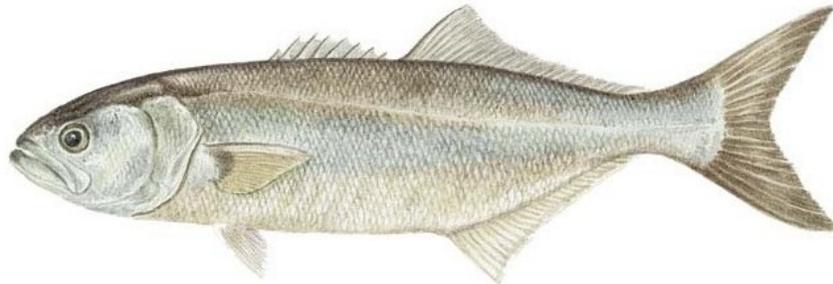


**2009
Bluefish Specifications,
Environmental Assessment,
Regulatory Impact Review,
and
Initial Regulatory Flexibility Analysis**



December 2, 2008



Prepared by the
Mid-Atlantic Fishery Management Council
in cooperation with the
National Marine Fisheries Service



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1.0 EXECUTIVE SUMMARY

The purpose of this document is to analyze bluefish management measures for fishing year 2009 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 2009 management measures include total annual landings (TAL), a commercial quota and annual recreational harvest limit, as well as a recreational bag limit. According to the FMP, the TAL is initially split with 17% going to the commercial quota and 83% available for recreational harvest. If recreational landings in the upcoming year are expected to be less than 83% of the TAL, then a "transfer" of quota can be made to increase the commercial allocation. For the 2009 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 Science and Statistical Committee (SSC) and Bluefish Monitoring Committee.

The most recent stock assessment update (June 2008) resulted in an estimate of bluefish biomass in 2007 that is above B_{msy} ($B_{msy} = 147,051$ mt; $B_{2007} \approx 153,843$ mt). After reviewing the assessment results, the SSC believes that the bluefish stock is probably rebuilt. Nevertheless, they note that there is sufficient uncertainty in some of the assessment model data inputs to delay an "official" declaration of stock recovery unless/until a corroborating model solution is achieved in next year's assessment update. Given this advice, the SSC and Monitoring Committee recommended setting the total allowable catch (TAC) for 2009 at a level consistent with the rebuilding 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 briefly characterized below. Under all of the alternatives, a status quo recreational bag limit of 15 fish would remain in place for 2009.

Alternative 1 (*preferred*) specifies a total allowable catch (TAC) of 34.081 million pounds (M lb) which is projected to achieve the rebuilding target F in 2009. Subtracting average discards for 2005-2007 (4.725 M lb) from the TAC generates a TAL of 29.356 M lb. Done in August 2008, a projection of recreational landings for 2009 resulted in a landings estimate of 24.719 M lb. Because this estimate is not below 83% of the TAL, no transfer of quota to the commercial fishery can occur (see 1st paragraph). Therefore, under Alternative 1, the 2009 commercial quota is 4.991 M lb, and the recreational harvest limit (RHL) is 24.366 M lb. Adjusting these initial values for the amount currently requested for a research set-aside (RSA) project (97,750 lb) lowers the commercial quota to 4.974 M lb and the RHL to 24.285 million lb. With no transfer, the commercial quota under this alternative represents a 35% decrease in available commercial landings compared to 2008 (quota = 7.692 M lb) and a 33% decrease compared to actual 2007 commercial landings (7.414 M lb; complete 2008 landings are unavailable at this time). In acknowledgement of the decrease in commercial fishing opportunity despite the improvement in stock status, the Council recommended that updated projections of recreational landings be made before final rule-making. If these projections allow for any transfer of quota to the commercial

fishery, then the Council strongly recommends that the full allowable transfer be allowed to occur. Note: An updated projection since the Council made its recommendation in August suggests that it will be possible to transfer quota to the commercial fishery without exceeding the TAL. The transfer amount could be set such that status quo commercial landings are maintained. If such a transfer is made, the impacts on the commercial fleet are expected to be more consistent with Alternative 3 (status quo) than Alternative 1.

Alternative 2 presumes that, in keeping with the stock assessment update, the bluefish stock is in fact rebuilt. In keeping with the FMP, a rebuilt bluefish stock can be fished at 90% of F_{msy} ($F = 0.17$) as opposed to $F_{rebuild}$ (0.15) during the rebuilding phase. A target F of 0.17 for 2009 corresponds to a TAC of 36.929 M lb and a TAL of 32.205 M lb. Under this scenario, a transfer of quota to the commercial fishery would be allowable since the projected recreational landings (24.719 M lb) are less than 83% of the TAL (projected rec. landings are 77% of the TAL). Accordingly, a transfer of 2.011 M lb would result in a commercial quota of 7.486 M lb and an RHL equal to the current recreational landings projection (24.719 M lb). The magnitude of the quota transfer under this alternative would maintain status quo fishing opportunity for the commercial bluefish fishery and is therefore associated with a lower probability of revenue losses compared to Alternative 1. Nevertheless, the Council rejected this alternative in keeping with the SSC's recommendation for a more risk-averse F target for 2009.

Alternative 3 (no-action) is considered to be synonymous with "status quo" management measures for 2009 since the alternative interpretation (failure to specify management measures) would be in gross violation of the Magnuson-Stevens Act. Therefore, Alternative 3 would maintain the 2008 TAL (28.156 M lb) and its respective allocations in 2009: A commercial quota of 7.678 M lb and an RHL of 20.380 M lb. In reviewing this alternative at its August meeting, the Council determined that it was untenable under the allocation process described in the FMP (and in paragraph 1, above). This is because projected recreational landings were in excess of 83% of the TAL (projected rec. landings for 2009 are 88% of the Alternative 3 TAL), and, as such, the transfer necessary to achieve the commercial quota could not occur.

