low probability that a 10.6 percent decrease in the commercial quota for bluefish in 2010 would cause any significant increase in adverse impacts to benthic habitats, this action is expected to continue to minimize the adverse effects of this fishery on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.1.3 Impacts on Endangered and Other Protected Species

Endangered and other protected species are addressed in section 6.3 of the EA. The range of these species overlaps with bluefish, and as such, a potential for incidental catch always exists. Except in unique situations, such incidental catches should have a negligible impact on marine mammals or abundances of endangered species. NMFS completed a formal section 7 consultation on the implementation of the bluefish FMP in 1999. The accompanying opinion concluded that the fishery would not jeopardize but may adversely affect some ESA-listed species.

The measures under this alternative do not contain major changes to existing management measures. Given the decrease in the commercial quota, and the weak 2009 year class, it is unclear how overall fishing effort will change (Table 18). It is likely that whatever the direction of the change is, the magnitude will not be substantial. This alternative is not expected to increase the likelihood of interactions between the bluefish fishery, marine mammals, sea turtles, or other protected resources or their respective habitats. Therefore Alternative 1 would result in null impacts compared to No Action/ Status Quo.

7.1.4 Socioeconomic Impacts

Alternative 1 would set the TAL at 27.293 M lb. The preferred alternative includes a Council-adjusted commercial quota of 9.129 M lb, an RHL of 17.345 M lb, and an RSA of 0.819 M lb for 2011. Under this alternative, the allocations to the commercial and recreational fisheries are approximately 9 percent and 5 percent lower than the commercial quota and recreational harvest limit under the status quo alternative, respectively (Alternative 3).

Alternative 1 has a commercial quota that is slightly lower than under the status quo alternative (Alternative 3); however, coastwide commercial landings have been consistently below the limit established by the quota. For example, on average, commercial landings for the combined 2005 thought 2009 period (34.00 M lb) were 37 percent below the combined quota for the period (44.359 M lb). In addition, 2009 commercial landings (6.526 M lb) were 29 percent below the quota for that year (9.129 M lb). There is no indication that the market environment for commercially caught bluefish will substantially change in 2011 compared to 2009 or 2010. As such, it is expected that bluefish commercial landings in 2011 will be similar to those that occurred in 2009 and 2010 (section 2.5 of the RIR).

Stable or increased landings from one year to the next are desirable from an industry perspective. Increased fishing opportunity provides fishermen, processors, party/charter boat operators, equipment and bait suppliers with increase income potential. The adjusted recreational harvest limit for 2011 is expected to allow for slightly lower recreational fishing opportunities in 2011 compared to 2010. The derivation of the commercial quota and recreational harvest limit for this as well as the other alternatives is described in detail in sections 4.3 and 5.0 of the EA.

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 increases is on profitability. Only where there are significant reductions in net revenues or in the ability to meet costs are adverse social impacts likely. This would not be expected under Alternative 1 since the quota is not expected to contain commercial landings given recent market trends. The 2011 commercial quota under Alternative 1 would be allocated proportionally to states as indicated in Table 19.

A description of ports and communities is found in the 2002 Bluefish Specifications Document (MAFMC 2001). Additionally, the "top bluefish ports" that landed bluefish in 2008 are identified in section 6.4 of the EA.

Commercial Impacts

Vessels affected by Alternative 1

The analysis of the harvest levels under this alternative indicates that the economic impacts ranged from no change in revenues for 449 vessels to revenue losses of more than 5 percent for 20 vessels. More specifically, 17 vessels were projected to incur revenue losses of 5-9 percent and 3 vessels of 10-19 percent. In addition, 219 vessels were projected to incur revenue losses of less than 5 percent, and 449 vessels were projected to have no change in revenue (Table 20). While the analysis presented above indicates that in relative terms a small number of vessels (20) are likely to be impacted with revenue reductions of more than 5 percent or more, 15 percent of these vessels (3 vessels) had gross sales of $1,000 or less and 80 percent of the impacted vessels (16 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. Furthermore, no revenue reduction is expected for vessels that land bluefish in North Carolina and Florida as a consequence of the proposed 2011 quota compared to 2009 landings in those states (Tables 19 and 35). A detailed description of how economic impacts were estimated for all evaluated alternatives is presented in sections 3.1 and 5.0 of the RIR/IRFA. Additional analysis regarding these vessels is presented below (e.g., evaluation of permit status, geographic distribution of permitted vessel).

Of the 20 vessels projected to have revenue reductions of ≥ 5 percent, 15 are identified as holders of Federal permit (Table 21). It is possible that the remaining 5 vessels that do not show having any Federal permits in 2009 have opted for fishing in state waters only and as such, did not renew Federal permits in 2009, or have ceased business. Many of these vessels hold permits in various fisheries (Table 22) -- especially commercial permits for tilefish, multispecies, dogfish, monkfish, and skates. As a result, they have access to some alternative fisheries, although some like multi-species are already under heavy regulation and are likely to have increasingly stringent catch limits in the near future.

All of the impacted vessels (revenue reduction of ≥ 5 percent) with Federal permits have home ports in New York and New Jersey and their principal ports of landings are also mainly located in those states (Table 23). Although the bluefish 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. Table 23 indicates that all of these vessels are likely to land in their home port state. 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 average length of these vessels by principal port ranges from 31 feet (NY vessels) to 57 feet (New Jersey vessels; Table 23). 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 of product to remain profitable.

As indicated above, all commercial vessels showing revenue reductions in the ≥ 5 percent range are concentrated in New York and New Jersey. Within this state, the most impacted county (largest number of impacted vessels) is Suffolk and Nassau counties in New York and Ocean county in New Jersey (Table 24). Counties not included in this analysis (e.g., Philadelphia (PA) and New York (NY) 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. In fact, these counties only had one or two affected vessel. If communities having larger numbers of impacted vessels also have a larger total numbers of vessels, the proportion that may be impacted thus may be lower. This effect may mitigate the impacts on the community as a whole.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles were constructed. Each profile is based on impacts under the most restrictive possible alternative. The most restrictive alternative is chosen (Alternative 2) 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 are presented in section 6.1 of the RIR/IRFA. In addition, a description of important ports and communities are fully described in the 2002 Bluefish Specifications Document (MAFMC 2001). Additionally, the "top bluefish ports" that landed bluefish in 2009 are identified in section 6.4 of the EA.

The changes described above are based on the potential changes in landings associated with the 2011 quotas versus 2009 landings (section 5.1 of the RIR/IRFA). Amendment 1 implemented a transfer provision as a tool to mitigate the adverse economic impacts of prematurely closing a fishery when surplus quota exists. In fact, under the Interstate Management Plan for Atlantic Bluefish, states have been very cooperative in transferring commercial bluefish quota when needed to states that are running a deficit. If quota allocations were to be transferred from a state or states that do not land their entire bluefish quota allocation for 2011 then the number of affected entities described in this threshold analysis could potentially decrease and thus, decrease economic burden under this alternative as well as under Alternatives 2 and 3.

The Council selected Alternative 1 as the preferred alternative because it is projected to achieve target F in 2011 while providing the 2nd least restrictive commercial quota among all alternatives evaluated. However, the potential economic losses associated with this alternative are higher than those under Alternative 3 but lower than those under Alternative 2.

Recreational Impacts

Under Alternative 1, the Council-adjusted bluefish 2011 recreational harvest limit would be 17.345 M lb. This limit would be approximately 28 percent above the recreational landings for 2009 (13.583 M lb) and 7 percent below the limit implemented for 2010 (18.631 M lb). The possession limit would remain at 15 fish. Assuming recreational landings for 2011 of 17.882 M lb, the proposed adjusted recreational harvest limit under this alternative is near identical (approximately 3 percent lower) than the projected recreational landings for 2011. There is very little information available to empirically estimate how sensitive the affected party/charter boat anglers might be to the fishing regulations. Note: It is possible that future update of recreational landings projections done by the NMFS (when more data is available, e.g., following wave 5 of the MRFSS data) could result in adjustment transfers different from those presented in this specifications package (section 4.3 of the EA).

There is no information regarding how the potential decrease in the recreational harvest limits for this species will affect the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable. Some anglers may that choose to reduce their effort in 2011 as a consequence of the recreational harvest limit are likely to transfer this effort to alternative species (i.e., summer flounder, scup, spot, weakfish, striped bass, tautog, pelagics, etc.) resulting in very little change in overall fishing effort. However, recreational harvest restrictions for many of the alternative species in the Northeast are becoming more binding each year, resulting in fewer substitute landing opportunities, particularly for anglers fishing aboard headboats where passengers are primarily limited to bottom fishing.

Other Impacts

<u>Effects of the research set-aside</u>

The economic analysis regarding changes in the commercial TALs for the bluefish fishery conducted under this alternative, as well as the other alternatives analyzed, incorporated adjustments for the quota specifications for 2011 (Alternative 4.2). That is, the RSA for bluefish was deducted from the recreational harvest limit and commercial quota in an amount proportional to the overall bluefish TAL for 2011 to derive Council-adjusted 2011 quotas and limits on recreational harvest. Therefore, the threshold analyses conducted under each alternative have accounted for overall reductions in fishing opportunities in 2011 available to all vessels typically participating in this fishery due to RSA. This methodology would overestimate potential revenue losses for vessels participating in these fisheries, as the overall TAL for the fishery was adjusted downward due to RSA that will be available only to vessels participating in RSA projects (i.e., specifically for vessels fishing in states where the quota have constrained

landings in the last few years). Since the bluefish RSA is made available to vessels participating in the RSA projects only, and these vessels have the opportunity to harvest bluefish under the RSA projects as well as under the normal TALs for this species as well, it is possible that the projected revenue losses under the alternatives evaluated could potentially be smaller for some vessels participating in the 2011 RSA projects. This would be particularly true under the assumption that 2011 allocations to a particular state represent harvest constraints to the commercial fishery. Given the substantial increase in the fishing opportunity associated with the 2011 commercial quotas relative to 2009 landings under Alternative 1 (2nd least restrictive commercial quota), the cost of any premature closure of the fishery (pounds of bluefish allocated for set-aside) would be shared among the non research set-aside participants in the fishery.

7.2 Impacts of Alternative 2 (No Transfer to the Commercial Fishery)

7.2.1 Biological Impacts

Under this alternative, the TAC would be 31.744 M lb and the TAL would be set at 27.293 M lb, the same as under Alternative 1. Alternative 2 differs from Alternative 1 in that no transfer of landings is made between the recreational and commercial fisheries. As such, the commercial quota under Alternative 2 is 4.501 M lb and the recreational harvest limit is 21.974 M lb after adjusting for the full RSA amount (0.819 M lb).

The substantially lower commercial quota under Alternative 2 would likely result in the lowest overall landings levels of any of the alternatives. This is because recreational fishery landings are expected to be at the same level as under the other alternatives, while the commercial fishery would be constrained by fishery closures as state specific quotas are achieved. Lower overall landings under this alternative would achieve the lowest fishing mortality rate – below the level associated with the TAC and would enhance stock sustainability more than other alternatives. Fishing mortality on non-target species is also expected to be minimized as the commercial fishery closes early, thereby resulting in a slightly more positive biological impacts than No Action/Status Quo.

7.2.2 Habitat Impacts

Adverse habitat impacts in this fishery are primarily associated with bottom trawling. Because there is no significant directed trawl fishery for bluefish (Table 3), bottom trawling activity is related to the availability and market value of other species and is unlikely to be affected by a change in the commercial bluefish quota. However, given the substantial decrease in commercial quota under Alternative 2 impacts on EFH related to the commercial harvest of bluefish would be more likely to decrease than increase (Table 18) compared to No Action/Status Quo. The baseline impacts of the bluefish fishery on EFH have been characterized and, as stated in section 6.2.4 of the EA, are minimal and temporary in nature. Because impacts on bottom habitats are more likely to decrease than increase under this alternative, it would continue to minimize the adverse effects of this fishery on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.2.3 Impacts on Endangered and Other Protected Species

Endangered and other protected species are addressed in section 6.3 of the EA. The range of these species overlaps with bluefish, and as such, a potential for incidental catch always exists. Except in unique situations, such incidental catches should have a negligible impact on marine mammals or abundances of endangered species, and NMFS has concluded in previous consultations that implementation of this FMP will not have an adverse impact upon these populations.

The low commercial quota under this alternative would decrease overall commercial bluefish fishing effort through early closure and, as such, would decrease the likelihood of interactions between the bluefish fishery, marine mammals, sea turtles, or other protected resources or their respective habitats. Because of the rarity of interactions/incidental catch in the bluefish fishery, Alternative 2 is expected to have a null impact on protected and endangered resources.

7.2.4 Socioeconomic Impacts

The same overall discussion regarding the social impacts of quotas and characterization of the bluefish fisheries by port and community presented under Alternative 1 (section 7.1.4 of the EA) also apply here.

Alternative 2 would set the TAL at 27.293 M lb. This TAL includes a Council-adjusted commercial quota of 4.501 M lb, an RHL of 21.974 M lb, and an RSA of 0.819 M lb for 2011. Under this alternative, the allocations to the commercial and recreational fisheries are approximately 55 percent lower and 20 percent higher, respectively, than the commercial quota and recreational harvest limit under the status quo alternative (Alternative 3).

The state-by-state quota allocation for 2011 under Alternative 2 is shown in Table 19. The commercial quota allocation under this alternative would provide commercial fishermen with lower fishing opportunities in 2011 compared to the status quo alternative (Alternative 3) of the preferred alternative (Alternative 1).

Commercial Impacts

Vessels affected under the most restrictive alternative (Alternative 2)

The analysis of the harvest levels under this alternative indicates that the economic impacts ranged from no change in revenues for 61 vessels to revenue losses of ≥ 5 percent for 61 vessels. More specifically, 18 vessels were projected to incur in revenue losses of 5-9 percent, 22 vessels of 10-19 percent, 8 vessels of 20-29 percent, 6 vessels of 30-39 percent, and 7 vessels of 40-49 percent. In addition, 566 vessels were projected to incur in revenue losses of less than 5 percent (Table 25). While the analysis presented above indicates that in relative terms a small number of vessels (61) are likely to be impacted with revenue reductions of more than 5 percent or more, 36 percent of these vessels (22 vessels) had gross sales of $1,000 or less and 61 percent of the impacted vessels (37 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.

Under this alternative, landings are projected to decrease as a consequence of the 2011 allocation when compared to 2009 landings by approximately 26% in North Carolina (Table 35). On average, reduction in revenues due to the potential decrease in landings associated with the 2011 quota compared to the 2009 landings are expected to be approximately 2.5% for fishermen that land bluefish in that state. Furthermore, no revenue reduction is expected for vessels that land bluefish in Florida as a consequence of the proposed 2011 quota compared to 2009 landings in those states.

Of the 61 vessels projected to have revenue reductions of more than 5 percent, 45 (74 percent) are identified as holders of Federal permit (Table 26). It is possible that the remaining 16 vessels that do not show having any Federal permits in 2009 has opted for fishing in state waters only and as such, did not renew Federal permits in 2009, or has ceased business. In particular, most vessels have squid-mackerel-butterfish, tilefish, monkfish, skates, and multispecies permits (Table 27). As a result, they have access to some alternative fisheries, although some like multispecies and scallops are already under heavy regulation and are likely to have increasingly stringent catch limits in the near future.

Most of the impacted vessels with Federal permits for bluefish have home ports in New York and New Jersey. The principal ports of landing for these vessels are mainly located in New York and New Jersey as well (Table 28). Although the bluefish 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. Table 28 indicates that most of these vessels are likely to land in their home port state. 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 average length of these vessels by principal port ranges from 31 feet in Massachusetts to 47 feed in New Jersey (Table 28). 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 of product to remain profitable.

Most commercial vessels showing revenue reductions in the ≥ 5 percent range are concentrated in New York, New Jersey, and North Carolina. Within this state, the most impacted countries (largest number of impacted vessels) are Ocean in New Jersey, Nassau and Suffolk in New York, and Dare in North Carolina (Table 29). Counties not included in this analysis (e.g., New Haven, CT; Plymouth, Barnstable,, and Suffolk, MA; and Philadelphia, PA) 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. 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.

As previously discussed, if quota allocations were to be transferred from a state or states that do not land their entire bluefish quota allocation for 2011 then the number of affected entities described in this threshold analysis could potentially decrease and thus, decrease economic burden. However, given that under this alternative the overall commercial quota in 2011 is substantially lower than the 2010 quota and the 2009 landings, the amount of bluefish that could potentially be transferred among states would be lower than under Alternatives 1 and 3, thus potentially allowing for less economic relief.

The commercial losses associated with this alternative are the largest among all alternatives evaluated. The Council rejected this alternative because it would yield lower commercial fishing opportunities amongst all the evaluated alternatives due to absence of quota transfer under this alternative.

Recreational Impacts

Under Alternative 2, the bluefish 2011 recreational harvest limit would be 21.974 M lb. This limit would be approximately 62% higher than the recreational landings for 2009 (13.583 M lb) and 18% larger than the recreational harvest limit for 2010 (18.631 M lb). Assuming recreational landings for 2011 of 17.882 M lb, the proposed adjusted recreational harvest limit under this alternative is 23 percent higher than the projected recreational landings for 2011. The possession limit would remain at 15 fish. It is not anticipated that this management measure will have any negative effects on recreational fishermen or affect the demand for party/charter boat trips. This alternative is not expected to affect angler satisfaction nor expected to result in landings in excess of the recreational harvest limit. The recreational impacts under this alternative are expected to be similar to those described under Alternative 3.

Other Impacts

Effects of the research set-aside

The impacts described in Alternative 1 above (section 7.1.4) also apply here.

7.3 Impacts of Alternative 3 (No Action, Status Quo)

7.3.1 Biological Impacts

Management measures proposed under the status quo alternative are, by definition, equivalent to the current year TAL (29.264 M lb), though the assumed 3% RSA decreases the commercial quota (10.051 M lb) and recreational harvest limit (18.335 M lb) slightly compared to levels established in the final rule. Working backwards, the revised discards estimate for 2011 (4.451 M lb) would be added to the TAL to get a TAC of 33.715 M lb. This is slightly lower than the TAC that was specified for 2010 (34.376 M lb). This alternative is not recommended by the Council because the TAC reflects catch above the level associated with the SSC-recommended ABC.

Compared to the No Action/Status quo alternative, the biological impacts from this alternative are still expected to be positive since the TAC corresponds to a fishing mortality rate above 0.15 but below 0.16 and, therefore, below the overfishing threshold (0.19). Nevertheless, among the alternatives, it contributes the least to stock sustainability. Because this alternative represents the status quo commercial quota, bycatch of non-target species would be expected to neither increase nor decrease. However, as stated in Section 6.1, a weak 2009 year class may limit bluefish availability which could increase the directed effort needed for vessels to achieve a desired catch level. It is not clear how much effort will change, but it is unlikely that the magnitude of any increase will be substantial. As such fishing mortality on non-target species is not expected to increase significantly relative to "No Action / Status Quo".

7.3.2 Habitat Impacts

Adverse habitat impacts in this fishery are primarily associated with bottom trawling. Because there is no significant directed trawl fishery for bluefish (Table 3), bottom trawling activity is related to the availability and market value of other species and could either increase or decrease if a bluefish quota similar to that implemented in 2010 remains in place. Therefore, the status quo alternative would have no adverse habitat impact. EFH impacts associated with the bluefish fishery were determined to be minimal and therefore consistent with the baseline impacts of the fishery that were assessed in the 2004 Annual Specifications EA (section 6.2.3). Therefore, this action would continue to minimize the adverse effects of this fishery on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

7.3.3 Impacts on Endangered and Other Protected Species

Endangered and other protected species are addressed in section 6.3 of the EA. The range of these species overlaps with bluefish, and as such, a potential for incidental catch always exists. Except in unique situations, such incidental catches should have a negligible impact on marine mammals or abundances of endangered species, and NMFS has concluded in previous consultations that implementation of this FMP will not have an adverse impact upon these populations.

The measures under this alternative would maintain status quo commercial bluefish fishing landings and, as such, are not expected to affect the likelihood of interactions between the bluefish fishery, marine mammals, sea turtles, or other protected resources or their respective habitats.

7.3.4 Socioeconomic Impacts

The same overall discussion regarding the social impacts of quotas and characterization of the bluefish fisheries by port and community presented under Alternative 1 (section 7.1.4 of the EA) also apply here.

Alternative 3 (status quo) would set the TAL at 29.264 M lb. This TAL includes a Council-adjusted commercial quota of 10.213 M lb, an RHL of 18.631 M lb, and an RSA of 0.878 M lb for 2011. Under this alternative, the allocations to the commercial and recreational fisheries are both approximately 2 percent lower than the commercial quota and recreational harvest limit implemented in 2010. Note than even though the TAL under this alternative is identical to the TAL implemented in 2010 (status quo measure), the 2011 Council-adjusted commercial quota and recreational harvest limit are slightly different than the limits implemented in 2010 mainly due to differences in the RSA amounts deducted from the two time periods.

The state-by-state quota allocation for 2011 under Alternative 3 is shown in Table 19. The overall commercial quota allocation under this alternative (status quo) would maintain consistent commercial and recreational fishing opportunities in 2011 compared to 2010. The potential commercial fishing opportunities under this alternative are higher than those under Alternatives 1 and 2. Because this alternative would maintain status quo management measure, it is associated with null (neither positive nor negative) socioeconomic impacts.

Commercial Impacts

<u>Vessels affected under the status quo alternative (Alternative 3)</u>

The analysis of the harvest levels under this alternative indicates that the economic impacts ranged from no change in revenues for 565 vessels to revenue losses of ≥ 5 percent for 8 vessels. More specifically, 6 vessels were projected to incur in revenue losses of 5-9 percent and 2 vessels of 10-19 percent. In addition, 115 vessels were projected to incur in revenue losses of

less than 5 percent (Table 30). While the analysis presented above indicates that in relative terms a small number of vessels (8) are likely to be impacted with revenue reductions of more than 5 percent or more, 88 percent of these vessels (7 vessels) had gross sales of gross sales of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels is very small. Furthermore, no revenue reduction is expected for vessels that land bluefish in North Carolina and Florida as a consequence of the proposed 2011 quota compared to 2009 landings in those states.

Since Alternative 3 is the least restrictive alternative (i.e., least restrictive commercial quota), impacts of other alternatives will be larger than the impacts under this alternative.

Of the 8 vessels projected to have revenue reductions of more than 5 percent, 5 (63 percent) are identified as holders of Federal permit (Table 31). It is possible that the remaining 3 vessels that do not show having any Federal permits in 2009 have opted for fishing in state waters only and as such, did not renew Federal permits in 2009, or has ceased business. In particular, most vessels have dogfish, tilefish, monkfish, and multispecies permits (Table 32). As a result, they have access to some alternative fisheries, although some like multispecies and scallops are already under heavy regulation and are likely to have increasingly stringent catch limits in the near future.

All of the impacted vessels with Federal permits for bluefish have home ports in New York. The principal ports of landing for these vessels are mainly located in New York as well (Table 33. Although the bluefish 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. Table 33 indicates that all of these vessels are likely to land in their home port state. 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 average length of these vessels by principal port is 30 feet (Table 33). 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 of product to remain profitable.

As indicated above, all commercial vessels showing revenue reductions in the ≥ 5 percent range are concentrated in New York. Within this state, the most impacted county (largest number of impacted vessels) is Nassau county in New York (Table 34). Counties not included in this analysis (e.g., Suffolk and New York, NY) 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. 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.

As previously discussed, if quota allocations were to be transferred from a state or states that do not land their entire bluefish quota allocation for 2011 then the number of affected entities

described in this threshold analysis could potentially decrease and thus, decrease economic burden.

The commercial losses associated with this alternative are lower than in Alternatives 1 and 2. This alternative is not recommended by the Council because the TAC reflects catch above the level associated with the SSC-recommended ABC.

Recreational Impacts

Under Alternative 3, the bluefish 2011 recreational harvest limit would be 18.335 M lb. This limit would be 35 percent higher than the recreational landings for 2009 (13.583 M lb) and 2 percent below the limit implemented for 2010 (18.631 M lb). Assuming recreational landings for 2011 of 17.882 M lb, the proposed adjusted recreational harvest limit under this alternative is near identical (approximately 3 percent higher) than the projected recreational landings for 2011. The possession limit would remain at 15 fish. It is not anticipated that this management measure will have any negative effects on recreational fishermen or affect the demand for party/charter boat trips.

<u>Effects of the research set-aside</u>

There are mixed positive and negative impacts in the form of revenue gain and loss depending on whter a vessl is involved in the RSA. These aredescribed in Alternative 1 above (section 7.1.4).

7.4 Impacts of the RSA Alternatives 4.1 and 4.2

Section 5.4 fully described the RSA alternatives under consideration for 2011. In addition, Section 4.4 details specific methods of analysis for this section. For reference, the research set aside alternatives are:

- Non-preferred Alternative 1 – No research set-aside / No action
- Council-Preferred Alternative 2 - Specify Research Set-Asides / Status Quo

The Council recommended a maximum bluefish RSA quota of 3 percent. Three research projects that have been preliminarily selected for funding could be awarded up to 818,790 lb (371 mt) of bluefish. For analysis of the impacts of the alternatives in this specifications document, the RSA amounts deducted from the initial TAL are either the approved RSA amount, or 3 percent of the TAL, whichever is less.

Vessels harvesting RSA quota in support of approved research projects would be issued exempted fishing permits (EFP) authorizing them to exceed Federal possession limits and to fish during Federal quota closures. These exemptions are necessary to allow project investigators to recover research expenses as well as adequately compensate fishing industry participants harvesting research quota. Vessels harvesting research quota would operate within all other regulations, unless otherwise exempted through a separate EFP. Because quota closures may or

may not occur during a given fishing year, exemption from these closures will have no additional environmental impact. Exemption from possession limits could result in compensation fishing vessels altering their normal fishing behavior; extending tow duration or fishing longer than they otherwise would for example. However, this slight alteration in fishing behavior is expected to have negligible impacts beyond that of the commercial fishery operating within the full suite of fishery regulations.

Following is a description of the three preliminarily selected projects and associated exemptions that would likely be required to conduct the research.

Project #1: The proposed project is a scup survey of fifteen hard-bottom sites in Southern New England that are not sampled by current state and federal finfish trawl surveys. Unvented fish pots will be fished on each site from June through October. The length frequency distribution of the catch will be compared statistically to each of the other collection sites, and to finfish trawl data collected by the National Marine Fisheries Service (NMFS) for the purpose of improving scup and black sea bass stock assessments.

Scup and black sea bass will be collected from each site utilizing standard fish pots made with coated wire mesh. Pots will be unvented and therefore have the capability to retain all size classes of scup. The sampling protocol will require that the commercial vessels take 30 pots to each sampling site once during each four-week sampling cycle. Pots will be left to fish for one to two days at each site. All scup and black sea bass will be measured utilizing the standard NMFS sea sampling protocols. At the conclusion of each sampling cycle, pots will be removed from the water. This same sampling format will be followed every four weeks from June 15 through October 15 for five complete cycles.

The survey area is separated into eastern, mid-western, and far-western sites as follows:

Eastern Sampling Sites
(1) West Chop 41 29 30 N, 70 35 W; (2) Cape Pogue 41 25 N, 70 26 W; (3) East Chop 41 23 N, 70 27 W;
(4) Horseshoe Shoals 41 30 N, 70 22 W; (5) Nortons Rock 41 26 30 N, 70 41 20 W

Mid-Western Sampling Sites
(1) Western End of Buzzards Bay (Old Cock Rock) 41 28 N, 71 01 W; (2) Browns Ledge 41 22 N, 71 04 W; (3) West or South of Nomans Island 41 26 N, 71 01 W; (4) South of Sakonnet Point, RI / Elisha Ledge 41 26 N, 71 01 W; (5) South of Newport, RI (Elbow Ledge) 41 26 N, 71 16 W

Far-Western Sampling Sites
(1) Narrow River Ledge, Mouth of Narragansett Bay 41 27 N, 71 24 W; (2) Point Judith Lighthouse 41 20 N, 71 29 W; (3) Southeast Lighthouse, Block Island 41 09 N, 71 33 W; (4) Bluff Head Ledge off Block Island 41 10 N, 71 40 W; (5) Charlestown Breachway 41 20 N, 71 40 W

Research vessels for Project #1 would require an EFP for exemption from minimum scup and black sea bass pot vent size requirements to ensure that scup length frequency data is representative and not biased. Exemption from scup and black sea bass minimum fish sizes and possession limits would also be needed for data collection purposes only. All undersized fish would be discarded as soon as practicable to minimize mortality, and fish in excess of possession limits would either be discarded as soon as practicable or landed as RSA quota.

Project #2: Because the research activities of Project #2, for which the NEPA and Endangered Species Act analysis occurred through a separate EA completed April 20, 2010, and a Section 7 Consultation completed April 13, 2010, additional environmental review under this EA is not necessary.

For informational purposes, project #2 would conduct a spring and fall monitoring (trawl) survey in shallow waters between Martha's Vineyard, MA and Cape Hatteras, NC. The project investigators plan to provide stock assessment data for Mid-Atlantic RSA species, including summer flounder, scup, black sea bass, *Loligo* squid, butterfish, and Atlantic bluefish, and assessment-quality data for weakfish, Atlantic croaker, spot, several skate and ray species, smooth dogfish, horseshoe crab, and several unmanaged but important forage species.

Project #3: The proposed project is a mark-recapture study of black sea bass at three sites off New Jersey during the spawning season (May through August) using commercial pot and recreational hook-and-line fishing. The study proposes to achieve the following objectives: Clarify the size, age, and sex selectivity of commercial pot and recreational hook-and-line gears; monitor changes in size distribution and sex ratio over the course of a spawning season; estimate the sex ratio and rate of sex reversal by size and age; compare 3 existing methods of *in vivo* sex determination and test a new method (ultrasound); and understand fine-scale movement patterns of males and females during the spawning season.

The study will be conducted on the following three artificial reef sites off southern New Jersey: Ocean City, Wildwood, and Cape May reefs. The three reefs are fished by commercial pot fishermen and recreational anglers including party boats, charters, and private vessels. The sites are at moderate depth (17 - 27 m). Sampling of black sea bass for tagging and recapture will be conducted during 4 periods between May and September. All sampling efforts will use both standard pot and hook-and-line fishing gear to account for differences in selectivity between gears. An initial intensive 13-day tagging effort will be conducted beginning in May. Two pot retrievals and 2 days of hook-and-line fishing will be conducted at each site during the initial tagging effort. Two 7-day tagging and recapture efforts will be conducted during weeks 7 and 12 using pots (4-day initial soak time with 1 retrieval at each site) and hook-and-line gear (1 day at each of the 3 sites). A final 7-day recapture effort will be conducted during week 17. This effort will be similar to the other 7-day sampling periods, but will involve recaptures only.

During all field sampling efforts, all black sea bass captured will be measured, weighed, sexed, and examined for tags and fin clips. In addition, 4 scales will be removed from the area behind the pectoral fin for aging, approximately 1 ml of blood will be collected for subsequent analysis, and gonadal biopsy will be attempted to identify females. During the initial 13-day tagging effort and the two seven-day tagging and recapture efforts, all untagged fish will be tagged. An individually-numbered t-bar type anchor tag will be inserted below the dorsal fin using a tagging gun. During all three seven-day sampling efforts, recaptured black sea bass with tags from earlier tagging events will be measured, weighed, and sexed, and then retained for histological sex determination and assessment of reproductive condition and aging using otoliths. An array of five hydrophones (WHS_3050, Lotek Wireless Inc.) will be placed on the Ocean City reef on the first sampling date. The clustered hydrophones will monitor an area of about 0.5-0.7 km2 for the duration of the logger battery life (~ 2.5 months). Thirty individual black sea bass (15 males and 15 females) captured at this site will be surgically implanted with acoustic tags using standard procedures to reduce mortality of tagged fish and prevent tag shedding. Transmitters will be MM-11 series acoustic transmitters (67 kHz, 154 dB re 1 µPa @ 1 m, Lotek Wireless, Inc.) broadcasting at 7 sec intervals, with a battery life expectancy of 80 days. Two measures will be taken to reduce mortality associated with decompression injuries. All fish showing swelling of the abdomen and/or eversion of the stomach will have their swim bladders vented with a large diameter hypodermic needle. In addition, traps will be held for 15 minutes at 10 m depth during retrieval. A random sample of 60 tagged individuals (5 smaller and 5 larger than 30 cm from each sex and each site) will be held in seawater tanks at the Multi-species Aquaculture Demonstration Facility in Cape May, NJ for the duration of the field study to assess tagging-associated mortality.

Assuming a conservative hook-and-line catch rate of 2 fish per angler day and 20 volunteer anglers, investigators anticipate tagging approximately 40 fish per day resulting in 80 fish per site over the initial two day per site party boat sampling effort. The number of fish tagged during pot sampling will likely be limited by tagging time rather than fish availability, since catches of more than 100 individuals are routine. Investigators anticipate a per-fish handling time of 5 min or 12 fish per-hour. Assuming 7 hours per day spent on fish processing, this equates to 84 tagged fish per day of pot sampling. With 2 retrievals per site, investigators anticipate tagging approximately 168 fish per site over the initial 13-day pot sampling effort. The total estimated tags during the initial sampling effort is therefore 744. By similar logic, investigators expect to tag approximately 372 fish during each of the two 9-day tagging and recapture efforts. The grand total then is 1,488 fish tagged, with 60 of these retained for assessment of tagging mortality.

In vivo sex determination will be accomplished using three established methods, and one new experimental approach: 1) Secondary sex characteristics, including presence of a bucal hump and bright spawning coloration, and spermiation during abdominal massage will be used to identify mature males. 2) Ovarian biopsy using a polypropelene canula will be used to identify mature females. 3) Blood concentrations of 11-ketotestosterone and 17-oestradiol will be used to identify transitional females undergoing sex reversal. 4) An experimental approach using ultrasound will be tested. This approach has been used successfully in at least 17 species of fish

to date. Ultrasound has the benefit of being fast and completely non-invasive. If the technique is validated, it would be useful not only for *in vivo* sex determination, but also for market sampling where dissection is undesirable. Gonads will be processed for routine histology, and age will be determined using scales impressed in laminated plastic. Reliability of aging will be confirmed using thin transverse sections through the nucleus of otoliths.

7.4.1 Alternative 4.1 - No Action (No Research Set-Aside)

Under this alternative no RSA would be implemented for 2011.

7.4.1.1 Environmental Impacts, Not Including Socioeconomic Impacts

Under alternative 1, there would not be a bluefish set-aside for 2011, and the RSA quota amounts would not be deducted from their respective commercial quotas and recreational harvest limits. Because all bluefish landings count against the overall quota regardless of whether or not an RSA is implemented, the biological impacts would not change if this alternative were adopted. Under this alternative, there would also be no indirect positive effects from broadening the scientific base upon which management decisions are made.

7.4.1.2 Socioeconomic Impacts

Under this alternative there would be no RSA deducted from the overall TAL. Therefore, the initial commercial quota and recreational harvest limit 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 would be 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 research set-aside is implemented under this alternative, there are no direct economic or social costs as described above.

The socioeconomic discussion of the commercial quotas discussed in sections 7.1.4, 7.2.4, and 7.3.4 of the EA was based on adjusted commercial quotas that accounted for the currently requested RSA amount (section 7.4.2 of the EA). More specifically, an RSA of 0.819 was used to derive the Council-adjusted commercial quotas and recreational harvest limits under Alternative 1 and 2; for Alternative 3, an RSA of 0.878 was used to derive these values. Tables 19 and 35 show the potential impacts of the three commercial quotas evaluated for 2011. These impacts are associated with the specific changes associated with the 2011 Council-adjusted quota compared to the 2009 landings.

For example, under Alternative 1 the states of New York and New Jersey show a potential decrease in landings when the 2011 quota is compared to the 2009 landings (Table 35). If commercial quotas not adjusted for RSA are considered, the potential decrease in landings

associated with the 2011 quotas compared to the 2009 landings would change by approximately 3 percent for those states. In other words, the additional amount of bluefish available in those states to non-research participants Alternative 1 would be higher. More specifically, an addition 29,321 and 41,832 lb would be available for New York and New Jersey, respectively. Therefore, since there is a small additional amount of bluefish available to non-RSA participants under this alternative compared to the status quo (section 7.4.2 of the EA), the economic impacts discussed under the commercial quota alternatives adjusted for RSA would be slightly smaller than those discussed under sections 7.1.4, 7.2.4, and 7.3.4 of the EA.

Changes in the recreational harvest limit due to the RSA would be small; the recreational limit under all there alternatives would change (i.e., reduction) by 3 percent as a consequence of the RSA. For the most part, it is not anticipated that the RSA would affect angler satisfaction or recreational demand for bluefish with the potential exception of Alternative 1 (section 7.4.2.4 below). Therefore, this alternative is associated with a null impact compared to No Action/Status Quo.

Under non-preferred Alternative 4.1, 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 4.2 - Specify a Research Set-Aside for 2010 (Status Quo Alternative)

Under alternative 2, RSA quota would be awarded to selected projects and deducted from their respective commercial quotas and recreational harvest limits. Because the RSA quota is a part of the TAL no additional mortality would occur if this alternative were adopted. In addition, this alternative is expected to indirectly benefit the resource as selected projects will likely provide information that will improve resource science and management.

7.4.2.1 Biological Impacts

Vessels harvesting research quota in support of approved research projects would be issued EFPs authorizing them to exceed Federal possession limits and to fish during Federal quota closures. These exemptions are necessary to allow project investigators to recover research expenses as well as adequately compensate fishing industry participants harvesting research quota. Vessels harvesting research quota would operate within all other regulations, unless otherwise exempted through a separate EFP. Because quota closures may or may not occur during a given fishing year, exemption from these closures will have no additional environmental impact. Exemption from possession limits could result in compensation fishing vessels altering their normal fishing behavior; extending tow duration or fishing longer than they otherwise would for example. However, this slight alteration in fishing behavior is expected to have negligible impacts beyond that of the vessels operating within the full suite of fishery regulations.

Research activities for project #1, as described in Section 7.4, would only occur in concert with commercial fishing trips and/or compensation fishing trips. Research activities would not result in additional fishing effort. To conduct this research, research vessels would require an EFP for exemption from minimum scup and black sea bass pot vent size requirements to ensure that scup length frequency data is representative and not biased. Exemption from scup and black sea bass minimum fish sizes and possession limits would also be needed for data collection purposes only. These changes to standard commercial fishing practice are not expected to result in a substantive increase in mortality of fish under the minimum size.

Research activities for project #3, as described in Section 7.4, would only occur in concert with commercial fishing trips and/or recreational fishing trips. Research activities would not result in additional fishing effort. To conduct this research, research vessels would require exemption from commercial and recreational black sea bass quota closures to ensure the ability to sample during such closures, and exemption from black sea bass minimum fish size and possession limits for the purpose of collecting scientific data. The additional mortality that would result from tagging activities and laboratory work would be minimal (approximately 200 black sea bass). In addition, any fish that are retained for research purposes would count against the RSA quota, further minimizing the mortality of fish that would result from this research.

7.4.2.2 Habitat Impacts

Because all bluefish landings count against the overall quota regardless of whether or not an RSA is implemented, neither alternative is expected to change the level of fishing effort for these species. In addition, it is not expected that effort will be redistributed by gear type or change the manner in which these fisheries are prosecuted under either alternative.

Although under Alternative 4.2 exemptions would be issued for compensation fishing that would exempt vessels from possession limits and quota closures, there would be no additional impacts on habitat because RSA quota is part of, and not in addition to, the overall bluefish quotas. Because research activities for projects #1 and #3, as described in Section 7.4, would only occur in concert with commercial and recreational fishing trips and/or compensation fishing trips, it is unlikely that additional habitat impacts would result from funding these 2 projects. Project #3 does propose to anchor 5 hydrophones on the Ocean City reef for approximately 2.5 months from the start of the study. However, it is not expected that the anchored hydrophones would cause a substantive impact on this artificial reef. The exemptions for research purposes, as described below, would not alter the impact on EFH that occurs during standard commercial and recreational fishing activities. Therefore, each of these alternatives will likely minimize the adverse effects of fishing on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

Research vessels for Project #1, as described in Section 7.4, would require an EFP for exemption from minimum scup and black sea bass pot vent size requirements to ensure that scup length frequency data is representative and not biased. Exemption from scup and black sea bass

minimum fish sizes and possession limits would also be needed for data collection purposes only. Such exemptions would not have any additional impact on EFH.

Research vessels for Project #3, as described in Section 7.4, would require exemption from commercial and recreational black sea bass quota closures to ensure the ability to sample during such closures, and exemption from black sea bass minimum fish size and possession limits for the purpose of collecting scientific data. Such exemptions would not have any additional impact on EFH.

7.4.2.3 Impacts on Endangered and Other Protected Species

Because all bluefish landings count against the overall quota regardless of whether or not an RSA is implemented, neither alternative is expected to change the level of fishing effort for these species.

Vessels harvesting research quota in support of approved research projects would be issued EFPs authorizing them to exceed Federal possession limits and to fish during Federal quota closures. These exemptions are necessary to allow project investigators to recover research expenses as well as adequately compensate fishing industry participants harvesting research quota. Vessels harvesting research quota would operate within all other regulations, unless otherwise exempted through a separate EFP. Because quota closures may or may not occur during a given fishing year, exemption from these closures will have no additional environmental impact. Exemption from possession limits could result in compensation fishing vessels altering their normal fishing behavior; extending tow duration or fishing longer than they otherwise would for example.

Because research activities for projects #1 and #3, as described in Section 7.4, would only occur in concert with commercial and recreational fishing trips and/or compensation fishing trips, it is unlikely that research activities would have any impact on protected species. Project #3 does propose to anchor 5 hydrophones on the Ocean City reef for approximately 2.5 months from the start of the study. However, it is not expected that the anchored hydrophones would have an effect on protected species. The exemptions for research purposes, as described below, would not alter the potential effects beyond that of standard commercial and recreational fishing activities.

Research vessels for Project #1, as described in Section 7.4, would require an EFP for exemption from minimum scup and black sea bass pot vent size requirements to ensure that scup length frequency data is representative and not biased. Exemption from scup and black sea bass minimum fish sizes and possession limits would also be needed for data collection purposes only. Such exemptions would not have any effect on protected species.

Research vessels for Project #3, as described in Section 7.4, would require exemption from commercial and recreational black sea bass quota closures to ensure the ability to sample during such closures, and exemption from black sea bass minimum fish size and possession limits for

the purpose of collecting scientific data. Such exemptions would not have any effect on protected species.

7.4.2.4 Socioeconomic Impacts

Under Council-preferred Alternative 4.2, an RSA for this species would be specified. Under the RSA program, successful applicants receive a share of the annual quota for the purpose of conducting scientific research. However, as described above, the economic and social costs of the program are shared among the non-RSA participants in the fishery. The evaluation of the socioeconomic impacts of the commercial quotas in sections 7.1, 7.2, and 7.3 was based on adjusted commercial quotas that account for the RSA proposed under Council-preferred Alternative 4.2.

The MAFMC recommended research set-aside quota of up to 3 percent of the bluefish TAL for 2011. As indicated above, this would result in RSAs of up to 0.819 under allocation Alternatives 1 and 2, and 0.878 under Alternative 3 (sections 7.1, 7.2, and 7.3). Preliminary NMFS dealer data from Maine through Virginia and South Atlantic General Canvass data were used to derive the ex-vessel price for bluefish from Maine through Florida's east coast. The ex-vessel price for bluefish in 2009 was estimated at $0.40/lb. Assuming this ex-vessel price, the 2011 RSA for the commercial component of the fishery, using the full 3 percent of the TAL, could be worth as much as $0.11 M under Alternative 1, $0.06 M under Alternative 2, and $0.12 under Alternative 3.

As such, on a per vessel basis, the commercial RSA could result in a potential decrease in bluefish revenues of approximately $50, $26, and $54 under Alternatives 1, 2, and 3, respectively, per vessel assuming all active vessels in 2008 (approximately 2,281 vessels). The adjusted commercial quotas analyzed in sections 7.1, 7.2, and 7.3 account for the RSA (as described in sections 4.3 and 5.0 of the EA). If RSA is 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 discussed in sections 7.1 through 7.4.

Changes in the recreational harvest limit due to the RSA would be nil; the recreational limit under all there alternatives would change (i.e., reduction) by 3 percent as a consequence of the RSA. For the most part, it is not anticipated that the RSA would affect angler satisfaction or recreational demand for bluefish with the potential exception of Alternative 1. As stated section 5.1 of the EA, the TAC associated with Alternative 1 is 31.745 M lb, the initial commercial quota and recreational harvest limit (post transfer) under Alternative 1 is 9.411 M lb and an RHL of 17.882 M lb, respectively. The Council approved an RSA for bluefish of up to 3 percent of the TAL. Adjusting these values for RSA (0.819 M lb) would result in a Council-adjusted commercial quota of 9.129 M lb and an RHL of 17.345 M lb. As such, adjusting the initial commercial quota and recreational harvest limits to reflect a 3 percent reduction in the TAL as a consequence of the RSA would yield a Council-adjusted recreational harvest limit slightly below the preliminary projected recreational landings for 2011 (17.882 M lb; section 4.3 of the EA). As indicated in section 7.1.4 of the EA, there is very little information available to empirically

estimate how sensitive the affected party/charter boat anglers might be to the fishing regulations. However, given the level of the Council-adjusted recreational harvest limit for 2011 and recreational landings in recent years, it is possible that the proposed recreational harvest limit under this alternative may cause some slight decrease in recreational satisfaction if, following subsequent recreational harvest projections, the recreational harvest limit is adjusted below status quo (18.335 M lb) recreational harvest limit. This would result in an overall mixed (positive for the commercial fishery and negative for the recreational fishery) socioeconomic impact.

The cost of any premature closure of the fishery (pounds of bluefish 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 bluefish. As such, permit holders that land these species during a period where the quota has been reached and the fishery closed could be disadvantaged. However, given that the proposed Council-adjusted commercial quota under Alternative 1 (Preferred TAL alternative) is 11 percent lower than the commercial quota implemented in 2010 and about 28 percent higher than the 2009 commercial landings, it is not expected that the extent of RSA activity under this alternative would result in significant overall impacts of research trips and compensation trips are expected to be negligible.

It is important to stress that the RSA amount used to evaluate the alternatives presented in this document is the maximum RSA allowed (3 percent of the TAL) to support collaborative research projects among the public, research institutions, and NMFS. The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete.

The impacts of the RSAs for other species are addressed in their respective species specifications packages, e.g., summer flounder, scup, and black sea bass in the 2011 specifications package for those species.

7.5 Cumulative Impacts of Preferred Alternative on Identified VECs

The biological and socioeconomic impacts of the preferred alternative for 2011 are expected to be minimal since they are expected to meet the target fishing mortality rate and do not significantly reduce opportunities to participate in the fishery. The preferred alternative (Alternative 1) is considered to be 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 Box ES-1 (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 the National Environmental Policy Act (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 cumulative effects analysis (CEA) baseline is used to assess cumulative effects of the proposed management actions. The CEA baseline in this case consists of the combined effects of the proposed action, and the past, present and reasonably foreseeable future fishing and non-fishing actions which are described below. 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 (EPA 1999). The following discussion addresses the significance of the expected cumulative impacts as they relate to the federally-managed bluefish fisheries.

7.5.2 Consideration of the VECs

In section 6.0 (Description of the Affected Environment), the VECs that exist within the bluefish fishery environment are identified. Therefore, the significance of the cumulative effects will be discussed in relation to the VECs listed below.

1. Managed resource (bluefish)
2. Non-target species
3. Habitat including EFH for the managed resource and non-target species
4. Endangered and protected species
5. Human communities

7.5.3 Geographic and Temporal Boundaries

Geographic Boundaries
The analysis of impacts focuses on actions related to the harvest of bluefish. The core geographic scope for each of the VECs is focused on the Western Atlantic Ocean (section 6.0). The core geographic scope for the managed resource is from Maine through East Coast Florida, as this represents the typical biological range for this stock. For non-target species, those ranges may be expanded and would depend on the biological range of each individual non-target species in the Western Atlantic Ocean. For habitat, the core geographic scope is focused on EFH within the EEZ but includes all habitat utilized by bluefish and other non-target species in the Western Atlantic Ocean. The core geographic scope for endangered and protected resources can be considered the overall range of these VECs in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities directly involved in the harvest or processing of the managed resource, which is found to occur in coastal states from Maine through East Coast Florida.

Temporal Boundaries
The temporal scope of past and present actions for the managed resources, non-target species, habitat, and human communities is primarily focused on actions that have occurred after FMP implementation (1990). For endangered and other protected resources, the scope of past and

present actions is on a species-by-species basis (section 6.3) and is largely focused on the 1980s and 1990s through the present, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ. The temporal scope of future actions for all five VECs extends about three years (2013) into the future. The temporal scope does not extend beyond this time period because the dynamic nature of resource management for this species and lack of information on projects that may occur in the future make it very difficult to predict impacts beyond this timeframe with any certainty.

7.5.4 Actions Other Than Those Proposed in the Specifications

The impacts of each of the alternatives considered in this specifications document are given in section 7.1 through 7.5. Box 7.6.4 presents meaningful past (P), present (Pr), or reasonably foreseeable future (RFF) actions to be considered other than those actions being considered in this specifications document. These impacts are described in chronological order and qualitatively, as the actual impacts of these actions are too complex to be quantified in a meaningful way. When any of these abbreviations occur together (i.e., P, Pr, RFF), it indicates that some past actions are still relevant to the present and/or future actions.

Past and Present Actions

The historical management practices of the Council have resulted in positive impacts on the health of the bluefish stock. Actions have been taken to manage the commercial and recreational fisheries for this species through amendment and framework adjustment actions. In addition, the annual specifications process is intended to provide the opportunity for the Council and NMFS to regularly assess 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. The statutory basis for federal fisheries management is the MSFCMA. To the degree with which this regulatory regime is complied, the cumulative impacts of past, present, and reasonably foreseeable future federal fishery management actions on the VECs should generally be associated with positive long-term outcomes. Constraining fishing effort through regulatory actions can often have negative short-term socioeconomic impacts. These impacts are usually necessary to bring about long-term sustainability of a given resource, and as such, should, in the long-term, promote positive effects on human communities, especially those that are economically dependent upon bluefish.

Non-fishing activities that introduce chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment pose a risk to all of the identified VECs. Human-induced non-fishing activities tend to be localized in nearshore areas and marine project areas where they occur. Examples of these activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the managed resource, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities.

The overall impact to the affected species and their habitats on a population level is unknown, but likely neutral to low negative, since a large portion of these species have a limited or minor exposure to these local non-fishing perturbations.

In addition to guidelines mandated by the MSA, NMFS reviews these types of effects through the review processes required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by federal, state, and local authorities. The jurisdiction of these activities is in "waters of the U.S." and includes both riverine and marine habitats.

Reasonably Foreseeable Future Actions

In terms of RFF Actions, guidance related to National Standard 1 of the MSA will require Council development of an Omnibus Amendment to address annual catch limits (ACLs) and accountability measures (AMs) for bluefish (as well as other Council managed species) to ensure that ACLs are not exceeded and ensure the FMP is compliant with the MSA.

For many of the proposed non-fishing activities to be permitted under other federal agencies (such as beach nourishment, offshore wind facilities, etc.), those agencies would conduct examinations of potential impacts on the VECs. The MSA (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 U.S., or by any public or private agency under federal permit or license, such department or agency first shall consult with the U.S. Fish and Wildlife Service (USFWS), 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.

In addition, NMFS and the USFWS share responsibility for implementing the ESA. ESA requires NMFS to designate "critical habitat" for any species it lists under the ESA (i.e., areas that contain physical or biological features essential to conservation, which may require special management considerations or protection) and to develop and implement recovery plans for threatened and endangered species. The ESA provides another avenue for NMFS to review actions by other entities that may impact endangered and protected resources whose management units are under NMFS’ jurisdiction.

7.5.5 Magnitude and Significance of Cumulative Effects

In determining the magnitude and significance of the cumulative effects, the additive and synergistic effects of the proposed action, as well as past, present, and future actions, must be taken into account. The following section discusses the effects of these actions on each of the VECs.

Box 7.5.4. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).						
Action	**Description**	**Impacts on Managed Resource**	**Impacts on Non-target Species**	**Impacts on Habitat and EFH**	**Impacts on Protected Species**	**Impacts on Human Communities**
P, Pr Original FMP and subsequent Amendments and Frameworks to the FMP	Established commercial and recreational management measures	**Indirect Positive** Regulatory tool available to rebuild and manage stocks	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Benefited domestic businesses
P, Pr Bluefish Specifications	Establish annual quotas, RHLs, other fishery regulations (commercial and recreational)	**Indirect Positive** Regulatory tool to specify annual quotas, RHLs, and other regulations; allows response to annual stock updates	**Indirect Positive** Reduced effort levels and gear requirements	**Indirect Positive** Reduced effort levels and gear requirements	**Indirect Positive** Reduced effort levels and gear requirements	**Indirect Positive** Benefited domestic businesses
P, Pr Developed and Applied Standardized Bycatch Reporting Methodology (2007)	Established acceptable level of precision and accuracy for monitoring of bycatch in fisheries	**Neutral** May improve data quality for monitoring total removals of managed resource	**Neutral** May improve data quality for monitoring removals of non-target species	**Neutral** Will not affect distribution of effort	**Neutral** May increase observer coverage and will not affect distribution of effort	**Potentially Indirect Negative** May impose an inconvenience on vessel operations
Pr, RFF Omnibus Amendment to address ACLs/AMs (~2010)	Establish ACLs and AMs for all three plan species	**Potentially Indirect Positive** Pending full analysis	**Potentially Indirect Positive** Pending full analysis	**Potentially Indirect Positive** Pending full analysis	**Potentially Indirect Positive** Pending full analysis	**Potentially Indirect Positive** Pending full analysis
P, Pr, RFF Agricultural runoff	Nutrients applied to agricultural land are introduced into aquatic systems	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality negatively affects resource
P, Pr, RFF Port maintenance	Dredging of coastal, port and harbor areas for port maintenance	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Direct Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Mixed** Dependent on mitigation effects

Box 7.5.4. Continued. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).						
Action	**Description**	**Impacts on Managed Resource**	**Impacts on Non-target Species**	**Impacts on Habitat and EFH**	**Impacts on Protected Species**	**Impacts on Human Communities**
P, Pr, RFF Offshore disposal of dredged materials	Disposal of dredged materials	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality negatively affects resource viability
P, Pr, RFF Beach nourishment	Offshore mining of sand for beaches	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Mixed** Positive for mining companies, possibly negative for fishing industry
	Placement of sand to nourish beach shorelines	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Positive** Beachgoers like sand; positive for tourism
P, Pr, RFF Marine transportation	Expansion of port facilities, vessel operations and recreational marinas	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Mixed** Positive for some interests, potential displacement for others
P, Pr, RFF Installation of pipelines, utility lines and cables	Transportation of oil, gas and energy through pipelines, utility lines and cables	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Direct Negative** Reduced habitat quality	**Potentially Direct Negative** Dependent on mitigation effects	**Uncertain – Likely Mixed** Dependent on mitigation effects
P, Pr National Offshore Aquaculture Act of 2007	Bill that would grant DOC authority to issue permits for offshore aquaculture in federal waters	**Potentially Indirect Negative** Localized decreases in habitat quality possible	**Potentially Indirect Negative** Localized decreases in habitat quality possible	**Direct Negative** Localized decreases in habitat quality possible	**Potentially Indirect Negative** Localized decreases in habitat quality possible	**Uncertain – Likely Mixed** Costs/benefits remain unanalyzed

Box 7.5.4. Continued. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).						
Action	**Description**	**Impacts on Managed Resource**	**Impacts on Non-target Species**	**Impacts on Habitat and EFH**	**Impacts on Protected Species**	**Impacts on Human Communities**
RFF Offshore Wind Energy Facilities (within 2 years)	Construction of wind turbines to harness electrical power (Several proposed from ME through NC, including NY/NJ, DE, and VA)	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Potentially Direct Negative** Localized decreases in habitat quality possible	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Mixed** Dependent on mitigation effects
Pr, RFF Liquefied Natural Gas (LNG) terminals (1 built and others within 2 years)	Transport natural gas via tanker to terminals offshore and onshore (1 terminal built in MA; 1 under construction; proposed in RI, NY, NJ and DE)	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Potentially Direct Negative** Localized decreases in habitat quality possible	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Mixed** Dependent on mitigation effects
RFF Convening Gear Take Reduction Teams (within next 2 years)	Recommend measures to reduce mortality and injury to marine mammals	**Indirect Positive** Will improve data quality for monitoring total removals	**Indirect Positive** Reducing availability of gear could reduce bycatch	**Indirect Positive** Reducing availability of gear could reduce gear impacts	**Indirect Positive** Reducing availability of gear could reduce encounters	**Indirect Negative** Reducing availability of gear could reduce revenues
RFF Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (w/in next 2 years)	May recommend strategies to prevent the bycatch of sea turtles in commercial fisheries operations	**Indirect Positive** Will improve data quality for monitoring total removals	**Indirect Positive** Reducing availability of gear could reduce bycatch	**Indirect Positive** Reducing availability of gear could reduce gear impacts	**Indirect Positive** Reducing availability of gear could reduce encounters	**Indirect Negative** Reducing availability of gear could reduce revenues

7.5.5.1 Managed Resources

Those past, present, and reasonably foreseeable future actions, whose effects may impact the managed resources and the direction of those potential impacts, are summarized in Box 7.5.5.1. The indirectly negative actions described in Box 7.5.5.1 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on the managed resources is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on productivity of the managed resources is unquantifiable. As described above (section 7.5.4), 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.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on the managed resources. It is anticipated that the future management actions, described in Box 7.5.5.1, will result in additional indirect positive effects on the managed resources through actions which reduce and monitor bycatch, protect habitat, and protect ecosystem services on which bluefish productivity depends. In addition, a future Amendment will implement mechanisms for specification of ACLs)/AMs and has the potential to changes the current management program and lead to improvements in resource sustainability over the long-term. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to bluefish have had a positive cumulative effect.

Annual TALs for the managed resource have been specified to ensure the bluefish stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts from annual specification of management measures established in previous years on the managed resources are largely dependent on how effective those measures were in meeting their intended objectives (i.e., annual F targets are achieved and overfishing is prevented) and the extent to which mitigating measures were effective. Section 6.1.1 describes the history of overages for these fisheries and how overages are currently mitigated. The proposed action in this document would positively reinforce the past and anticipated positive cumulative effects on the bluefish stock, by achieving the objectives specified in the FMP. Therefore, the proposed action would not have any significant effect on the managed resources individually or in conjunction with other anthropogenic activities (see Box 7.5.6).

Box 7.5.5.1. Summary of the effects of past, present, and reasonably foreseeable future actions on the managed resource.			
Action (see Box 7.5.4 for more detailed description)	**Past to the Present**		**Reasonably Foreseeable Future**
Original FMP and subsequent Amendments and Frameworks to the FMP	**Indirect Positive**		
Bluefish Specifications	**Indirect Positive**		
Developed and Implement Standardized Bycatch Reporting Methodology	**Neutral**		
Amendment to address ACLs/AMs for the managed resources		**Potentially Indirect Positive**	
Agricultural runoff	**Indirect Negative**		
Port maintenance	**Uncertain – Likely Indirect Negative**		
Offshore disposal of dredged materials	**Indirect Negative**		
Beach nourishment – Offshore mining	**Indirect Negative**		
Beach nourishment – Sand placement	**Indirect Negative**		
Marine transportation	**Indirect Negative**		
Installation of pipelines, utility lines and cables	**Uncertain – Likely Indirect Negative**		
National Offshore Aquaculture Act of 2007	**Potentially Indirect Negative**		
Offshore Wind Energy Facilities (within 2 years)			**Uncertain – Likely Indirect Negative**
Liquefied Natural Gas (LNG) terminals (within 2 years)		**Uncertain – Likely Indirect Negative**	
Convening Gear Take Reduction Teams (within 2 years)			**Indirect Positive**
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 2 years)			**Indirect Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on the managed resources** *** See section 7.5.5.1 for explanation.**		

7.5.5.2 Non-Target Species or Bycatch

Those past, present, and reasonably foreseeable future actions, whose effects may impact non-target species and the direction of those potential impacts, are summarized in Box 7.5.5.2. The effects of indirectly negative actions described in Box 7.5.5.2 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on non-target species is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on productivity of non-target resources and the oceanic ecosystem is unquantifiable. As described above (section 7.5.4), 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. At this time, NMFS can consider impacts to non-target species (federally-managed or otherwise) and comment on potential impacts. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources within NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on non-target species. Implementation and application of a standardized bycatch reporting methodology would have a particular impact on non-target species by improving the methods which can be used to assess the magnitude and extent of a potential bycatch problem. Better assessment of potential bycatch issues allows more effective and specific management measures to be developed to address a bycatch problem. It is anticipated that future management actions, described in Box 7.5.5.2, will result in additional indirect positive effects on non-target species through actions which reduce and monitor bycatch, protect habitat, and protect ecosystem services on which the productivity of many of these non-target resources depend. The impacts of these future actions could be broad in scope, and it should be noted the managed resource and non-target species are often coupled in that they utilize similar habitat areas and ecosystem resources on which they depend. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful have had a positive cumulative effect on non-target species.

Annual TALs the managed resource has been specified to ensure the bluefish stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document have impacts that range from neutral to slight positive or negative impacts, and would not change the past and anticipated positive cumulative effects on non-target species and thus, would not have any significant effect on these species individually or in conjunction with other anthropogenic activities (see Box 7.5.6).

Box 7.5.5.2. Summary of the effects of past, present, and reasonably foreseeable future actions on the non-target species.			
Action (see Box 7.5.4 for more detailed description)	**Past to the Present**		**Reasonably Foreseeable Future**
Original FMP and subsequent Amendments and Frameworks to the FMP	**Indirect Positive**		
Bluefish Specifications	**Indirect Positive**		
Developed and Implement Standardized Bycatch Reporting Methodology	**Neutral**		
Amendment to address ACLs/AMs for the managed resources		**Potentially Indirect Positive**	
Agricultural runoff	**Indirect Negative**		
Port maintenance	**Uncertain – Likely Indirect Negative**		
Offshore disposal of dredged materials	**Indirect Negative**		
Beach nourishment – Offshore mining	**Indirect Negative**		
Beach nourishment – Sand placement	**Indirect Negative**		
Marine transportation	**Indirect Negative**		
Installation of pipelines, utility lines and cables	**Uncertain – Likely Indirect Negative**		
National Offshore Aquaculture Act of 2007	**Potentially Indirect Negative**		
Offshore Wind Energy Facilities (within 2 years)			**Uncertain – Likely Indirect Negative**
Liquefied Natural Gas (LNG) terminals (within 2 years)		**Uncertain – Likely Indirect Negative**	
Convening Gear Take Reduction Teams (within 2 years)			**Indirect Positive**
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 2 years)			**Indirect Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on the non-target species * See section 7.5.5.2 for explanation.**		

7.5.5.3 Habitat (Including EFH)

Those past, present, and reasonably foreseeable future actions, whose effects may impact habitat (including EFH) and the direction of those potential impacts, are summarized in Box 7.5.5.3. The direct and indirect negative actions described in Box 7.5.5.3 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on habitat is expected to be limited due to a lack of exposure to habitat at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on habitat and EFH is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources and the habitat on which they rely prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of direct and indirect negative impacts those actions could have on habitat utilized by resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on habitat and EFH. The actions have constrained fishing effort at a large scale and locally, and have implemented gear requirements, which may reduce habitat impacts. As required under these FMP actions, EFH and HAPCs were designated for the managed resources. It is anticipated that the future management actions, described in Box 7.5.5.3, will result in additional direct or indirect positive effects on habitat through actions which protect EFH for federally-managed species and protect ecosystem services on which these species' productivity depends. These impacts could be broad in scope. All of the VECs are interrelated; therefore, the linkages among habitat quality and EFH, managed resources and non-target species productivity, and associated fishery yields should be considered. For habitat and EFH, there are direct and indirect negative effects from actions which may be localized or broad in scope; however, positive actions that have broad implications have been, and it is anticipated will continue to be, taken to improve the condition of habitat. There are some actions, which are beyond the scope of NMFS and Council management such as coastal population growth and climate changes, which may indirectly impact habitat and ecosystem productivity. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to habitat have had a neutral to positive cumulative effect.

Annual TALs for the managed resource has been specified to ensure the bluefish stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on habitat and thus, would not have any significant effect on habitat individually or in conjunction with other anthropogenic activities (see Box 7.5.6).

Box 7.5.5.3. Summary of the effects of past, present, and reasonably foreseeable future actions on the habitat.		
Action (see Box 7.5.4 for more detailed description)	**Past to the Present**	**Reasonably Foreseeable Future**
Original FMP and subsequent Amendments and Frameworks to the FMP	**Indirect Positive**	
Bluefish Specifications	**Indirect Positive**	
Developed and Implement Standardized Bycatch Reporting Methodology	**Neutral**	
Amendment to address ACLs/AMs for the managed resources		**Potentially Indirect Positive**
Agricultural runoff	**Direct Negative**	
Port maintenance	**Uncertain – Likely Direct Negative**	
Offshore disposal of dredged materials	**Direct Negative**	
Beach nourishment – Offshore mining	**Direct Negative**	
Beach nourishment – Sand placement	**Direct Negative**	
Marine transportation	**Direct Negative**	
Installation of pipelines, utility lines and cables	**Uncertain – Likely Direct Negative**	
National Offshore Aquaculture Act of 2007	**Direct Negative**	
Offshore Wind Energy Facilities (within 2 years)		**Potentially Direct Negative**
Liquefied Natural Gas (LNG) terminals (within 2 years)		**Potentially Direct Negative**
Convening Gear Take Reduction Teams (within 2 years)		**Indirect Positive**
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 2 years)		**Indirect Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, neutral to positive impacts on habitat, including EFH * See section 7.5.5.3 for explanation.**	

7.5.5.4 Protected and Endangered Species

Those past, present, and reasonably foreseeable future actions, whose effects may impact the protected resources and the direction of those potential impacts, are summarized in Box 7.5.5.4. The indirectly negative actions described in Box 7.5.5.4 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on protected resources, relative to the range of many of the protected resources, is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on protected resources either directly or indirectly is unquantifiable. As described above (section 7.5.4), NMFS has several means, including ESA, under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' protected 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 protected resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on protected resources through the reduction of fishing effort (potential interactions) and implementation of gear requirements. It is anticipated that the future management actions, specifically those recommended by the ATGTRT and the development of strategies for sea turtle conservation described in Box 7.5.5.4, will result in additional indirect positive effects on the protected resources. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to protected resources have had a positive cumulative effect.

Annual TALs for each of the managed resources have been specified to ensure the bluefish stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on protective resources and thus, would not have any significant effect on protected resources individually or in conjunction with other anthropogenic activities (see Box 7.5.6).

Box 7.5.5.4. Summary of the effects of past, present, and reasonably foreseeable future actions on the protected resources.		
Action (see Box 7.5.4 for more detailed description)	**Past to the Present**	**Reasonably Foreseeable Future**
Original FMP and subsequent Amendments and Frameworks to the FMP	**Indirect Positive**	
Bluefish Specifications	**Indirect Positive**	
Developed and Implement Standardized Bycatch Reporting Methodology	**Neutral**	
Amendment to address ACLs/AMs for the managed resources		**Potentially Indirect Positive**
Agricultural runoff	**Indirect Negative**	
Port maintenance	**Uncertain – Likely Indirect Negative**	
Offshore disposal of dredged materials	**Indirect Negative**	
Beach nourishment – Offshore mining	**Indirect Negative**	
Beach nourishment – Sand placement	**Indirect Negative**	
Marine transportation	**Indirect Negative**	
Installation of pipelines, utility lines and cables	**Potentially Direct Negative**	
National Offshore Aquaculture Act of 2007	**Potentially Indirect Negative**	
Offshore Wind Energy Facilities (within 2 years)		**Uncertain – Likely Indirect Negative**
Liquefied Natural Gas (LNG) terminals (within 2 years)		**Uncertain – Likely Indirect Negative**
Convening Gear Take Reduction Teams (within 2 years)		**Indirect Positive**
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 2 years)		**Indirect Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on protected resources * See section 7.5.5.4 for explanation.**	

7.5.5.5 Human Communities

Those past, present, and reasonably foreseeable future actions, whose effects may impact human communities and the direction of those potential impacts, are summarized in Box 7.5.5.5. The indirectly negative actions described in Box 7.5.5.5 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on human communities is expected to be limited in scope. It may, however, displace fishermen from project areas. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude. This may result in indirect negative impacts on human communities by reducing resource availability; however, this effect is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies 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 human communities.

Past fishery management actions taken through the FMP and annual specification process have had both positive and negative cumulative effects by benefiting domestic fisheries through sustainable fishery management practices, while at the same time potentially reducing the availability of the resource to all participants. Sustainable management practices are, however, expected to yield broad positive impacts to fishermen, their communities, businesses, and the nation as a whole. It is anticipated that the future management actions, described in Box 7.5.5.5, will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on the human communities could occur through management actions that may implement gear requirements or area closures and thus, reduce revenues. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had an overall positive cumulative effect.

Annual TALs for the managed resource has been specified to ensure the bluefish stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts from annual specification measures established in previous years on the managed resources are largely dependent on how effective those measures were in meeting their intended objectives (i.e., annual F targets) and the extent to which mitigating measures were effective. Overages may alter the timing of fishery revenues (revenues realized a year earlier), and there may be impacts on some fishermen caused by unexpected reductions in their opportunities to earn revenues in the commercial fisheries in the year during which the overages are deducted. Recreational fisheries may have decreased harvest opportunities due to more restrictive recreational management measures that must be implemented (i.e., minimum fish size, possession limits, fishing seasons).

Despite the potential for slight negative short-term effects on human communities, the expectation is that there would be a positive long-term effect on human communities due to the long-term sustainability of bluefish. Overall, the proposed actions in this document would not change the past and anticipated cumulative effects on human communities and thus, would not have any significant effect on human communities individually, or in conjunction with other anthropogenic activities (see Box 7.5.6).

Box 7.5.5.5. Summary of the effects of past, present, and reasonably foreseeable future actions on human communities.			
Action (see Box 7.5.4 for more detailed description)	**Past to the Present**		**Reasonably Foreseeable Future**
Original FMP and subsequent Amendments and Frameworks to the FMP	**Indirect Positive**		
Bluefish Specifications	**Indirect Positive**		
Developed and Implement Standardized Bycatch Reporting Methodology	**Potentially Indirect Negative**		
Amendment to address ACL/AMs for the managed resources		**Potentially Indirect Positive**	
Agricultural runoff	**Indirect Negative**		
Port maintenance	**Uncertain – Likely Mixed**		
Offshore disposal of dredged materials	**Indirect Negative**		
Beach nourishment – Offshore mining	**Mixed**		
Beach nourishment – Sand placement	**Positive**		
Marine transportation	**Mixed**		
Installation of pipelines, utility lines and cables	**Uncertain – Likely Mixed**		
National Offshore Aquaculture Act of 2007	**Uncertain – Likely Mixed**		
Offshore Wind Energy Facilities (within 3 years)			**Uncertain – Likely Mixed**
Liquefied Natural Gas (LNG) terminals (within 3 years)		**Uncertain – Likely Mixed**	
Convening Gear Take Reduction Teams (within 3 years)			**Indirect Negative**
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years)			**Indirect Negative**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on human communities * See section 7.5.5.5 for explanation.**		

7.5.6 Preferred Action on all the VECS

The Council has identified its preferred action alternatives in section 5.0. The cumulative effects of the range of actions considered in this document can be considered to make a determination if significant cumulative effects are anticipated from the preferred action.

Box 7.5.6. Magnitude and significance of the cumulative effects; the additive and synergistic effects of the proposed action, as well as past, present, and future actions

VEC	Status in 2009	Net Impact of P, Pr, and RFF Actions	Impact of the Preferred Action	Significant Cumulative Effects
Managed Resource	Complex and variable (Section 6.1)	Positive (Sections 7.5.4 and 7.5.5.1)	Negative to positive (Sections 7.1-7.5)	**None**
Non-target Species	Complex and variable (Section 6.1)	Positive (Sections 7.5.4 and 7.5.5.2)	Negative to positive (Sections 7.1-7.5)	**None**
Habitat	Complex and variable (Section 6.2)	Neutral to positive (Sections 7.5.4 and 7.5.5.3)	Neutral to negative (Sections 7.1-7.5)	**None**
Protected Resources	Complex and variable (Section 6.3)	Positive (Sections 7.5.4 and 7.5.5.4)	Neutral to negative (Sections 7.1-7.5)	**None**
Human Communities	Complex and variable (Section 6.4)	Positive (Sections 7.5.4 and 7.5.5.5)	Short-term-Slight-negative to positive; Long-term-Positive (Sections 7.1-7.5)	**None**

The direct and indirect impacts of the proposed action on the VECs are described in sections 7.1 through 7.5. The magnitude and significance of the cumulative effects, which include the additive and synergistic effects of the proposed action, as well as past, present, and future actions, have been taken into account throughout this section 7.5. The action proposed in this annual specifications document builds off action taken in the original FMP and subsequent amendments and framework documents. When this action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future actions, it is not expected to result in any significant impacts, positive or negative. Based on the information and analyses presented in these past FMP documents and this document, there are no significant cumulative effects associated with the action proposed in this document.

8.0 ESSENTIAL FISH HABITAT ASSESSMENT *

8.1 Description of the Proposed Action

The proposed action (fully described in section 5.0 of this document) would establish Federal management measures for commercial and recreational bluefish fisheries on the Atlantic Coast of the U.S. for fishing year 2010 (beginning January 1, 2011). In accordance with the bluefish FMP, the purpose of this action is to ensure that overfishing does not occur in FY2011 and that stock biomass does not decline below the overfished threshold.

After reviewing the assessment results, the Council's SSC noted that there is sufficient uncertainty in some of the assessment model data inputs. Given this scientific uncertainty, the SSC and monitoring committee recommended setting allowable catch (TAC) for 20110 at a level consistent with the status quo specified fishing mortality rate (F = 0.15) rather than increasing F target to the level specified in the FMP for a recovered stock (90%F_{MSY}; F = 0.17). The Council responded in kind and recommended management measures consistent with the more risk-averse target F (0.15).

8.2 Potential Adverse Effects of the Proposed Action on EFH

An evaluation of the impacts of the proposed action on EFH is provided in section 7.0 of this document. Bluefish are primarily caught recreationally using hook and line. The principal commercial gear used in the directed bluefish fishery is the bottom gillnet. Approximately 3.1 percent of the bluefish landed in 2009 were caught in bottom trawls while 94.2 percent were caught by gillnet. The proposed 2011 commercial quota could increase landings of bluefish by as much as 39.9 percent if the entire commercial quota is taken, but even if there is a significant increase in the catch, it is unlikely that there would be a significant increase in bottom trawling effort or in adverse EFH impacts because bluefish are not generally targeted in the bottom trawl fishery. Estimated commercial landings in 2009 only reached 66 percent of the 2009 commercial quota.

8.3 Conclusions

It was concluded in the 2004 Annual Specifications EA that the baseline impact of the bluefish fishery on EFH is minimal and temporary in nature. Additionally, the specified recreational and commercial catch quotas that have been implemented since then have not required any habitat impact mitigation. Since the proposed action is only expected to have minimal adverse impacts on EFH , it will continue to minimize the adverse impacts of the recreational and commercial bluefish fisheries on EFH to the extent practicable, pursuant to section 305 (a)(7) of the MSFCMA.

9.0 OTHER APPLICABLE LAWS

9.1 NEPA

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

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

None of the proposed specifications presented in this document are expected to jeopardize the sustainability of bluefish (section 7.0 of the EA). The preferred quota specification for this species is consistent with the FMP objectives. The preferred bluefish TAL of 27.293 M lb for 2011 is expected to achieve the target fishing mortality rate in 2011. The proposed action will aid in the long-term sustainability of harvests from the bluefish stock (section 7.1 of the EA).

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

None of the proposed action's specifications presented in this document are expected to jeopardize the sustainability of any non-target species. The bluefish fishery is primarily a recreational fishery and prosecuted using hook and line and handlines, and the proposed measures are not expected to alter these fishing methods or activities. None of the specifications are expected to significantly alter fishing methods or activities or are expected to alter the spatial and/or temporal distribution of current 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 MSFCMA and identified in the FMP. In general, bottom-tending mobile gear, primarily otter trawls, have the potential to adversely affect EFH for the species detailed in section 6.2 of the EA. However, the bluefish fishery is primarily a recreational fishery which is prosecuted using hook and line gear. In the commercial fishery, bluefish are caught as a targeted species primarily with bottom gill nets and incidentally to other species in bottom trawls. Bottom trawls are known to adversely

impact benthic habitats. The proposed increase in the 2011 Council-adjusted commercial quota is 11 percent lower than the quota implemented in 2010 and trawl fishing effort for bluefish not expected to increase. Neither these, nor any 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 alter the manner in which the industry conducts fishing activities for bluefish. Therefore, no changes in fishing behavior that would affect safety are anticipated. The overall effect of the proposed actions on bluefish, including the communities in which they operate, will not impact adversely public health or safety. NMFS will consider comments received concerning safety and public health issues.

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

None of the specifications are expected to significantly alter fishing methods or activities or are expected to alter the spatial and/or temporal distribution of current fishing effort (section 7.0 of the EA). 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 fishery. It has been determined that fishing activities conducted under this action will have no adverse impacts on endangered or threatened species, marine mammals, or their critical habitat (section 9.3 below).

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 quota, recreational harvest limit, and RSA for the 2011 bluefish fishery. None of the specifications are expected to alter fishing methods or activities. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort.

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

The proposed action is not expected to have a significant social or economic impact, nor are the potential socio-economic impacts interrelated with natural or physical effects. None of the specifications are expected to significantly alter fishing methods or activities or are expected to alter the spatial and/or temporal distribution of current fishing effort (section 7.0 of the EA).

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 quota, recreational harvest limit, and RSA for the 2011 bluefish fishery. The proposed action is based on measures contained in the FMP which have been in place for many years. In addition, the scientific information upon which the annual quotas are based has been peer-reviewed and is the most recent information available. The measures contained in this action are not expected to be highly controversial.

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

This action merely revises the proposed annual commercial quota, recreational harvest limit, and RSA for the 2011 bluefish fishery. The bluefish fishery is 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 action merely revises the proposed annual commercial quota, recreational harvest limit, and RSA for the 2011 bluefish fishery. None of the specifications are expected to alter fishing methods or activities or are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The measures contained in this action are not expected to have highly uncertain, unique, or unknown risks on the human environment.

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

As discussed in section 7.5 of the EA, the proposed action is not expected to have individually insignificant, but cumulatively significant impacts. The 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 action merely revises the proposed annual commercial quota, recreational harvest limit, and RSA for the 2011 bluefish fishery. The bluefish fishery is 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, recreational harvest limit, and RSA for the 2011 bluefish fishery. There is no evidence or indication that this fishery has ever resulted in the introduction or spread of nonindigenous species. None of the specifications are expected to significantly alter fishing methods or activities or are expected to alter the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed specifications would 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 proposed action merely revises the proposed annual commercial quota, recreational harvest limit, and RSA for the 2011 bluefish fishery. None of the proposed specifications are expected to increase fishing effort or alter the spatial and/or temporal distribution of current fishing effort. In addition, these specifications are consistent with the bluefish FMP. None of these specifications result in significant effects nor do they represent a decision in principle about a future consideration.

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

This proposed action merely revises the proposed annual commercial quota, recreational harvest limit, and RSA for the 2011 bluefish fishery. None of the specifications are expected to alter fishing methods or activities such that they threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. In fact, the proposed measures have been found to be consistent with other applicable laws (sections 9.2 through 9.8 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 components of the environment are described in section 7.0 of the EA. The cumulative effects of the proposed action on target and non-target species are detailed in section 7.5 of the EA. None of the proposed specifications are expected to increase fishing effort or alter the spatial and/or temporal distribution of current fishing effort. The synergistic interaction of improvements in the efficiency of the fishery through implementation of annual quotas based on the overfishing definitions contained in the FMP are expected to generate positive impacts overall, but the implementation of the proposed 2011 management measures are not expected to result in any cumulative adverse effects that would have a substantial effect on target or non-target species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for the 2011 Bluefish Specifications, it is hereby determined that the 2011 bluefish fishery specifications will not significantly impact the quality of the human environment as described above and in the supporting 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.

_____ ___3/1/11_____

Regional Administrator, Northeast Region, NMFS Date

9.2 Endangered Species Act

Sections 6.3 and 7.0 of the EA should be referenced for an assessment of the impacts of the proposed action on endangered or threatened species. Regarding the impacts of the RSA project, it is being approved through a different action (NEAMAP proposal to NOAA Grants Office). As such, that would be the action under which the ESA consultation would be performed. 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

The Council has reviewed the impacts of the 2011 Bluefish Specifications on marine mammals and concluded that the management actions proposed are consistent with the provisions of the MMPA and would not alter existing measures to protect the species likely to inhabit the management units of the subject fisheries. None of the specifications proposed in this document are expected to alter fishing methods or activities. For further information on the potential impacts of the fishery and the proposed management action, see sections 6.3 and 7.0 of the EA.

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 has developed this specifications document and will submit it to NMFS; NMFS must determine whether this action is consistent to the maximum extent practicable with the CZM programs for each state (Maine through Florida).

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 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 an FMP 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 action and the proposed specifications document was developed through a multi-stage process that was open to review by affected members of the public. The public had the opportunity to review and comment on management measures during the SSC meeting held on July 29 2010 and the Bluefish Monitoring Committee Meetings held on July 30, 2010 in Baltimore, MD, and during the MAFMC meeting held on August 17-19, 2009 in Philadelphia, PA. In addition, the public will have further opportunity to comment on this specifications document once NMFS publishes a request for comments notice in the Federal Register (FR).

9.6 Section 515 (Information Quality Act)

Utility of Information Product

Explain how the information product meets the standards for utility:

Is the information helpful, beneficial or serviceable to the intended user?

The proposed document includes: A description of the 2011 Specifications, the proposed changes to the implementing regulations of the FMP, a description of the alternatives considered, and the reasons for selecting the proposed management measures. This proposed specifications document implements the FMP's conservation and management goals consistent with the MSFCMA as well as all other existing applicable laws.

Is the data or information product an improvement over previously available information? Is it more current or detailed? Is it more useful or accessible to the public? Has it been improved based on comments from or interactions with customers?

This proposed specifications document was developed as a result of a multi-stage process that involved review of the source document (2011 Specifications package) by affected members of the public. The public had the opportunity to review and comment on management measures during the SSC meeting held on July 29 2010 and the Bluefish Monitoring Committee Meetings held on July 30, 2010 in Baltimore, MD, and during the MAFMC meeting held on August 17-19, 2009 in Philadelphia, PA. In addition, the public will have further opportunity to comment on this specifications document once NMFS publishes a request for comments notice in the Federal Register (FR).

What media are used in the dissemination of the information? Printed publications? CD-ROM? Internet? Is the product made available in a standard data format? Does it use consistent attribute naming and unit conventions to ensure that the information is accessible to a broad range of users with a variety of operating systems and data needs?

The FR 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

Explain how the information product meets the standards for integrity:

All electronic information disseminated by National Oceanic and Atmospheric Administration (NOAA) adheres to the standards set out in Appendix III, "Security of Automated Information Resources," OMB Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

If information is confidential, it is safeguarded pursuant to the Privacy Act and Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business and financial information).

Other/Discussion (e.g., Confidentiality of Statistics of the MSFCMA; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the MMPA).

Objectivity of Information Product

Indicate which of the following categories of information products apply for this product:

- Original Data
- Synthesized Products
- Interpreted Products
- Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories
- Experimental Products
- Natural Resource Plans
- Corporate and General Information

Describe how this information product meets the applicable objectivity standards. (See the IQA Documentation and Pre-Dissemination Review Guidelines for assistance and attach the appropriate completed documentation to this form).

What published standard(s) governs the creation of the Natural Resource Plan? Does the Plan adhere to the published standards? (See the NOAA Sec. 515 Information Quality Guidelines, Section II(F) for links to the published standards for the Plans disseminated by NOAA).

In preparing specifications documents, the Council must comply with the requirements of the MSFCMA, 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 Information Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas).

Was the Plan developed using the best information available? Please explain.

This specification's document has been developed to comply with all applicable National Standards, including National Standard 2. National Standard 2 states that the FMP's conservation and management measures shall be based upon the best scientific information available. Despite current data limitations, the conservation and management measures proposed to be implemented under this specifications document are based upon the best scientific information available. This information includes NMFS dealer weighout, VTR, and permit data and South Atlantic General Canvass Data for 2009 which were used to characterize the economic impacts of the management proposals and describe the bluefish fisheries. 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 bluefish fisheries. In addition, Marine Recreational Fisheries Statistics Survey data were used to further characterize the recreational fishery for this species.

Have clear distinctions been drawn between policy choices and the supporting science upon which they are based? Have all supporting materials, information, data and analyses used within the Plan been properly referenced to ensure transparency?

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 management measures are contained in the specifications document and to some degree in previous specifications and/or the FMP as specified in this document.

Describe the review process of the Plan by technically qualified individuals to ensure that the Plan is valid, complete, unbiased, objective and relevant. For example, internal review by staff not involved in the development of the Plan to formal, independent, external peer review. The level of review should be commensurate with the importance of the Plan and the constraints imposed by legally enforceable deadlines.

The review process for this specifications package involves the MAFMC, 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, coastal migratory 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 business, 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 PRA.

9.8 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 bluefish fisheries. Since the proposed action represents no changes relative to the current levels of participation in these fisheries, no negative economic or social effects in the context of EO 12898 are anticipated as a result. Therefore, the proposed action is not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Indian tribes.

9.9 Impacts of the Plan Relative to Federalism/EO 13132

This specifications package does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order (EO) 13132. The affected states have been closely involved in the development of the proposed management measures through their representation on the Council (all affected states are represented as voting members of at least one Regional Fishery Management Council). No comments were received from any state officials relative to any federalism implications that may be associated with this action.

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11.0 LIST OF PREPARERS OF THE ENVIRONMENTAL ASSESSMENT

The bluefish specifications were submitted to the NMFS by the MAFMC. This specifications package was prepared by the following members of the MAFMC staff: James L. Armstrong and Dr. José L. Montañez. Scott R. Steinback (NMFS/NEFSC) assisted in describing the economic environment of the recreational fishery. Additonal copies of the final copy of this EA can be obtained via the NMFS NERO website:
http://www.nero.noaa.gov/nero/regs/com2011.html

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.

To ensure compliance with NMFS formatting requirements, the advice of NMFS Northeast Region personnel, including Tobey Curtis was relied upon during document preparation.

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REGULATORY IMPACT REVIEW/INITIAL REGULATORY FLEXIBILITY ANALYSIS (RIR/IRFA)

1.0 INTRODUCTION

The NMFS requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new FMP or significantly amend an existing plan. This RIR is part of the process of preparing and reviewing FMPs and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. This analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problems. The purpose of this analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. This RIR addresses many items in the regulatory philosophy and principles of EO 12866. Also included is an Initial Regulatory Flexibility Analysis (IRFA). This analysis is being undertaken in support of the 2011 specifications for bluefish.

2.0 EVALUATION OF REGULATORY IMPACT REVIEW (EO 12866) SIGNIFICANCE

2.1 Description of the Management Objectives

A complete description of the purpose and need and objectives of this rule is found under section 4.0 of the EA. This action is taken under the authority of the MSFCMA and regulations at 50 CFR part 648.

2.2 Description of the Fishery

A description of ports and communities is found in the 2002 Bluefish Specifications Document (MAFMC 2001). Additionally, the "top bluefish ports" that landed bluefish in 2009 are identified in section 6.4 of the EA. An analysis of permit data is also found in section 6.4 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 4.3 and 5.0 of the EA. In addition, a brief description of each alternative is presented below for reference purposes.

2.5 Analysis of Alternatives

The 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 measures considered in this bluefish analysis will not affect total revenues generated by the commercial sector or party/charter sector to the extent that a $100 million annual economic impact will occur in the bluefish fisheries. Based on NMFS preliminary dealer data (ME-VA) and South Atlantic General Canvass data (NC-FL east coast), the total commercial value in 2009 (Maine through Florida's east coast) was estimated at approximately $2.6 million for bluefish.

The overall coast-wide Council-adjusted commercial bluefish quota for 2011 is lower (i.e., 11 percent) than the adjusted bluefish commercial quota for 2010 and approximately 40 percent above the commercial landings for 2009. This commercial quota would allow fishermen slightly lower fishing opportunities for bluefish in 2011 compared to the 2010 adjusted quota. The NMFS Quota Report as of the week ending August 31, 2010 indicates that overall bluefish commercial landings are within the overall commercial quota for 2010 (42 percent of the quota landed). Therefore, the 2011 overall quota was not adjusted for overages. Given the potential for fishing opportunities in 2011 when compared to 2010, and commercial landings compared to the Council adjusted commercial quotas implemented in recent years, it is expected that overall ex-vessel revenues from bluefish will remain about the same in 2011 when compared to 2010 as a consequence of the proposed Council-adjusted commercial quota if market conditions remain relatively stable.

According to MRFSS data, the number of recreational fishing trips for all modes combined in the North Atlantic, Mid-Atlantic, and South Atlantic regions in 2009 were 7.51, 17.08, and 19.08 million, respectively. Of the total number of fishing trips for all modes combined in the North Atlantic, Mid-Atlantic, and South-Atlantic regions, approximately 0.45 million (6.0 percent), 1.10 million (6.4 percent), and 0.56 million trips (3.0 percent) were party/charter fishing trips, respectively. It is estimated that the number of party/charter fishing trips that sought bluefish as the primary species from Maine thought Virginia (i.e., total effort targeting bluefish by party/charter mode) in 2009 was approximately 100 thousand (Table 8).

Under Alternative 1, the bluefish 2011 Council-adjusted recreational harvest limit would be 17.345 M lb. This limit would be approximately 28 percent above the recreational landings for 2009 (13.583 M lb) and 7 percent below the limit implemented for 2010 (18.631 M lb). The possession limit would remain at 15 fish. Bluefish recreational landings for the 2000 to 2005 period have been lower than the recreational harvest limits established for those years; ranging from 10 percent in 2005 to 59 percent in 2000. For the 2000-2005 period, recreational landings have ranged from 10.606 M lb (2000) to 18.132 M lb (2005), averaging 13.718 M lb or about 41 percent below the average recreational harvest limit implemented for those years combined. However, in 2006 and 2007, recreational landings were 16.752 and 21.163 M lb, respectively, or about 7 percent higher than the combined recreational harvest limit

implemented those years. In 2008 and 2009, recreational landings were 7 and 30 percent lower than the recreational harvest limits implemented those years, respectively (Table 6). It is assumed that recreational landings in 2011 will approximate average 2007-2009 recreational landings (17.882 M lb). The proposed adjusted recreational harvest limit under this alternative is near identical (3 percent lower) than the projected recreational landings for 2011. It is important to stress that the RSA amount used to evaluate the alternatives presented in this document is the maximum RSA allowed (3 percent of the TAL) to support collaborative research projects among the public, research institutions, and NMFS. The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete. Furthermore, it is possible that updates of recreational landings projections completed by NMFS during rulemaking (and when more data are available, e.g., following wave 5 of the MRFSS data) could result in transfers different from those presented in this specifications package.

At the present time there are neither behavioral or demand data available to estimate how sensitive party/charter boat anglers might be to proposed fishing regulations. However, given the level of the Council-adjusted recreational harvest limit for 2011 and recreational landings in recent years, it is possible that given the proposed recreational harvest limits under Alternative 1, the demand for party/charter boat trips may be slightly negatively impacted. Currently, the market demand for this sector is relatively stable. Overall, it is not expected that the final recreational management measures will significantly affect gross revenues of businesses providing goods and services to anglers participating in the party/charter boat, private/rental boat, and shore fisheries for bluefish.

The action is necessary to advance the management of the bluefish stock, and to establish the harvest of this 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 bluefish fishery in the EEZ. Third, the action 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 action does not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in EO 12866.

The economic effects of the bluefish effort reductions were evaluated through Amendment 1. The economic analysis presented at that time was largely qualitative in nature. Assessment of the bluefish quota indicates that overall landings have been within the quota specifications since the implementation of Amendment 1. Therefore, there is a reasonable expectation that

the management objectives will be met and the expected economic benefits will not be compromised.

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 this fishery 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 Review of National Marine Fisheries Service Regulatory Actions" (NMFS 2007), as only a brief summary of key concepts will be presented here.

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

Alternative 1 (Preferred Alternative)

A complete description of the derivation of the TAL and its allocation to the commercial and recreational sectors is presented in sections 4.3 and 5.0 of the EA. Alternative 1 would set the TAL at 27.293 M lb. This alternative includes a Council-adjusted commercial quota of 9.129 M lb (the 2nd least restrictive commercial quota), an RHL of 17.345 M lb, and an RSA of 0.819 M lb for 2011.

Commercial Fishery

For purposes of this analysis, the status quo and all other alternatives will be evaluated under the assumption that the primary measure for achieving the conservation objectives will be through changes in quota levels. This alternative as well as the other 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 bluefish landings for 2009. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative in 2011 versus landing that took place in 2009. Aggregate changes in fishing opportunities in 2011 (Council-adjusted commercial quota) versus 2009 landings are shown in Table 35. The information presented in Table 35 was used to determine overall potential changes in commercial landings associated with the quota levels associated with each of the alternatives evaluated in this analysis.

Due to a lack of an empirical model for this fishery and knowledge of elasticities of supply and demand, a qualitative approach to the economic assessment was adopted. Nevertheless, quantitative measures are provided whenever possible.

Landings

Under the preferred alternative, the overall Council-adjusted commercial quota for 2011 would allow for an overall 40 percent increase in landings in 2011 compared to actual landings in 2009 (6.526 M lb). However, in reality, coastwide commercial landings are consistently below the limit established by the quota. For example, on average, commercial landings for the combined 2005 thought 2009 period (34.00 M lb) were 37 percent below the combined quota for the period (44.359 M lb). In addition, 2009 commercial landings (6.526 M lb) were 29 percent below the quota for that year (9.129 M lb). There is no indication that the market environment for commercially caught bluefish will substantially change in 2011 compared to 2009 or 2010. As such, it is expected that bluefish commercial landings in 2011 will be similar to those that occurred in 2009 and 2010.

Given that this alternative is expected to result in the same overall landings level as in 2009 and 2010, and that there is no indication that the market environment for commercially caught bluefish will change considerably in year 2011, it would be anticipated that there will be no chance in the price for this species holding all other factors constant. Impacts on consumer

surplus, harvest costs, producer surplus, enforcement costs, and distributive effects associated with Alternative 1 are not expected to change when compared to 2010.

Recreational Fishery

Under Alternative 1, the bluefish 2011 Council-adjusted recreational harvest limit would be 17.345 M lb. This limit would be 28 percent above the recreational landings for 2009 (13.583 M lb) and 7 percent below the limit implemented for 2010 (18.631 M lb). In addition, the recreational harvest limit under this alternative is near identical (3 percent below) the assumed 2011 recreational landings (e.g., average 2007-2009 recreational landings of 17.882 M lb). The possession limit would remain at 15 fish. There is very little information available to empirically estimate how sensitive the affected party/charter boat anglers might be to the fishing regulations. However, given the level of the Council-adjusted recreational harvest limit for 2011 and recreational landings in recent years, it is possible that the proposed recreational harvest limit under this alternative may cause some slight decrease in recreational satisfaction (i.e., 2011 harvest limit slightly lower than projected 2011 recreational landings). Note: It is possible that future update of recreational landings projections done by the NMFS (when more data is available, e.g., following wave 5 of the MRFSS data) could result in adjustment transfers different from those presented in this specifications package (section 4.3 of the EA). In addition, as indicated before, NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete.

There is no information regarding how the potential decrease in the recreational harvest limits for this species will affect the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable; however, it is possible that given the proposed recreational harvest limits associated with this alternative, the demand for party/charter boat trips may be slightly negatively impacted. Some anglers may that choose to reduce their effort in 2011 as a consequence of the recreational harvest limit are likely to transfer this effort to alternative species (i.e., summer flounder, scup, spot, weakfish, striped bass, tautog, pelagics, etc.) resulting in very little change in overall fishing effort. However, recreational harvest restrictions for many of the alternative species in the Northeast are becoming more binding each year, resulting in fewer substitute landing opportunities, particularly for anglers fishing aboard headboats where passengers are primarily limited to bottom fishing.

Alternative 2 (non-preferred alternative; most restrictive commercial quota; no transfer)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. Alternative 2 would set the TAL at 27.293 M lb. This TAL includes a Council- adjusted commercial quota of 4.501 M lb (most restrictive commercial quota), an RHL of 21.974 M lb, and an RSA of 0.819 M lb for 2011. The Council rejected this alternative because it would yield lower commercial fishing

opportunities when compared to preferred Alternative 1 due to absence of quota transfer under this alternative.

Commercial Fishery

Landings

Under this non-preferred alternative, the overall Council-adjusted commercial quota for 2011 would allow for an overall 31 percent decrease in landings in 2011 compared to actual landings in 2009 (6.526 M lb). Given that this alternative is expected to result in lower overall landings level as when compared to 2009, it would be anticipated that there will be an increase in the price for this species holding all other factors constant.

Prices

Given that this alternative will result in lower 2011 landings compared to the overall 2009 landings, it would be anticipated that there will be an increase in the price for this species holding all other factors constant.

Consumer Surplus

Given the anticipated potential increase in the price for this species under this scenario, it is expected that consumer surplus associated with this fishery may decrease.

Harvest Costs

No changes in harvest costs are identified under this alternative.

Producer surplus

Given the anticipated potential increase in the price for this species under this scenario, it is expected that producer surplus associated with this fishery will change. The magnitude of the PS change will be associated with the price elasticity of demand for the species in question.

The law of demand states that price and quantity demanded are inversely related. Given a demand curve for a commodity (good or service), the elasticity of demand is a measure of the responsiveness of the quantity that will be taken by consumers giving changes in the price of that commodity (while holding other variables constant). There are several major factors that influence the elasticity for a specific commodity. These factors largely determine whether demand for a commodity is price elastic or inelastic[4]: 1) the number and closeness of

[4]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.

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 consumers' 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 bluefish may increase PS. A decrease in the ex-vessel price of bluefish may also increase PS if we assumed that the demand for bluefish 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.

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 regulations. The measures are not expected to change enforcement costs.

Distributive Effects

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

Recreational Fishery

Under Alternative 2, the bluefish 2011 adjusted recreational harvest limit would be 21.974 M lb. This limit would be approximately 62 percent above the recreational landings for 2009 (13.583 M lb) and 18 percent above the limit implemented for 2010 (18.631 M lb). In addition, the recreational harvest limit under this alternative is 23 percent above the assumed 2011 recreational landings (e.g., average 2007-2009 recreational landings of 17.882 M lb). The possession limit would remain at 15 fish. Given the level of the Council-adjusted recreational harvest limit for 2011 and recreational landings in recent years, it anticipated that this management measure will not have a negative effect on recreational angler satisfaction or potentially impact the demand for party/charter boat trips.

Alternative 3 (Status Quo/No Action; non-preferred alternative; least restrictive commercial quota)

The same assumptions regarding landings relative to the base line and changes in fishing opportunities discussed under Alternative 1 also apply here. Alternative 3 would set the TAL at 29.264 M lb. This TAL includes a Council-adjusted commercial quota of 10.051 M lb (least restrictive commercial quota), an RHL of 18.335 M lb, and an RSA of 0.878 M lb for 2011. Council-adjusted commercial quota and recreational harvest limit associated with the TAL (29.264 M lb) under this alternative are each 2 percent lower than the commercial quota and recreational harvest limit implemented in 2010. Even though the TAL under Alternative 3 is the status quo measure, the 2011 Council-adjusted bluefish commercial quota and recreational harvest limit are slightly different (lower) than the adjusted quota and recreational harvest limit implemented in 2010 mainly due to differences between the RSA amounts used to adjust the TALs between those two time periods. This alternative would yield higher fishing opportunities when compared to Alternative 1. This alternative is not recommended by the Council because the TAC reflects catch above the level associated with the SSC-recommended ABC.

Landings

Under this non-preferred alternative, the overall Council-adjusted commercial quota for 2011 would allow for an overall 54 percent increase in landings in 2011 compared to actual landings in 2009 (6.526 M lb). However, in reality, coastwide commercial landings are consistently below the limit established by the quota. For example, on average, commercial landings for the combined 2005 thought 2009 period (34.00 M lb) were 37 percent below the combined quota for the period (44.359 M lb). In addition, 2009 commercial landings (6.526 M lb) were 29 percent below the quota for that year (9.129 M lb). There is no indication that the market environment for commercially caught bluefish will substantially change in 2011 compared to 2009 or 2010. As such, it is expected that bluefish commercial landings in 2011 will be similar to those that occurred in 2009 and 2010.

Given that this alternative is expected to result in the same overall landings level as in 2009 and 2010, and that there is no indication that the market environment for commercially caught bluefish will change considerably in year 2011, it would be anticipated that there will be no chance in the price for this species holding all other factors constant. Impacts on consumer surplus, harvest costs, producer surplus, enforcement costs, and distributive effects associated with Alternative 1 are not expected to change when compared to 2010.

Recreational Fishery

Under Alternative 3, the bluefish 2011 adjusted recreational harvest limit would be 18.335 M lb. This limit would be approximately 35 percent above the recreational landings for 2009 (13.583 M lb) and 2 percent below the limit implemented for 2010 (18.631 M lb). In addition,

the recreational harvest limit under this alternative is 3 percent above the assumed 2011 recreational landings (e.g., average 2007-2009 recreational landings of 17.882 M lb). The possession limit would remain at 15 fish. Given the level of the Council-adjusted recreational harvest limit for 2011 and recreational landings in recent years, it anticipated that this management measure will not have a negative effect on recreational angler satisfaction or potentially impact the demand for party/charter boat trips.

Description of Impacts of Alternatives

The overall impacts of bluefish landings on prices, consumer surplus, and consumer surplus are difficult to determine without detailed knowledge of the relationship between supply and demand factors for this fishery. In the absence of detailed empirical models for this fishery and knowledge of elasticities of supply and demand, a qualitative approach was employed to assess potential impacts of the management measures.

The impact of each the regulatory alternatives relative to the base year was discussed above. The analysis conducted in this section was based on the evaluation of potential fishing opportunities associated with each quota alternative in 2011 compared to overall landings in 2009.

Alternatives 1 (preferred) and 3 (non-preferred status quo) are not expected to have impacts on the amount of bluefish landed, prices, consumer surplus, or producer surplus in the commercial sector. While Alternatives 1 and 3 are expected to provide higher commercial fishing opportunity in 2011 when compared to 2010; however, coastwide commercial landings have been consistently below the limit established by the quota. There is no indication that the market environment for commercially caught bluefish will substantially change in 2011 compared to 2009 or 2010. Stable or increased landings from one year to the next are desirable from both a management and industry perspective. Drastic reductions in the quota from one year to the next could lead to increased levels of noncompliance by both commercial and recreational fishermen. A stable landings pattern would allow fishermen, processors, party/charter boat operators, equipment and bait suppliers to make business decisions. Alternative 2 would allow for an overall 31 percent decrease in landings in 2011 compared to actual landings in 2009. Given that this alternative is expected to result in lower overall landings level as when compared to 2009, it would be anticipated that there will be an increase in the price for this species holding all other factors constant. In addition, consumer surplus may decrease and producer surplus may increase under Alternative 2. Overall, Alternative 2 is expected to provide the smallest amount of commercial fishing opportunities in 2011 when compared to Alternatives 1 and 3.

No changes in the competitive nature of these fisheries are expected to occur if any of these management measures were implemented. All the alternatives would maintain the competitive structure of the fishery, that is, there are no changes in the manner the quotas are allocated by

region 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 this species is not available, we cannot determine with certainty the impact of changes in landings on prices, consumer surplus, or producer surplus. Therefore, in order to assess the potential net benefits of each alternative, changes in overall ex-vessel gross revenues associated with each alternative are typically estimated. More specifically, changes in landings for bluefish in 2011 compared to the 2009 base year would be used to assess the potential changes in fishing opportunities between these two time periods. Potential changes in landings (i.e., fishing opportunities) for bluefish would then be multiplied by the overall 2009 ex-vessel price for bluefish to derive potential changes in overall net revenues which are used as a proxy for changes in net benefits. Preliminary NMFS dealer data from Maine through Virginia and South Atlantic General Canvass data were used to derive the ex-vessel price for bluefish from Maine through Florida's east coast. The ex-vessel price for bluefish in 2009 was estimated at $0.40/lb. However, since the aggregate change in landings in 2011 compared to the base year landings (2009) is expected to be nil under Alternatives 1 and 3, no overall changes in revenues are expected under these alternatives. Under Alternative 2, revenues may decrease by approximately $810,000. While alternative 3 provides the largest commercial fishing opportunities in 2011 when compared to Alternatives 1 and 2, it was not chosen by the Council because the TAC associated with Alternative 3 reflects catch above the level associated with the SSC-recommended ABC. The Council selected Alternative 1 as the preferred alternative because it is projected to achieve target F in 2011 while providing the 2nd least restrictive commercial quota among all alternatives evaluated.

The discussion regarding changes in gross revenues presented above assumed static prices (i.e., 2009) for bluefish and no significant changes in the market environment for commercially caught bluefish in year 2011. However, if 2011 commercial bluefish landings were to substantially vary from recent years, changes in market prices and revenues different for those presented above are possible.

Given the level of the recreational harvest limit for 2011, recreational landings in recent years, and projected recreational landings for 2011, it is not expected that the recreational harvest limits under Alternatives 2 and 3 will affect the demand for party/charter boat trips. Angler satisfaction is not expected to be affected in a negative manner since the recreational harvest limit for 2011 is not expected to affect the number of bluefish recreational trips. In addition, the recreational possession limit remains unchanged for 2011. It is possible that proposed recreational harvest limit under Alternative 1 may cause some decrease in recreational satisfaction (i.e., 2011 harvest limit slightly lower than projected 2011 recreational landings) which could potentially affect the demand for party/charter boat trips.

It is important to mention that although the measures that are evaluated in this specification package are for the 2011 fisheries, the annual specification process for these fisheries could have potential cumulative impacts. The extent of any cumulative impacts from measures established in previous years is largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures compensated for any quota overages. To date, the management measures implemented in the commercial and recreational fisheries have the intended recovery objective of the FMP and in the period from 2000 through 2009 combined commercial and recreational landings were below (51 percent) the overall combined TAL implemented during that time period combined. However, in 2006 and 2007 the recreational landings exceeded the recreational harvest limit by 3 and 12 percent, respectively. Overall commercial and recreational landings in 2007 were approximately 3 percent above the TAL implemented that year. In 2009, 70 percent of the available TAL was taken by commercial and recreational fishermen with no overages in either sector.

While the overall commercial quota was not taken in 2000-2009, a few states were constrained by the initial quota in those years. As the result of increased landings, those states received transfers of bluefish from other states; however the overall commercial quota was not taken. The NMFS Quota Report as of the week ending August 31, 2010 indicates that overall bluefish commercial landings are within the overall commercial quota for 2010 (42 percent of the quota landed).

Based on the latest assessment update (June 2010), the bluefish stock is not considered overfished: Biomass in 2009 (B_{2009}), estimated at 348.901 M lb (155,991 mt), is greater than the minimum biomass threshold = 162.096 M lb (73,525.5 mt) and is actually above the biomass target (324.192 M lb or 147,051 mt). Biomass has been above the target since 2007 and the bluefish stock is formally considered to be rebuilt. The assessment update also concluded that the Atlantic stock of bluefish is not experiencing overfishing; i.e., the fishing mortality rate in 2009 ($F_{2009} = 0.10$) is less than the overfishing threshold ($F_{threshold} = 0.19$). There are various sources of scientific uncertainty associated with the updated stock assessment. For example, the SSC noted that most of the uncertainty relates to the data used to establish the age-length key (ALK), a central source of information for developing the catch-at-age (CAA) matrix that the age-structured assessment program (ASAP) model attempts to replicate; the SSC also noted that assumptions about mean weights at age could have significant implications on total biomass relative to the biomass target. As described in the EA, given this scientific uncertainty, the Monitoring Committee recommended setting allowable catch (TAC) for 2011 at a level consistent with the status quo target fishing mortality rate (F = 0.15). The Council responded in kind and recommended management measures consistent with target F =0.15.

3.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

3.1 Introduction and Methods

The Regulatory Flexibility Act (RFA) requires the Federal rule maker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. When an agency publishes a general notice of proposed rulemaking for any proposed rule, the agency is required to prepare an IRFA describing the impacts of the proposed rule on small entities. Agencies also are required to prepare a Final Regulatory Flexibility Analysis (FRFA) when they promulgate a final rule. However, agencies may forgo the preparation of a regulatory flexibility analysis if they can certify that the rule would not have a significant economic impact on a substantial number of small entities. The IRFA was prepared to further evaluate the economic impacts of the three quota alternatives on small business entities.

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 also 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 4.2 of the EA. This action is taken under the authority of the MSFCMA 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

This action does not contain any new collection of information, reporting, or record-keeping requirements.

3.1.5 Conflict with Other Federal Rules

This action does not duplicate, overlap, or conflict with other Federal rules.

A description of the bluefish fisheries is presented in section 6.0 of the EA and section 2.3 of Amendment 1 to the Bluefish FMP. A description of ports and communities is found in the 2002 Bluefish Specifications Document (MAFMC 2001). Additionally, the "top bluefish ports" that landed bluefish in 2009 are identified in section 6.4 of the EA. An analysis of permit data is also found in section 6.4 of the EA. A full description of the alternatives

analyzed in this section and the TAL derivation process is presented in sections 4.3 and 5.0 of the EA. In addition, 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. This rule could affect any vessel that fish for bluefish in Federal or state waters. The final measures regarding the 2011 quotas could affect any vessel holding an active Federal permit for bluefish as well as vessels that fish for this species in state waters.

An active participant in the commercial sector was defined as being any vessel that reported having landed one or more pounds of bluefish the dealer data during calendar year 2009. This data covers activity by unique vessels. Of the active vessels reported in 2009, 688 known vessels landed bluefish from Maine through North Carolina. The dealer data does not cover vessel activity in the South Atlantic. The dealer data indicate that 79 federally permitted vessels landed bluefish in North Carolina in 2009. However, the North Carolina landings data for bluefish may be incomplete is this data system. South Atlantic Trip Ticket Report data indicate that 908 vessels landed bluefish in North Carolina in 2009 (Stephanie McInerny, NC Division of Marine Fisheries, pers. comm., 2010). Some of these vessels may be included among the 79 vessels identified as landing bluefish in the dealer data. As such, double counting is possible.

At the time this document was produced, Council staff did not have detail information regarding the number of vessels that landed bluefish in Florida in 2009. However, in recent years, the number of boats that may have landed bluefish in Florida's east coast have been relative stable (567 vessels landed approximately 99,405 lb in 2006; 586 vessels landed 167,912 lb in 2007; and 685 vessels landed 148,436 lb in 2008). As such, it in this document, it is assumed that the number of vessels that landed bluefish in Florida's east coast in 2009 is the same as the number of vessels that landed bluefish in 2008 (685). Bluefish landings in Georgia and South Carolina were almost nil in 2009, representing a negligible proportion of the total bluefish landings along the Atlantic coast; as such, it was assumed that no vessel activity for those two states took place in 2009. In addition, it was estimated that in recent years approximately 2,063 party/charter vessels may have been active and/or caught bluefish.

Not all landings and revenues reported through the dealer data can be attributed to a specific vessel. Vessels with no Federal permits are not subject to any Federal reporting requirements with which to corroborate the dealer reports. Similarly, dealers that buy exclusively from state water 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. 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. 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 this fishery, changes in gross revenues are used a proxy for profitability. Where quantitative data were not available, qualitative analyses were conducted.

Procedurally, the economic effects of the commercial quota alternatives were estimated as follows. First, the Northeast dealer data were queried to identify all vessels that landed at least one or more pounds of bluefish in calendar year 2009 in the North Atlantic region. 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. Recent South Atlantic Trip Ticket Report data was also used to identify the vessels that landed bluefish in North Carolina and Florida's east coast.

The second step was to estimate total revenues from all species landed by each vessel during calendar year 2009. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since 2009 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 2010 were not used in this analysis because the year is not complete. Since the South Atlantic Trip Ticket Report data system does not provide information at the trip level, averages were used to describe the contribution of bluefish to total landings and values for those entities. As such, steps 3 and 4 below were conducted for averages for vessels under the South Atlantic Trip Ticket Report data.

The third step was to deduct or add, as appropriate, the expected change in vessel revenues (associated with the potential landings associated with the 2011 Council-adjusted quota compared to the 2009 landings). The NMFS Quota Report as of the week ending August 31, 2010 indicated that bluefish commercial landings were well within the 2010 coast-wide quota (42 percent of quota landed). It is anticipated that the commercial quota will not be exceeded in 2010. Therefore, the 2011 commercial quotas in this document do not include an adjustment for overages.

The fourth step was to compare the estimated 2011 revenues from all species to the base year for every vessel due to the proposed quota changes. For each quota alternative a summary

table was constructed that report the results of the threshold analysis. These results were further summarized by home state as defined by permit application data when applicable.

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 effect 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 (Alternative 2) 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 five counties were identified: Ocean county in New Jersey, Dare county in North Carolina, and Nassau, New York, and Suffolk counties in New York. Counties not included in this analysis (e.g., New Haven, CT; Plymouth, Barnstable, and Suffolk, MA; and Philadelphia, PA) 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. In fact, some counties only had one or two affected vessel.

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 socioeconomic analysis presented for each alternative in 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 home port as listed in the owner's 2009 permit application.

Counties were 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, wages, income, and number of establishments for each county.

4.0 DESCRIPTION OF QUOTA ALTERNATIVES

All quota alternatives considered in this analysis are based on various commercial harvest levels for bluefish (a high, medium, and low level of harvest). Table 19 shows the commercial quotas under the three alternatives evaluated in this analysis and their state-by-state distribution. Table 35 shows the percentage change of the 2011 allowable commercial landings (adjusted for RSA) relative to the 2009 landings. Note that the overall changes in commercial fishing opportunity in 2011 compared to 2009 landings are 68% higher, 31% lower, and 54% higher for Alternatives 1 (Preferred), 2, and 3 (status quo), respectively. While most states show similar directional changes in fishing opportunities as the overall change in fishing opportunity in 2011 compared to 2009 landings under quota Alternatives 1, 2, and 3, the state of New York shows a reduction in fishing opportunity under Alternatives 1 and 3; and New Jersey shows a reduction in fishing opportunity under Alternative 1. Under Alternative 1, two states show a reduction in bluefish landings New Jersey (6%) and New York (27%). While the overall coastwide reduction in fishing opportunity in 2010 compared to 2009 landings under Alternative 2 is 31% lower, some states would incur in a larger percentage reduction in bluefish landings in 2011 (>31%; Rhode Island, New York, and New Jersey) due to the fact those states landed a substantially higher amount of bluefish in 2009 compared to their originally allocated commercial quotas that year.

Quota Alternatives 1 and 2 are based on a TAL of 27.293 M lb; Alternative 3 is based on a 29.264 M lb TAL. A complete description of the derivation of the TAL and its allocation to the commercial and recreational sectors is presented in sections 4.3 and 5.0 of the EA. In addition, the final management measures are also briefly described in section 2.5 of the RIR/IRFA. Under Alternative 1 (preferred), the Council-adjusted commercial quota and recreational harvest limit for 2011 are 9.129 (the 2nd least restrictive commercial quota) and 17.345 M lb, respectively. Under non-preferred Alternative 2, the Council-adjusted commercial quota and recreational harvest limit for 2011 are 4.501 (the most restrictive commercial quota) and 21.974 M lb, respectively. Under non-preferred Alternative 3 (Status Quo/No Action), the Council-adjusted commercial quota and recreational harvest limit for 2011 are 10.213 (the least restrictive commercial quota) and 18.631 M lb, respectively.

5.0 ANALYSIS OF IMPACT OF ALTERNATIVES

For the purpose of analysis under the following alternatives, several assumptions were made. Participation and revenue changes noted in this analysis were made using the Northeast dealer and South Atlantic Trip Ticket Report data. That is all vessels that landed at least one or more pounds bluefish in calendar year 2009 were identified. Total revenues from all species landed by each vessel during calendar year 2009 were estimated using the dealer data. Since the

dealer data only provides information from Maine through North Carolina, Trip Ticket Report data was also used to assess potential average revenues from all species landed from North Carolina through Florida during calendar year 2009. These estimates provided the base from which to compare the effects of the 2011 Council-adjusted quota compared to the 2009 landings and associated potential changes in revenues.

Under Alternative 1, the proposed overall bluefish quota for 2011 would allow fishermen to land approximately 2.603 M lb more of bluefish compared to 2009 landings. While the overall coastwide commercial quota for 2011 is higher than the bluefish landings for 2009 under Alternative 1, some states are projected to have a lower 2011 bluefish quota when compared to 2009 landings because these states landed a substantially higher amount of bluefish in 2009 compared to their originally allocated commercial quotas that year. Unless market conditions change substantially in year 2011 in those states that are projected to have a larger 2011 bluefish quota when compared to 2009 landings, commercial bluefish fishermen would likely have bluefish landings close to the 2009 landings. There is no indication that the market environment for commercially caught bluefish in those states will change considerably in year 2011. As such, for states that show a 2011 quota allocation greater than their 2009 landings, it is assumed that 2011 landings would be equal to the 2009 landings. However, for states that show a 2011 quota allocation smaller than their 2009 landings, the 2011 allocation is considered for analysis purposes.

It is most likely that the percent of revenue reduction for impacted vessels varied considerably based on permits it held (i.e., based on the fisheries in which it was able to participate) and species it landed. Diversity in the fleet, perhaps, helps to balance loss in one fishery with revenue generated from other fisheries. For example, if 90 percent of a vessel's revenue was derived from bluefish in the base year, then a small decrease in the bluefish quota or landings level would be expected to have a large proportional reduction in the revenue of that vessel compared to one that only generates 10 percent of its revenue from bluefish. Lastly, it is important to keep in mind that while the analyses based on landings for federally-permitted vessels only (dealer data), 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.

Bluefish comprised 0.20 percent and 0.27 percent of the total ex-vessel value and pounds, respectively of all finfish and shellfish species landed along the Atlantic coast of the U.S. in 2009. For states where bluefish were commercially landed, the contribution of bluefish to the total value of all finfish and shellfish varied by state in 2009 (Table 2). Bluefish ranged from ≤ 0.01 percent of total commercial value in Maine, New Hampshire, South Carolina, and Georgia to 2.78 percent in North Carolina. There were no bluefish landings in Pennsylvania in 2009. Relative to total landings value, bluefish were most important in North Carolina and New York, contributing the largest percentage of ex-vessel value of all commercial landings in those states. This contribution did not changed considerably from the previous complete fishing year (i.e., 2008), and it is not expected to change considerably in 2011.

5.1 Quota Alternative 1

To analyze the economic effects of this alternative, the total harvest limits specified in sections 4.3 and 5.0 of the EA were employed. Under this alternative, the allocation to the commercial sector is approximately 40 percent higher than the 2009 commercial landings. The recreational allocation under this alternative is approximately 28 percent above the recreational landings for 2009.

Even though the overall commercial allocation for 2011 is higher than the 2009 landings, when this allocation is distributed to the states, all states except New York and New Jersey show a 2011 quota level which is higher than their 2009 landings (Tables 19 and 35). This is due to the fact that New York and New Jersey landed a substantially higher amount of bluefish in 2009 compared to their originally allocated commercial quota that year. For states that show a 2011 quota level that is lower than their 2009 landings (New York and New Jersey; Tables 19 and 35), their 2011 landings will be constrained by the 2011 quota when compared to landings in 2009.

Under Amendment 1, states would be allowed to trade or combine quotas and the states could impose trip limits or other measures to manage their quotas. The system is the same as that operating under the Summer Flounder FMP. In most cases, quotas are transferred among states when fishing fleets follow migration routes of valuable fish stocks. Such is the case in the summer flounder fishery. For example, if summer flounder is present in the northern part of the Atlantic Ocean at a specific time of the year and a vessel from a southern state harvests and lands summer flounder in a northern state, then a quota transfer from the southern state can be made to the northern state. This allows vessels to land in a port close to where they are fishing and avoid returning to their home state or principal port to offload their catch. This is of special importance when you have valuable species that have to enter the market in a timely fashion, or have species that may have shorter shelf live. It is not expected that commercial vessels will travel large distances to catch bluefish. However, quota transfers in the bluefish fishery have been made to allow states that have harvested their quota levels (i.e., that have been constrained by the initial quota) to continue to fish for bluefish in previous years. It is possible that bluefish quota could be transferred among states and that the initial quotas for the states with constraining 2011 quotas be increased by the amounts transferred. Given that under this alternative the overall commercial quota in 2011 is higher than the 2010 quota and the 2009 landings, the amount of bluefish that could potentially be transferred among states would be higher than under Alternative 2 and near identical that under Alternative 3, thus potentially allowing for more economic relief.

5.1.1 Commercial Impacts

5.1.1.1 Threshold Analysis for Participating Vessels

The results of the threshold analysis from dealer data are reported in Table 20. The analysis of the harvest levels under this alternative indicates that the economic impacts ranged from no change in revenues for 449 vessels to revenue losses of more than 5 percent for 20 vessels. More specifically, 17 vessels were projected to incur revenue losses of 5-9 percent and 3 vessels of 10-19 percent. In addition, 219 vessels were projected to incur revenue losses of less than 5 percent, and 449 vessels were projected to have no change in revenue.

Council staff further examined the level of ex-vessel revenues for the impacted vessel to further assess impacts. For example, according to dealer data, it was estimated that 18 percent of the vessels (3 out of 17 vessels) projected to incur revenue reductions of 5-9 percent had total gross sales (all possible species combined not just bluefish in 2009) of $1,000 or less and 76 percent (13 vessels) had total gross sales of $10,000 or less. Furthermore, 100 percent of the vessels (3 out of 3 vessels) projected to incur revenue losses of 10-19 percent had total gross sales of approximately $10,000 or less.

While the analysis presented above indicates that in relative terms a small number of vessels (20) are likely to be impacted with revenue reductions of more than 5 percent or more, 15 percent of these vessels (3 vessels) had gross sales of $1,000 or less and 80 percent of the impacted vessels (16 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. Furthermore, no revenue reduction is expected for vessels that land bluefish in North Carolina and Florida as a consequence of the proposed 2011 quota compared to 2009 landings in those states (Tables 19 and 35).

Impacts of the quota provision were examined relative to a vessel's home state as reported on the vessel's permit application (Table 21). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a Federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of less than 5 percent by home state ranged from 2 in each Connecticut, Pennsylvania, and Virginia to 94 in New York. The number of impacted vessels with revenue reduction of 5 percent or more ranged from one in Pennsylvania to nine in New York. The larger number on impacted vessels with revenue reductions of 5 percent or more in New York may be due to a relatively higher dependence on bluefish. Additional descriptive statistics regarding these vessels is presented in section 7.1.4 of the EA.

Additional information regarding other permit held by the impacted vessels, descriptive information and distribution information for the impacted vessels with revenue losses of 5 percent or more under this alternative are presented in Tables 22-24.

The changes described above are based on the potential changes in landings associated with the 2011 quotas versus 2009 landings. Amendment 1 implemented a transfer provision as a tool to mitigate the adverse economic impacts of prematurely closing a fishery when surplus quota exists. In fact, under the Interstate Management Plan for Atlantic Bluefish, states have been very cooperative in transferring commercial bluefish quota when needed to states that are running a deficit. If quota allocations were to be transferred from a state or states that do not land their entire bluefish quota allocation for 2011, then the number of affected entities described in this threshold analysis could potentially decrease, thus decreasing economic burden.

5.1.2 Recreational Impacts

Under Alternative 1, the Council-adjusted bluefish 2011 recreational harvest limit would be 17.345 M lb. This limit would be approximately 28 percent above the recreational landings for 2009 (13.583 M lb) and 7 percent below the limit implemented for 2010 (18.631 M lb). The possession limit would remain at 15 fish. Assuming recreational landings for 2011 of 17.882 M lb, the proposed adjusted recreational harvest limit under this alternative is near identical (approximately 3 percent lower) than the projected recreational landings for 2011. There is very little information available to empirically estimate how sensitive the affected party/charter boat anglers might be to the fishing regulations. However, given the level of the Council-adjusted recreational harvest limit for 2011 and recreational landings in recent years, it is possible that the proposed recreational harvest limit under this alternative may cause some slight decrease in recreational satisfaction (i.e., 2011 harvest limit slightly lower than projected 2011 recreational landings). Note: It is possible that future update of recreational landings projections done by the NMFS (when more data is available, e.g., following wave 5 of the MRFSS data) could result in adjustment transfers different from those presented in this specifications package (section 4.3 of the EA).

There is no information regarding how the potential decrease in the recreational harvest limits for this species will affect the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable; however, it is possible that given the proposed recreational harvest limits associated with this alternative, the demand for party/charter boat trips may be slightly negatively impacted. Some anglers may that choose to reduce their effort in 2011 as a consequence of the recreational harvest limit are likely to transfer this effort to alternative species (i.e., summer flounder, scup, spot, weakfish, striped bass, tautog, pelagics, etc.) resulting in very little change in overall fishing effort. However, recreational harvest restrictions for many of the alternative species in the Northeast are becoming more binding each year, resulting in fewer substitute landing opportunities, particularly for anglers fishing aboard headboats where passengers are primarily limited to bottom fishing.

Effects of research set-aside quota

The Council recommended a maximum bluefish RSA of 3 percent of the implemented TAL. Specifically, an RSA of 0.819 has been recommended for bluefish under Alternatives 1 and 2; for Alternative 3, a RSA of 0.878 M lb was assumed. For analysis of the impacts of each of the alternatives in this specifications document, the RSA amounts deducted from each initial TAL are 3 percent of the TAL.

The economic analysis regarding changes in the commercial TALs for the bluefish fisheries conducted under this alternative, as well as the other alternatives analyzed, incorporated adjustments for the quota specifications for 2011. That is, the RSA for bluefish was deducted from the initial overall TAL for 2011 to derive Council-adjusted 2011 quotas. Therefore, the threshold analyses conducted under each alternative has accounted for overall reductions in fishing opportunities to all vessels typically participating in this fishery due to RSA. A detailed description of the potential impacts of the RSA is presented in sections 7.4 of the EA and 5.4 below.

The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete.

5.1.3 Summary of Impacts

In sum, Alternative 1 would result in a commercial and recreational allocation that is approximately 40 and 28 percent higher, respectively, than the commercial and recreational landings for 2009.

Under this alternative, according to dealer data, a total of 20 of the 688 commercial vessels reporting landings in 2009 were projected to incur revenue losses of 5 percent or more. Furthermore, 219 vessels were projected to incur in revenue losses of less than 5 percent, and 449 vessels were projected to have no change in revenue. A closer look to the overall vessel activity of the 20 vessels projected to incur in revenue losses of 5 percent or more indicate that 15 percent of these vessels (3 vessels) had gross sales of $1,000 or less and 80 percent of the impacted vessels (16 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. No revenue reduction is expected for vessels that land bluefish in North Carolina and Florida as a consequence of the proposed 2011 quota compared to 2009 landings in those states.

Given the potential decrease (approximately 3 percent) in the proposed 2011 recreational harvest limit when compared to the assumed 2011 landings, it is possible that the angler

satisfactions and/or the demand for party/charter boat trips may be slightly negatively impacted.

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.

The Council selected Alternative 1 as the preferred alternative because it is projected to achieve target F in 2011 while providing the 2nd least restrictive commercial quota among all alternatives evaluated. However, the potential economic losses associated with this alternative are lower than those under Alternative 2 but higher than those under Alternative 3.

5.2 Quota Alternative 2

To analyze the economic effects of this alternative, the total harvest limits specified in sections 4.3 and 5.0 of the EA were employed. Under this alternative, the allocation to the commercial fishery is 31 percent below the 2009 commercial landings. The recreational allocation under this alternative is approximately 62 percent above the recreational landings for 2009.

Even though the overall commercial allocation for 2011 is lower than the 2010 landings, when this allocation is distributed to the states, all states except Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland, and North Carolina show a 2011 quota level which is higher than their 2009 landings (Tables 19 and 35). Therefore, landings in these states (Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland, and North Carolina) will be constrained by the 2011 quota when compared to landings in 2009.

As stated before (section 5.1 of the RIR/IRFA), under Amendment 1, states would be allowed to trade or combine quotas and the states could impose trip limits or other measures to manage their quotas. These quota transfers have allowed states that have been constrained by their initial quota levels to harvest additional bluefish in previous years. It is possible that bluefish quota could be transferred among states and that the initial quotas for the states with constraining 2011 quotas be increased by the amounts transferred. However, given that under this alternative the overall commercial quota in 2011 is substantially lower than the 2010 quota and the 2009 landings, the amount of bluefish that could potentially be transferred among states would be lower than under Alternatives 1 and 3, thus potentially allowing for less economic relief.

5.2.1 Commercial Impacts

5.2.1.1 Threshold Analysis for Participating Vessels

The results of the threshold analysis from dealer data are reported in Table 25. A total of

61 vessels were projected to incur revenue losses of 5 percent or more. More specifically, 18 vessels were projected to incur in revenue losses of 5-9%, 22 vessels of 10-19%, 8 vessels of 20-29%, 6 vessels of 30-39%, and 7 vessels of 40-49%. In addition, 566 vessels were projected to incur in revenue losses of less than 5% and 61 vessels were projected to have no change in revenue relative to 2009.

Impacts of the quota provision were examined relative to a vessel's home state as reported on the vessel's permit application (Table 26). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a Federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of less than 5% by home state ranged from 2 Pennsylvania to 162 in Massachusetts. The number of vessels with revenue reduction of 5% or more ranged from 1 in each Connecticut and Pennsylvania to 18 in New York. Five states (Maryland, Maine, New Hampshire, Rhode Island, and Virginia) had no vessels impacted with revenue reduction ≥ 5%. The larger number of impacted vessels with revenue reduction of 5% or more in New York, New Jersey, and North Carolina may be due to a relatively higher dependence on bluefish. Additional descriptive statistics regarding these vessels is presented in section 7.2.4 of the EA.

Council staff further examined the level of ex-vessel revenues for the impacted vessel to further assess impacts. For example, according to dealer data, it was estimated that 39 percent of the vessels (7 out of 18 vessels) projected to incur revenue reductions of 5-9 percent had total gross sales (all possible species combined not just bluefish in 2009) of $1,000 or less and 56 percent (10 vessels) had total gross sales of $10,000 or less; 9 percent of the vessels (3 out of 22 vessels) projected to incur revenue reductions of 10-19 percent had total gross sales of $1,000 or less and 41 percent (9 vessels) had total gross sales of $10,000 or less; 50 percent of the vessels (4 out of 8 vessels) projected to incur revenue reductions of 20-29 percent had total gross sales of $1,000 or less and 75 percent (6 vessels) had total gross sales of $10,000 or less; 50 percent of the vessels (3 out of 6 vessels) projected to incur revenue reductions of 30-39 percent had total gross sales of $1,000 or less and 83 percent (5 vessels) had total gross sales of $10,000 or less; and 71 percent of the vessels (5 out of 7 vessels) projected to incur revenue reductions of ≥50 percent had total gross sales of $1,000 or less and 100 percent (7 vessels) had total gross sales of $10,000 or less.

While the analysis presented above indicates that in relative terms a small number of vessels (61) are likely to be impacted with revenue reductions of more than 5 percent or more, 36 percent of these vessels (22 vessels) had gross sales of $1,000 or less and 61 percent of the impacted vessels (37 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.

The threshold analysis presented in Table 25 is based on Northeast dealer data. Thus, represents potential impacts on vessels participating in the fisheries on the North Atlantic

region. In order to further assess the impacts of the commercial 20011 quota measure on commercial vessels participating in the bluefish fishery in North Carolina, South Atlantic Trip Ticket Report data was reviewed. South Atlantic Trip Ticket Report data indicate that 908 vessels (296 vessels <=18 ft; 501 vessels between 19-38 ft; and 111 vessels =>39 ft) landed bluefish in North Carolina in 2009. On average, these vessels generated 10.38% of their total ex-vessel revenue from bluefish landings. By vessel size, the contribution of bluefish to total revenue for these vessels was 5.17% for vessel <=18 ft; 14.37% for vessels 19-38 ft; and 9.36% for vessels =>39 ft. Under this alternative, landings are projected to decrease as a consequence of the 2011 allocation when compared to 2009 landings by approximately 26% in North Carolina (Table 35). On average, reduction in revenues due to the potential decrease in landings associated with the 2011 quota compared to the 2009 landings are expected to be approximately 2.5% for fishermen that land bluefish in that state. No revenue reduction is expected for vessels that land bluefish in Florida as a consequence of the proposed 2011 quota compared to 2009 landings in that state (Table 35).

The changes described above are based on the potential changes in landings associated with the 2011 quotas versus 2009 landings. Amendment 1 implemented a transfer provision as a tool to mitigate the adverse economic impacts of prematurely closing a fishery when surplus quota exists. In fact, under the Interstate Management Plan for Atlantic Bluefish, states have been very cooperative in transferring commercial bluefish quota when needed to states that are running a deficit. If quota allocations were to be transferred from a state or states that do not need to land their entire bluefish quota allocation for 2011, then the number of affected entities described in this threshold analysis could potentially decrease, thus decreasing economic burden. However, since the overall quota in 2011 is substantially lower than the 2010 quota and the 2009 landings, the amount of bluefish that could potentially be transferred among states would be lower than under Alternatives 1 and 3, thus potentially allowing for less economic relief.

5.2.2 Recreational Impacts

Under Alternative 2, the bluefish 2011 recreational harvest limit would be 21.974 M lb. This limit would be approximately 62% higher than the recreational landings for 2009 (13.583 M lb) and 18% larger than the recreational harvest limit for 2010 (18.631 M lb). Assuming recreational landings for 2011 of 17.882 M lb, the proposed adjusted recreational harvest limit under this alternative is 23 percent higher than the projected recreational landings for 2011. The possession limit would remain at 15 fish. It is not anticipated that this management measure will have any negative effects on recreational fishermen or affect the demand for party/charter boat trips. This alternative is not expected to affect angler satisfaction nor expected to result in landings in excess of the recreational harvest limit. The recreational impacts under this alternative are expected to be similar to those described under Alternative 3.

5.2.3 Summary of Impacts

In sum, Alternative 2 would result in a 31 percent decrease in commercial bluefish landings in 2011 compared to 2009 landings. The 2011 recreational harvest limit is 62 percent higher than the recreational landings in 2009.

Under this alternative, according to dealer data, a total of 61 of the 688 commercial vessels reporting landings in 2009 were projected to incur revenue losses in the 5 percent or more. Furthermore, 566 vessels were projected to incur in revenue losses of less than 5 percent. A closer look to the overall vessel activity of the 61 vessels projected to incur in revenue losses of 5 percent or more indicate that 360 percent of these vessels (22 out of 61 vessels) had gross sales of $1,000 or less and 61percent (37 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. Furthermore, according to South Atlantic Trip Report, on average, reduction in revenues due to the potential decrease in landings associated with the 2011 quota compared to the 2009 landings are expected to be approximately 2.5% for fishermen that land bluefish in North Carolina. No revenue reduction is expected for vessels that land bluefish in Florida.

This alternative is not expected to affect angler satisfaction nor expected to result in landings in excess of the recreational harvest limit.

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. In addition, if quota allocations were to be transferred from a state or states that do not land their entire bluefish quota allocation for 2011 to states that are constrained by the 2011 allocation, then the number of affected entities described in this threshold analysis could potentially decrease, thus decreasing economic burden.

The commercial losses associated with this alternative are the largest among all alternatives evaluated. The Council rejected this alternative because it would yield lower commercial fishing opportunities amongst all the evaluated alternatives due to absence of quota transfer under this alternative.

5.3 Quota Alternative 3 (Status Quo/No Action Alternative)

To analyze the economic effects of this alternative, the total harvest limits specified in sections 4.3 and 5.0 of the EA were employed. Under this alternative, the allocation to the commercial sector is approximately 54 percent higher than the 2009 commercial landings. The recreational allocation under this alternative is approximately 35 percent higher than the recreational landings for 2009.

As with Alternative 1, even though the overall commercial allocation for 2011 under this alternative is higher than the 2009 landings, when this allocation is distributed to the states, all states except New York show a 2011 quota level which is higher than their 2009 landings (Tables 19 and 35).

As stated before (section 5.1 of the RIR/IRFA), under Amendment 1, states would be allowed to trade or combine quotas and the states could impose trip limits or other measures to manage their quotas. These quota transfers have allowed states that have been constrained by their initial quota levels to harvest additional bluefish in previous years. It is possible that bluefish quota could be transferred among states and that the initial quotas for the states with constraining 2011 quotas be increased by the amounts transferred.

Even though the TAL under Alternative 3 is the status quo measure, the 2011 Council-adjusted bluefish commercial quota and recreational harvest limit under this alternative are slightly different (lower) than the adjusted quota and recreational harvest limit implemented in 2010 mainly due to differences between the RSA amounts used to adjust the TALs between those two time periods.

5.3.1 Commercial Impacts

5.3.1.1 Threshold Analysis for Participating Vessels

The results of the threshold analysis from dealer data are reported in Table 30. A total of 8 vessels were projected to incur revenue losses of more than 5 percent. More specifically, 6 vessels were projected to incur in revenue losses of 5-9 percent and 2 vessels of 10-19 percent. In addition, 115 vessels were projected to incur in revenue losses of less than 5 percent and 565 vessels were projected to have no change in revenue relative to 2009.

Council staff further examined the level of ex-vessel revenues for the impacted vessel to further assess impacts. For example, according to dealer data, it was estimated that 88 percent of the vessels (7 out of 8 vessels) projected to incur revenue reductions had total gross sales (all possible species combined not just bluefish in 2009) of $10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels is very small. Furthermore, no revenue reduction is expected for vessels that land bluefish in North Carolina and Florida as a consequence of the proposed 2011 quota compared to 2009 landings in those states (Tables 19 and 35).

Impacts of the quota provision were examined relative to a vessel's home state as reported on the vessel's permit application (Table 31). "Home state" indicates the state where a vessel is based and primarily ported, and is presumed to reflect to where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a Federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of less than 5

percent by home state ranged from 1 in each Connecticut, Massachusetts, New Jersey, and Rhode Island to 94 in New York. Five vessels with revenue reduction of 5 percent or more are in New York. The larger number of impacted vessels with revenue reduction of 5 percent or more in New York may be due to a relatively higher dependence on bluefish. Additional descriptive statistics regarding these vessels is presented in section 7.1.4 of the EA.

Additional information regarding other permit held by the impacted vessels, descriptive information and distribution information for the impacted vessels with revenue losses of 5 percent or more under this alternative are presented in Tables 32-34.

The changes described above are based on the potential changes in landings associated with the 2011 quotas versus 2009 landings. Amendment 1 implemented a transfer provision as a tool to mitigate the adverse economic impacts of prematurely closing a fishery when surplus quota exists. In fact, under the Interstate Management Plan for Atlantic Bluefish, states have been very cooperative in transferring commercial bluefish quota when needed to states that are running a deficit. If quota allocations were to be transferred from a state or states that do not land their entire bluefish quota allocation for 2011, then the number of affected entities described in this threshold analysis could potentially decrease, thus decreasing economic burden.

5.3.2 Recreational Impacts

Under Alternative 3, the bluefish 2011 recreational harvest limit would be 18.335 M lb. This limit would be 35 percent higher than the recreational landings for 2009 (13.583 M lb) and 2 percent below the limit implemented for 2010 (18.631 M lb). Assuming recreational landings for 2011 of 17.882 M lb, the proposed adjusted recreational harvest limit under this alternative is near identical (approximately 3 percent higher) than the projected recreational landings for 2011. The possession limit would remain at 15 fish.

There is very little information available to empirically estimate how sensitive the affected party/charter boat anglers might be to the fishing regulations. However, given the level of the recreational harvest limit for 2011 and recreational landings in recent years, it is not anticipated that this management measure will have any negative effects on recreational fishermen or affect the demand for party/charter boat trips. This alternative is not expected to affect angler satisfaction nor expected to result in landings in excess of the recreational harvest limit. In addition, the recreational possession limit remains unchanged for 2011.

5.3.3 Summary of Impacts

In sum, under this alternative, the allocation to the commercial and recreational fisheries is approximately 54 and 35 percent higher for 2011 when compared to 2009 landings, respectively.

Under this alternative, according to dealer data, a total of 8 of the 688 commercial vessels reporting landings in 2009 were projected to incur revenue losses of 5 percent or more. Furthermore, 115 vessels were projected to incur in revenue losses of less than 5 percent. A closer look to the overall vessel activity of the 8 vessels projected to incur in revenue losses of 5 percent or more indicate that 88 percent of these vessels (7 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. No revenue reduction is expected for vessels that land bluefish in North Carolina and Florida as a consequence of the proposed 2011 quota compared to 2009 landings in those states.

This alternative is not expected to affect angler satisfaction nor expected to result in landings in excess of the recreational harvest limit.

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. In addition, if quota allocations were to be transferred from a state or states that do not land their entire bluefish quota allocation for 2011 to states that are constrained by the 2011 allocation, then the number of affected entities described in this threshold analysis could potentially decrease, thus decreasing economic burden.

There should be no adverse economic or social impacts associated with the RSA. The RSAs are expected to yield important long-term benefits associated with improved data upon which to base management decisions.

The commercial losses associated with this alternative are lower than in Alternatives 1 and 2. This alternative is not recommended by the Council because the TAC reflects catch above the level associated with the SSC-recommended ABC.

5.4 Research Set-Aside Alternatives

The purpose of the RSA program is to support research and the collection of additional data that would otherwise be unavailable. Through the RSA program, the Council encourages collaborative efforts among the public, research institutions, and government in broadening the scientific base upon which management decisions are made. Reserving a small portion of the annual harvest of a species to subsidize the research costs of vessel operations and scientific expertise is considered an important investment in the future of the nation's fisheries.

An additional benefit that is sought from this program is the assurance that new data collected by non-governmental entities will receive the peer review and analysis necessary so that data can be utilized to improve the management of public fisheries resources. The annual RSA amount may vary between 0 and 3 percent of a species' quota. For those species that have both

a commercial quota and an RHL, the set-aside calculation shall be made from the combined TAL.

5.4.1 No Research Set-Aside (No Action)

Under this alternative there will be no RSA deducted from the overall TAL. Therefore, the initial commercial quota and recreational harvest limit does not need to be adjusted downward as it would be done under a situation when an RSA is established. No adverse economic impacts are expected for vessels that land bluefish under this alternative. 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.

5.4.2 Specify a Research Set-Aside for 2011

The MAFMC recommended RSA quota of up to 3 percent of the bluefish TAL for 2011. As indicated above, this would result in RSAs of up to 0.819 M lb under Alternatives 1 and 2, and 0.878 M lb under Alternative 3.

Under this program, successful applicants receive a share of the annual quota for the purpose of conducting scientific research. The Nation receives a benefit in that data or other information about that fishery is obtained for management or stock assessment purposes that would not otherwise be obtained. In fisheries where the entire quota would be 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 economic discussion of the evaluated commercial quotas and recreational harvest limits discussed in sections 5.1, 5.2, and 5.3 of the RIR/IRFA were based on adjusted commercial quotas accounting for the RSA proposed under this alternative.

Preliminary NMFS dealer data from Maine through Virginia and South Atlantic General Canvass data were used to derive the ex-vessel price for bluefish from Maine through Florida's east coast. The ex-vessel price for bluefish in 2009 was estimated at $0.40/lb. Assuming this ex-vessel price, the 2011 RSA for the commercial component of the fishery, using the full 3 percent of the TAL, could be worth approximately as much as $0.11 M under Alternative 1, $0.06 M under Alternative 2, and $0.12 under Alternative 3.

As such, on a per vessel basis, the commercial RSA could result in a potential decrease in bluefish revenues of approximately $50, $26, and $54 under Alternatives 1, 2, and 3, respectively, per vessel assuming all active vessels in 2009 (approximately 2,281 vessels). The adjusted commercial quotas analyzed in sections 7.1, 7.2, and 7.3 account for the RSA (as described in sections 4.3 and 5.0 of the EA). If RSA is 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 discussed in sections 5.1 through 5.3.

Changes in the recreational harvest limit due to the RSA would be nil; the recreational limit under all there alternatives would change (i.e., reduction) by 3 percent as a consequence of the RSA. For the most part, it is not anticipated that the RSA would affect angler satisfaction or recreational demand for bluefish with the potential exception of Alternative 1. As stated section 5.1 of the EA, the TAC associated with Alternative 1 is 31.744 M lb, the initial commercial quota and recreational harvest limit (post transfer) under Alternative 1 is 9.411 M lb and an RHL of 17.882 M lb, respectively. The Council approved an RSA for bluefish of up to 3 percent of the TAL. Adjusting these values for RSA (0.819 M lb) would result in a Council-adjusted commercial quota of 9.129 M lb and an RHL of 17.345 M lb. As such, adjusting the initial commercial quota and recreational harvest limits to reflect a 3 percent reduction in the TAL as a consequence of the RSA would yield a Council-adjusted recreational harvest limit slightly below the assumed recreational landings for 2011 (17.882 M lb; section 4.3 of the EA). As indicated in section 7.1.4 of the EA, there is very little information available to empirically estimate how sensitive the affected party/charter boat anglers might be to the fishing regulations. However, given the level of the Council-adjusted recreational harvest limit for 2011 and recreational landings in recent years, it is possible that the proposed recreational harvest limit under this alternative may cause some slight decrease in recreational satisfaction (i.e., 2011 harvest limit slightly lower than assumed 2011 recreational landings).

The cost of any premature closure of the fishery (pounds of bluefish 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 bluefish. As such, permit holders that land these species during a period where the quota has been reached and the fishery closed could be disadvantaged. However, given that the proposed Council-adjusted commercial quota under Alternative 1 is 40 percent higher than the 2009 commercial landings, it is not expected that the extent of RSA activity under this alternative would result in significant overall impacts of research trips and compensation trips are expected to be negligible.

It is important to stress that the RSA amount used to evaluate the alternatives presented in this document is the maximum RSA allowed (3 percent of the TAL) to support collaborative research projects among the public, research institutions, and NMFS. The actual RSA for fishing year 2011 will depend on the specific amounts requested by the approved research projects. NMFS will adjust quotas based on updated information on RSA, overages and/or transfers as part of the final rule that implements the 2011 specifications when the data are more complete.

The impacts of the RSAs for other species are addressed in their respective species specifications packages, e.g., summer flounder, scup, and black sea bass in the 2011 specifications package for those species.

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. The 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.

Based on these criteria, a total of five counties were identified: Ocean county in New Jersey; Dare county in North Carolina; and Nassau, New York, and Suffolk counties in New York. Counties not included in this analysis (e.g., New Haven, CT; Plymouth, Barnstable, and Suffolk, MA; and Philadelphia, PA) 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. In fact, some counties only had one or two affected vessel.

Table 36 details population, employment personal income and the contribution of commercial fishing and sea food processing to total personal income for Suffolk and Ocean counties. 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 36 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 0.1 percent. This information indicates that these counties are not substantially dependent upon sales of commercial fishing products to sustain the counties economies. Population in these counties ranged from an estimated 0.03 million in Dare to 1.5 million in New York.

TABLES

Table 1. Bluefish commercial and recreational landings ('000 lb), 1981-2009.

Year	Comm[a]	Rec[b]	Total	% Comm	% Rec
1981	16,454	95,288	111,742	15%	85%
1982	15,430	83,006	98,436	16%	84%
1983	15,799	89,122	104,921	15%	85%
1984	11,863	67,453	79,316	15%	85%
1985	13,501	52,515	66,016	20%	80%
1986	14,677	92,887	107,564	14%	86%
1987	14,504	76,653	91,157	16%	84%
1988	15,790	48,222	64,012	25%	75%
1989	10,341	39,260	49,601	21%	79%
1990	13,779	30,557	44,336	31%	69%
1991	13,581	32,997	46,578	29%	71%
1992	11,477	24,275	35,752	32%	68%
1993	10,122	20,292	30,414	33%	67%
1994	9,388	15,541	24,929	38%	62%
1995	7,954	14,307	22,261	36%	64%
1996	9,207	11,746	20,953	44%	56%
1997	9,002	14,302	23,304	39%	61%
1998	8,205	12,334	20,539	40%	60%
1999	7,309	8,253	15,562	47%	53%
2000	8,041	10,606	18,647	43%	57%
2001	8,688	13,230	21,918	40%	60%
2002	6,863	11,371	18,234	38%	62%
2003	7,401	13,136	20,537	36%	64%
2004	7,994	15,828	23,822	34%	66%
2005	7,045	18,132	25,177	28%	72%
2006	6,955	16,752	23,707	29%	71%
2007	7,499	21,181	28,680	26%	74%
2008	5,977	18,900	24,877	24%	76%
2009	6,526	13,583	20,573	34%	66%
Avg 81-09	10,408	33,853	44,261	30%	70%
Avg 00-09	7,345	15,272	22,617	33%	67%
Avg 05-09	6,893	17,710	24,603	28%	72%

[a]Source: Dealer Weighout Data and South Atlantic General Canvass Data.
[b]Source: Marine Recreational Fisheries Statistics Survey Data.

Table 2. The percentage contribution of bluefish to the commercial landings and value of all species combined from Maine through East Coast of Florida, 2009.

State	Pounds of Bluefish as a Percentage of all Species	Value of Bluefish as a Percentage of all Species
ME	0.00%	0.00%
NH	0.03%	0.01%
MA	0.05%	0.04%
RI	0.45%	0.27%
CT	0.37%	0.13%
NY	1.87%	1.66%
NJ	0.27%	0.42%
DE	0.36%	0.13%
MD	0.16%	0.09%
VA	0.09%	0.10%
NC	6.12%	2.78%
SC	0.00%	0.00%
GA	0.00%	0.00%
FL (East Coast)	0.79%	0.15%
Total	0.27%	0.20%

Source: Dealer Weighout Data, as of May 27, 2010; and South Atlantic General Canvass Data as of June 28, 2010. Note: There were no bluefish landings reported in PA in 2009.

Table 3. Fishing effort of the bluefish fishery relative to other fisheries by gear type from Maine through North Carolina in 2009 (VTR data).

	GILL NET	HOOK AND LINE	TRAWL, OTTER, BOTTOM	OTHER	TOTAL
Total Trips (N)	19,414	7,468	27,346	48,496	102,724
Trips that caught bluefish (N)	3,204	1,185	3,864	103	8,356
% of All Trips That Caught Bluefish by Gear (row 2/row 1)	16.5%	15.9%	14.1%	0.2%	8.1%
Distribution of Trips That Caught Bluefish (%)	38.34%	14.18%	46.24%	1.23%	100.00%
Directed Bluefish Trips (N)	1170	387	49	8	1614
% of Directed Bluefish Trips[a]	6.03%	5.18%	0.18%	0.02%	1.57%
Directed Bluefish Trip landings (lbs)	2,368,894	59,608	78,368	4,019	2,510,889

[a]A directed bluefish trip is a trip where bluefish is greater than 50% of the catch. These percentages reflect the proportion of total trips within a particular gear category that also qualified as "directed bluefish trips".
Source: VTR Data as of April 9, 2010.

Table 4. Statistical areas that accounted for at least 5 percent of the bluefish catch and/or trips in 2009, NMFS VTR data. (A map showing the location of these statistical areas is presented in Figure 1).

Statistical Area	Catch (percent)	Trips (percent)
636	18.8%	1.3%
612	14.9%	10.2%
615	11.9%	3.7%
613	8.2%	17.9%
635	6.5%	2.7%
539	5.5%	11.4%
626	4.9%	1.1%
611	4.3%	16.3%
514	0.5%	4.9%
537	1.9%	6.1%

Source: VTR Data as of April 9, 2010.

Table 5. The percentage (%) of bluefish caught and landed by recreational fishermen for each mode, Maine through Florida, 1999-2009.

Mode	Catch (Number A+B1+B2)	Landings (Weight A+B1)
Private/Rental	52.13%	46.45%
Shore	41.10%	39.87%
Party/Charter	6.77%	13.68%
Total	100.0%	100.0%

Source: Marine Recreational Fisheries Statistics Survey Data, October 22, 2010.

Table 6. Number of bluefish recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2011.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit ('000 lb)	Recreational Landings ('000 lb)[b]
1991	5,811,446	None	32,997
1992	4,261,811	None	24,275
1993	3,999,487	None	20,292
1994	3,414,337	None	15,541
1995	3,409,966	None	14,307
1996	2,523,984	None	11,746
1997	2,021,713	None	14,302
1998	1,838,525	None	12,334
1999	1,316,939	None	8,253
2000	1,526,554	25,745	10,606
2001	2,156,043	28,258	13,230
2002	1,893,640	16,365	11,371
2003	2,100,057	26,691[c]	13,136
2004	2,178,373	21,150[c]	15,828
2005	2,511,295	20,157[c]	18,132
2006	2,050,409	16,473[c]	16,752
2007	3,088,563	18,823[c]	21,181
2008	2,442,941	20.414[c]	18,900
2009	1,652,775	19,528[c]	13,583
2010	NA	18,631[c]	NA
2011	-	17,345[c]	-

[a]Estimated number of recreational fishing trips (expanded) where the primary species targeted was bluefish, Maine – Florida's East Coast. Source: Scott Steinback, NMFS/NEFSC.
[b]Atlantic coast from Maine through Florida's east coast.
[c]Alternative 1 (preferred) adjusted for RSA.
NA = Data not available.

Table 7. Total angler trip expenditures ('000 $) by mode and state in 2006.

State	Party/Charter	Private/Rental	Shore
CT	3,221	23,762	8,819
DE	4,410	34,451	29,909
ME	5,956	10,461	47,913
MD	28,390	68,413	90,266
MA	34,529	72,934	149,833
NH	7,320	5,966	6,887
NJ	65,462	199,889	92,131
NY	34,468	80,847	35,025
RI	5,267	22,988	32,156
VA	3,994	150,032	38,151
Total	193,017	669,743	531,090

Source: Gentner and Steinback 2008.

Table 8. Angler effort (number of trips) that targeted bluefish in 2009, Maine through Virginia.

Mode	Total Angler Effort	Angler Effort Targeting Bluefish[a]	Percent Angler Effort Targeting Bluefish
Party/Charter	1,768,409	99,954	5.70%
Private/Rental	15,280,286	529,459	3.50%
Shore	13,236,644	1,023,362	7.70%
Total	30,285,339	1,652,775	5.50%

[a]Total effort targeting bluefish as primary species.
Source: Scott Steinback NMFS/NEFSC.

Table 9. Average willingness to pay for a one-day fishing trip, by state.

State	Mean 1994 ($'s) [a]	Adjusted to 2009 ($'s)[b]
ME	6.40	9.26
NH	0.85	1.23
MA	8.38	12.13
RI	4.23	6.12
CT	3.07	4.44
NY	21.58	31.24
NJ	14.12	20.44
DE	1.43	2.07
MD	12.09	17.50
VA	42.33	61.28

[a]Source: Hicks *et al.* 1999.
[b]Prices were adjusted using the Bureau of Labor Statistics Consumer Price Index.

Table 10. Aggregate willingness to pay for anglers that indicated they were targeting bluefish in 2009.

State	Total Effort Targeting Bluefish[a]	Willingness to Pay ($'s)
ME	35,985	333,221
NH	3,290	4,047
MA	242,445	2,940,858
RI	51,249	313,644
CT	100,067	444,297
NY	645,987	20,180,634
NJ	355,323	7,262,802
DE	54,603	113,028
MD	75,689	1,324,558
VA	8,350	511,688

[a]Total effort targeting bluefish as primary species.
Source: Scott Steinback NMFS/NEFSC.

Table 11. Willingness to pay for a one fish increase in the catch rate of small game per trip, Maine through Virginia.

State	Mean 1994 ($'s)[a]	Adjusted to 2009 ($'s)[b]
ME	3.74	5.41
NH	3.25	4.70
MA	3.09	4.47
RI	3.13	4.53
CT	3.29	4.76
NY	2.43	3.52
NJ	2.69	3.89
DE	3.00	4.34
MD	3.44	4.98
VA	2.46	3.56
All States	2.89	4.18

[a]Source: Hicks *et al.* 1999.
[b]Prices were adjusted using the Bureau of Labor Statistics Consumer Price Index.

Table 12. Recreational anglers' ratings (mean) of reasons for marine fishing, by subregion.

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

Source: Steinback *et al.*, 1999.

Table 13. Recreational anglers' ratings (mean) of fishing regulation methods, by subregion.

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

Source: Steinback *et al.*, 1999.

Table 14. Recreational anglers' ratings (mean) of fishing regulation methods, by mode.

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

Source: Steinback *et al.*, 1999.

Table 15. Top ports of bluefish landings (in pounds), based on NMFS 2009 dealer data. Since this table includes only the "top ports" (ports where landings of bluefish were > 100,000 lb), it does not include all of the landings for the year. Note: C=Confidential.

Port[a]	Pounds	# Vessels
WANCHESE, NORTH CAROLINA	1693158	26
BARNEGAT LIGHT/LONG BEACH, NEW JERSEY	939,486	31
POINT JUDITH, RHODE ISLAND	315,232	59
MONTAUK, NEW YORK	287,515	48
HAMPTON BAYS, NEW YORK	243,695	37
BELFORD, NEW JERSEY	229,150	17
HATTERAS, NORTH CAROLINA	198,603	14
PROVINCETOWN, MASSACHUSETTS	174,664	8
CHINCOTEAGUE, VIRGINIA	136,306	21
CAPE MAY, NEW JERSEY	132,141	38
LITTLE COMPTON, RHODE ISLAND	126,740	20
POINT PLEASANT, NEW JERSEY	111,678	25

[a]Ports with less than 3 vessels not reported for confidentiality issues.
Source: Dealer Weighout Data, as of May 27, 2010.

Table 16. MRFSS estimates of 2009 recreational harvest and total catch for bluefish.

State	Harvest (A+B1)		Catch (A+B1+B2)
	Pounds of Fish	Number of Fish	Number of Fish
ME	26,387	4,589	34,135
NH	3,435	561	2,404
MA	1,934,999	376,947	1,191,092
RI	293,935	62,165	250,347
CT	2,028,395	331,640	746,959
NY	4,034,610	1,118,980	2,940,987
NJ	2,558,050	762,235	2,148,132
DE	129,963	121,891	328,824
MD	420,133	334,856	829,234
VA	100,102	111,239	453,737
NC	971,122	856,405	2,244,627
SC	113,738	118,416	329,268
GA	2,401	2,397	68,324
FL (East Coast)	965,326	546,349	1,218,603
Total	13,582,596	4,748,670	12,786,673

Source: Marine Recreational Fisheries Statistics Survey October 22, 2010.

Table 17. Dealers reporting buying bluefish by state in 2009.

	MA	NY	RI	NC	VA	NJ	E. FL	Other
Number of Dealers	45	45	21	19	11	9	5	5

Note: States with less than 3 dealers reporting not reported for confidentiality issues.
Source: Dealer Weighout Data, as of May 27, 2010.

Table 18. Comparison of habitat impacts and considerations for selecting alternatives.

Alternative	Commercial Quota (M lb)[1]	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
***Alternative 1 - Preferred* (2nd Least Restrictive Comm. Quota)**	9.129	Quota is slightly lower than the commercial quota under Alternative 3. Based upon species abundance and fishing practices, habitat impacts are likely to remain similar to existing (minimal and temporary).	Commercial quota could provide second largest landings potential. Expected to achieve the fishing mortality target, so significant habitat impacts, increased financial benefit.
***Alternative 2 - Non-Preferred* (Assumes Rebuilt Bluefish Stock; Least Restrictive Comm. Quota)**	4.501	Quota is much lower than the commercial quota under Alternative 3. Based upon species abundance and fishing practices, habitat impacts are likely to decrease (still minimal and temporary).	Maximize recreational fishing opportunity.
***Alternative 3 - Non-Preferred; No Action/ Status Quo TAL* (Most Restrictive Comm. Quota)**	10.051	Habitat impacts associated with bluefish fishery in 2010 were determined to be minimal and would continue to be so in 2011.	Maintains status quo quota in order to maintain stable fishing opportunity, financial benefit to industry

[1] Adjusted for RSA.

Table 19. The 2011 state-by-state commercial bluefish quota[a] allocations and the 2009 commercial landings by state.

State	% of Quota	2011 Council-Adjusted Commercial Quota Alternative 1	2011 Council-Adjusted Commercial Quota Alternative 2	2011 Council-Adjusted Commercial Quota Alternative 3	2009 Landings
ME	0.6685	61,028	30,087	67,192	1,095
NH	0.4145	37,840	18,655	41,662	3,766
MA	6.7167	613,172	302,295	675,103	385,616
RI	6.8081	621,516	306,409	684,290	497,368
CT	1.2663	115,601	56,992	127,277	69,626
NY	10.3851	948,063	467,397	1,043,818	1,295,784
NJ	14.8162	1,352,581	666,826	1,489,193	1,431,851
DE	1.8782	171,462	84,531	188,780	21,970
MD	3.0018	274,036	135,101	301,714	172,524
VA	11.8795	1,084,488	534,655	1,194,022	481,148
NC	32.0608	2,926,852	1,442,946	3,222,467	1,950,620
SC	0.0352	3,213	1,584	3,538	177
GA	0.0095	867	428	955	133
FL	10.0597	918,357	452,752	1,011,112	213,964
Total	100.0001	9,129,068	4,500,654	10,051,122	6,525,642

[a]2011 quota adjusted for 3% RSA.
Source: Dealer Weighout Data, as of May 27, 2010, and South Atlantic General Canvass Data as of June 28, 2010.

Table 20. Threshold analysis of revenues for participating vessels under Alternative 1 (preferred alternative), based on dealer data.

Quota Alternative 1 (Preferred; 2nd Least Restrictive)		No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Total Vessels	Number of Vessels Impacted by ≥ 5% Reduction		<5	5-9	10-19	20-29	30-39	40-49	≥50
688	20	449	219	17	3	0	0	0	0

Table 21. Review of revenue impacts under quota Alternative 1 (preferred alternative), by home port state, based on dealer data.

State	Participating Vessels	Number of Vessels Impacted ≥5%	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	11	0	9	2	0	0	0	0	0	0
MA	167	0	163	4	0	0	0	0	0	0
MD	12	0	12	0	0	0	0	0	0	0
ME	5	0	5	0	0	0	0	0	0	0
NC	62	0	59	3	0	0	0	0	0	0
NH	16	0	16	0	0	0	0	0	0	0
NJ	84	5	5	74	5	0	0	0	0	0
NY	107	9	4	94	7	2	0	0	0	0
PA	3	1	0	2	1	0	0	0	0	0
RI	72	0	62	10	0	0	0	0	0	0
VA	25	0	23	2	0	0	0	0	0	0
OTHER[a]	3	0	3	0	0	0	0	0	0	0
NOT KNOWN[b]	121	5	88	28	4	1	0	0	0	0
Total	688	20	449	219	17	3	0	0	0	0

[a]States with fewer than 3 vessels were aggregated.
[b]Vessels have shown landings of bluefish in 2009, but do not hold any commercial Federal permits in 2009. These vessels may be fishing exclusively in state waters fisheries for bluefish, 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 22. Federal permits held by the 15 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under Alternative 1 (preferred alternative).

	Northeast Region Permit Status		Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	Limited Access	2	13
	Multispecies	Open Access	7	47
	Lobster, Non-trap	Limited Access	1	7
	Tilefish	All Comm.	9	60
	Summer Flounder	Limited Access	1	7
	Scup	Limited Access	4	27
	Black Sea Bass	Limited Access	4	27
	Squid/Mackerel/Butterfish	Limited Access	1	7
	Squid/Mackerel/Butterfish	Open Access	1	7
	Dogfish	Open Access	7	47
	Monkfish	Limited Access	2	13
	Monkfish	Open Access	5	33
	Skate	Open Access	6	40
	Atl. Deep-Sea Red Crab	Open Access	5	33
Recreational (Party/Charter)	Summer Flounder	Open Access	1	7
	Scup	Open Access	1	7
	Black Sea Bass	Open Access	1	7
	Squid/Mackerel/Butterfish	Open Access	8	53
	Bluefish	Open Access	2	13
	Tilefish	Open Access	6	40

Table 23. Descriptive information for the 15 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under Alternative 1 (preferred alternative). Based on 2009 descriptive data from NMFS permit files - No vessel characteristics data are reported for states with fewer than 3 permits.

	NJ	NY	OTHER
# Permits by Home Port State	5	9	1
# Permits by Principal Port State	6	9	0
# Permits by Mailing Address State	6	9	0
Avg. Length in Feet by Principal Port	57	31	-
Avg. GRT by Principal Port	48	11	-
Avg. Vessel Horsepower by Principal Port	1,199	232	-
% of Vessels where Home Port State = Principal Port State	83	100	-

Table 24. Distribution of the 15 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under Alternative 1 (preferred alternative). Distribution by state, county, and home port, from 2009 NMFS permit files - home ports with fewer than 3 vessels are not reported - only county-level data supplied; counties with fewer than 3 vessels are not reported.

State	County	Home Port	Number of Vessels
New Jersey	Ocean	Pt. Pleasant / Pt. Pleasant Beach	4
		Other	1
New York	Nassau	Freeport	3
		Other	1
	Suffolk	Other	3

Other counties with impacted vessels were: Philadelphia (PA) and New York (NY).

Table 25. Threshold analysis of revenues for participating vessels under non-preferred Alternative 2 quota, based on dealer data.

Quota Alternative 2 (Most Restrictive)		No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Total Vessels	Number of Vessels Impacted by ≥ 5% Reduction		<5	5-9	10-19	20-29	30-39	40-49	≥50
688	61	61	566	18	22	8	6	7	0

Table 26. Review of revenue impacts under non-preferred Alternative 2 quota, by home port state, based on dealer data.

State	Participating Vessels	Number of Vessels Impacted ≥5%	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	11	1	0	10	0	0	0	1	0	0
MA	167	4	1	162	1	2	0	1	0	0
MD	12	0	0	12	0	0	0	0	0	0
ME	5	0	2	3	0	0	0	0	0	0
NC	62	6	13	43	3	3	0	0	0	0
NH	16	0	12	4	0	0	0	0	0	0
NJ	84	15	1	68	1	6	2	1	0	5
NY	107	18	0	89	7	7	3	1	0	0
PA	3	1	0	2	0	0	0	0	0	1
RI	72	0	1	71	0	0	0	0	0	0
VA	25	0	19	6	0	0	0	0	0	0
OTHER[a]	3	0	2	1	0	0	0	0	0	0
NOT KNOWN[b]	121	16	10	95	6	4	3	2	0	1
Total	688	61	61	566	18	22	8	6	0	7

[a]States with fewer than 3 vessels were aggregated.
[b]Vessels have shown landings of bluefish in 2009, but do not hold any commercial Federal permits in 2009. These vessels may be fishing exclusively in state waters fisheries for bluefish, 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 27. Federal permits held by the 45 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under non-preferred Alternative 2 quota.

	Northeast Region Permit Status		Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	Limited Access	8	18
	Multispecies	Open Access	18	40
	Lobster, Non-trap	Limited Access	3	7
	Lobster, Non-trap	Limited Access	1	2
	Surfclam/Ocean quahog	Open Access	2	4
	Tilefish	All Comm.	30	67
	Summer Flounder	Limited Access	2	4
	Scup	Limited Access	8	18
	Black Sea Bass	Limited Access	9	20
	Squid/Mackerel/Butterfish	Limited Access	2	4
	Squid/Mackerel/Butterfish	Open Access	29	64
	Dogfish	Open Access	26	58
	Monkfish	Limited Access	15	33
	Monkfish	Open Access	15	33
	Skate	Open Access	27	60
	Atl. Deep-Sea Red Crab	Open Access	11	24
Recreational (Party/Charter)	Summer Flounder	Open Access	5	11
	Scup	Open Access	4	9
	Black Sea Bass	Open Access	6	13
	Squid/Mackerel/Butterfish	Open Access	4	9
	Bluefish	Open Access	6	13
	Tilefish	Open Access	10	22

Table 28. Descriptive information for the 45 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under non-preferred Alternative 2 quota. Based on 2009 descriptive data from NMFS permit files - No vessel characteristics data are reported for states with fewer than 3 permits.

	MA	NC	NJ	NY	OTHER
# Permits by Home Port State	4	6	15	18	2
# Permits by Principal Port State	3	6	17	17	2
# Permits by Mailing Address State	3	6	17	17	2
Avg. Length in Feet by Principal Port	31	42	47	33	-
Avg. GRT by Principal Port	13	19	33	14	-
Avg. Vessel Horsepower by Principal Port	359	530	702	292	-
% of Vessels where Home Port State = Principal Port State	100	100	88	100	-

Table 29. Distribution of the 45 commercial vessels (holding any Federal fishing permit in 2009) projected to have a revenue reductions of more than 5% under non-preferred Alternative 2 quota. Distribution by state, county, and home port, from 2009 NMFS permit files - home ports with fewer than 3 vessels are not reported - only county-level data supplied; counties with fewer than 3 vessels are not reported.

State	County	Home Port	Number of Vessels
New Jersey	Ocean	Barnegat Light	11
		Pt. Pleasant/ Pt. Pleasant Beach	4
North Carolina	Dare	Wanchese	3
		Other	3
New York	Nassau	Freeport	3
		Other	4
	New York	New York	4
	Suffolk	Other	7

Other counties with impacted vessels were: New Haven (CT); Plymouth, Barnstable, and Suffolk (MA); Philadelphia (PA).

Table 30. Threshold analysis of revenues for participating vessels under non-preferred Alternative 3 quota (status quo), based on dealer data.

Quota Alternative 3 (Status Quo; Least Restrictive)		No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Total Vessels	Number of Vessels Impacted by ≥ 5% Reduction		<5	5-9	10-19	20-29	30-39	40-49	≥50
688	8	565	115	6	2	0	0	0	0

Table 31. Review of revenue impacts under non-preferred Alternative 3 quota (status quo), by home port state, based on dealer data.

State	Participating Vessels	Number of Vessels Impacted ≥5%	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	11	0	10	1	0	0	0	0	0	0
MA	167	0	166	1	0	0	0	0	0	0
MD	12	0	12	0	0	0	0	0	0	0
ME	5	0	5	0	0	0	0	0	0	0
NC	62	0	62	0	0	0	0	0	0	0
NH	16	0	16	0	0	0	0	0	0	0
NJ	84	0	83	1	0	0	0	0	0	0
NY	107	5	8	94	4	1	0	0	0	0
PA	3	0	3	0	0	0	0	0	0	0
RI	72	0	71	1	0	0	0	0	0	0
VA	25	0	25	0	0	0	0	0	0	0
OTHER[a]	3	0	3	0	0	0	0	0	0	0
NOT KNOWN[b]	121	3	101	17	2	1	0	0	0	0
Total	688	8	565	115	6	2	0	0	0	0

[a]States with fewer than 3 vessels were aggregated.
[b]Vessels have shown landings of bluefish in 2009, but do not hold any commercial Federal permits in 2009. These vessels may be fishing exclusively in state waters fisheries for bluefish, 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 32. Federal permits held by the 5 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under Alternative 3 (status quo/no action alternative).

	Northeast Region Permit Status		Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	Limited Access	1	20
	Multispecies	Open Access	2	40
	Lobster, Non-trap	Limited Access	1	20
	Tilefish	All Comm.	3	60
	Summer Flounder	Limited Access	1	20
	Scup	Limited Access	1	20
	Black Sea Bass	Limited Access	2	40
	Squid/Mackerel/Butterfish	Limited Access	1	20
	Dogfish	Open Access	3	60
	Monkfish	Limited Access	1	20
	Monkfish	Open Access	2	40
	Skate	Open Access	2	40
	Atl. Deep-Sea Red Crab	Open Access	1	20
Recreational (Party/Charter)	Squid/Mackerel/Butterfish	Open Access	2	40
	Tilefish	Open Access	2	40

Table 33. Descriptive information for the 5 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under Alternative 3 (status quo/no action alternative). Based on 2009 descriptive data from NMFS permit files - No vessel characteristics data are reported for states with fewer than 3 permits.

	NY
# Permits by Home Port State	5
# Permits by Principal Port State	5
# Permits by Mailing Address State	5
Avg. Length in Feet by Principal Port	30
Avg. GRT by Principal Port	13
Avg. Vessel Horsepower by Principal Port	222
% of Vessels where Home Port State = Principal Port State	100

Table 34. Distribution of the 5 commercial vessels (holding any Federal fishing permit in 2009) projected to have revenue reductions of more than 5% under Alternative 3 (status quo/no action alternative). Distribution by state, county, and home port, from 2009 NMFS permit files - home ports with fewer than 3 vessels are not reported - only county-level data supplied; counties with fewer than 3 vessels are not reported.

State	County	Home Port	Number of Vessels
New York	**Nassau**	**Other**	3

Note: Other counties with impacted vessels were: Suffolk (NY) and New York (NY).

Table 35. Percentage changes associated with allowable commercial landings for various quota alternatives in 2011 (Council-adjusted quota for RSA) relative to 2009 landings by state.

State	2011 Commercial Quota Alternative 1	2011 Commercial Quota Alternative 2	2011 Commercial Quota Alternative 3
ME	5473%	2648%	6036%
NH	905%	395%	1006%
MA	59%	-22%	75%
RI	25%	-38%	38%
CT	66%	-18%	83%
NY	-27%	-64%	-19.45%
NJ	-6%	-53%	4%
DE	680%	285%	759%
MD	59%	-22%	75%
VA	125%	11%	148%
NC	50%	-26%	65%
SC	1715%	795%	1899%
GA	552%	221%	618%
FL	329%	112%	373%
Total	40%	-31%	54%

Table 36. Counties identified as having >= 4 commercial vessels showing revenue reductions of 5% or more as a consequence of the most restrictive commercial quota alternative (non-preferred Alternative 3) evaluated in this document (section 3.1 the RIR/IRFA).

State	County[a]	Population[b]	Employment[c]	Total Personal Income[d] (million of $'s)	Commercial Fishing Employment	Percent of Personal Income Derived From Comm. Fishing	Fresh and Frozen Seafood Processing Employment	Percent of Personal Income derived From Seafood Processing
NY	Suffolk	1,438,973	752,834	52,116.44	1,111	.01%	0	0%

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 (NMFS/NEFSC).

Note: The PA module was not available to conduct the county profile for that state. However, it is expected that overall commercial fishing employment; percent of personal income derived from commercial fishing; fresh and frozen seafood processing employment percent of personal; and income derived from seafood processing are expected to be low and not higher than the highest values presented in this table due to the small amount of marine commercial fishing activity in that state.

APPENDIX

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

Other Endangered and Threatened Species within the Management Unit

North Atlantic Right Whale

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

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

Right whales appear to prefer shallow coastal waters, but their distribution is also strongly correlated to the distribution of their prey (zooplankton). In both the northern and southern hemispheres, right whales are observed in the lower latitudes and more coastal waters during winter where calving takes place, and then tend to migrate to higher latitudes during the summer. The distribution of right whales in summer and fall in both hemispheres appears linked to the distribution of their principal zooplankton prey (Winn et al. 1986). They generally occur in Northwest Atlantic waters west of the Gulf Stream and are most commonly associated with cooler waters (21º C). They are not found in the Caribbean and have been recorded only rarely in the Gulf of Mexico.

Right whales feed on zooplankton through the water column, and in shallow waters may feed near the bottom. In the Gulf of Maine they have been observed feeding on zooplankton,

primarily copepods, by skimming at or below the water's surface with open mouths (NMFS 1991b; Kenney et al. 1986; Murison and Gaskin 1989; and Mayo and Marx 1990). Research suggests that right whales must locate and exploit extremely dense patches of zooplankton to feed efficiently (Waring et al. 2002). 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. 2008). 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 295 individuals in 1998 (Waring et al. 2008). An updated analysis using the same method gave an updated estimate of 299 animals in 1998. A review of the photo-id recapture database on June 15, 2006, indicated that 313 individually recognized whales were known to be alive in 2002 (Waring et al. 2008). PBR for this stock is zero.

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. (2008) provide 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. 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 FMP. 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 Gulf of Maine stock has been steadily increasing (Waring et al. 2008). 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 847 (CV=0.55). The minimum population estimate for this stock is 549 animals (Waring et al. 2008).

PBR is the product of minimum population size (549 animals), one-half the maximum productivity rate, and a "recovery" factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). 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 1.1 whales (Waring et al. 2008).

The major known sources of anthropogenic mortality and injury of humpback whales include entanglement in commercial fishing gear and ship strikes. Waring et al. (2008) provide a detailed description of the annual human related mortalities of humpback whales. 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).

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. 2008). 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.

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).

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. 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. (2008) present a more recent abundance estimate of 2,269 (CV=0.37) and minimum population estimate of 1,678 for fin whales in the western North Atlantic. PBR for the western North Atlantic fin whale is 3.4 animals. For the period 2001-2005, Waring et al. (2008) report that the average annual rate of human-caused mortality and serious injury to fin whales was 2.4 animals per year.

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 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.

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.

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 FMP management area.

Sei whales winter in warm temperate or subtropical waters and summer in more northern latitudes. The species occurs 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.

There are insufficient data to determine trends of the sei whale population. Waring et al. (2008) present a minimum population estimate of 128 fin whales in the western North Atlantic. PBR for the Nova Scotia stock of sei whales is 0.3 animals. 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. Waring et al. (2008) reported that there were no fishery-related mortalities or serious injuries to fin whales observed by NMFS for the period 2001-2005. 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.

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). 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. (2008) 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. 2008).

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 4,804 (CV=0.38). The minimum population estimate for the western North Atlantic sperm whale is 3,539 (Waring et al. 2008).

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. 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.

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.

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.

The most recent 5-year hawksbill turtle status review was completed in 2007 (NMFS & USFWS 2007e) which included an examination of both recent and historic information on 83 hawksbill nesting sites distributed among 10 ocean regions around the world. Historic trends were determined for 58 of the 83 sites and all 58 (100%) showed a decrease in nesting abundance over time. Recent trends determined for 42 sites were more optimistic, with 10 (24%) increasing, 3 (7%) stable, and 29 (69%) in decline. Based on the best available information, NMFS & USFWS (2007e) concluded that the hawksbill turtle should not be delisted or reclassified under the ESA. The review also concluded that available information indicates that an analysis and review of the species should be conducted in the future to determine if the application of the Distinct Population Segment policy under the ESA to the hawksbill turtle is warranted.

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.