Research Set Aside Alternatives

Alternative 4.1 would not accommodate any RSA projects in 2009 through a deduction of the specified TAL. Alternative 4.2, however, would specify a maximum RSA of 3% of the bluefish TAL for 2008. Currently, the requested RSA for bluefish equates to 97,750 lb or 0.33% of the TAL. Given the small amount requested for the RSA, short-term biological, economic, social, protected resource and EFH impacts of the alternatives are negligible under either alternative. Nevertheless, 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

The lowest TAL is proposed under Alternative 3, and, as such, it would be expected that this alternative poses the least risk of damage to the bluefish stock and other biological and physical

resources. Additionally, by maintaining the status quo commercial quota, Alternative 3 would not be expected to negatively affect commercial fishing communities. However, as explained above, this alternative has been deemed untenable under the allocation process specified in the FMP, which makes its comparison with the other alternatives a rather academic exercise. Because of the conservative F target under Alternative 1, this alternative is unlikely to risk overfishing the bluefish stock, while the larger F target under Alternative 2 presents a greater risk to the stock. In past analyses, impacts on non-target species (including protected resources) and habitat have generally been associated with the commercial bluefish fishery. Therefore, the lower commercial quota under Alternative 1 is expected to have fewer negative impacts on these resources compared to Alternative 2. With regard to human communities, Alternative 1 is expected to negatively affect the commercial bluefish fishery since it will reduce fishing opportunity as compared to Alternative 2. The magnitude of the 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: As stated above, an updated projection since the Council made its recommendation in August suggests that it will be possible to transfer quota to the commercial fishery without exceeding the TAL. The transfer amount could be set such that status quo commercial landings are maintained. If such a transfer is made, the impacts on the commercial fleet are expected to be more consistent with Alternative 3 (status quo) than Alternative 1. In taking into account these alternative scenarios, this EA covers the "range of impacts" on the human environment.

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

Box ES-1. Overall qualitative summary of the expected 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 (+/-) sign signifies uncertainty as to the direction of the effects, a zero is used for null impact, and "n/a" indicates that the alternative is implausible.					
	Environmental Dimension				
	Biological	EFH	Protected Resources	Economic	Social
Alternative 1 (Most Restrictive Commercial Quota / Preferred)	+	+	+	-	-

Alternative 2 (Presumes stock is rebuilt)	+/-	+/-	+/-	+	+
Alternative 3 (No Action, Least Restrictive Commercial Quota)	n/a	n/a	n/a	n/a	n/a
Alternative 4.1 (No RSA)	0	0	0	0	0
Alternative 4.2 (Preferred; RSA up to 3% of TAL)	0	0	0	+	+

2.0 LIST OF ACRONYMS

ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ASMFC	Atlantic States Marine Fisheries Commission or Commission
B	Biomass
BDTRP	Bottlenose Dolphin Take Reduction Plan
CEQ	Council on Environmental Quality
CPUE	Catch Per Unit Effort
DPS	Distinct Population Segment
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act of 1973
F	Fishing Mortality Rate
FR	Federal Register
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
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
NAO	NOAA Administrative Order
NE	New England
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	Optimal Yield
PBR	Potential Biological Removal
PRA	Paperwork Reduction Act
PREE	Preliminary Regulatory Economic Evaluation
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
SFA	Sustainable Fisheries Act
TAC	Total Allowable Catch
TAL	Total Allowable Landings
TED	Turtle Excluder Device
TL	Total Length
VECs	Valuable Environmental Components
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis
VTR	Vessel Trip Report
WNA	Western North Atlantic

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ENVIRONMENTAL ASSESSMENT

4.0 INTRODUCTION AND BACKGROUND OF SPECIFICATION PROCESS

4.1 Purpose and Need of the Action

The purpose of this document is to analyze bluefish management measures for fishing year 2009 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 2009 management measures include total annual landings (TAL), a commercial quota and annual recreational harvest limit, as well as a recreational possession limit. The Council met jointly with the Atlantic Coast Marine Fisheries Commission's Bluefish Board and recommended the proposed measures at their August 2008 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 landings (TAL). Based on the historic proportion of commercial and recreational landings for the period 1981 to 1989, 17% of the TAL is allocated to the commercial fishery. Amendment 1 stipulates that if 17% of the TAL is less than 10.500 million lb (4.762 million kg), then the commercial quota can be increased up to 10.500 million lb (4.762 million kg) if the recreational fishery is projected to land less than 83% 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 RHL 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 Science and Statistical Committee (SSC). The SSC met prior to the MC in accordance with the Magnuson-Stevens Reauthorized 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 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 research set-aside (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 27, 2008 indicates that bluefish commercial landings are well within the 2008 coast-wide quota for (46% of quota landed). It is anticipated that the commercial quota will not be exceeded in 2008, and therefore; discussion of the 2009 commercial quotas in this document does not include an adjustment for overages. Impacts were examined relative to three commercial quota alternatives and their corresponding RHLs (Box 4.3.1).

Alternative 1 (*preferred*) specifies a total allowable catch (TAC) of 34.081 million pounds (M lb) which is projected to achieve the rebuilding target F in 2009. Subtracting average discards for 2005-2007 (4.725 M lb) from the TAC generates a TAL of 29.356 M lb. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 M lb. Because this estimate is not below 83% of the TAL, no transfer of quota to the commercial fishery can occur (see 1st paragraph). Therefore, under Alternative 1, the 2009 commercial quota is 4.991 M lb, and the recreational harvest limit (RHL) is 24.366 M lb. Adjusting these initial values for the amount currently requested for a research set-aside (RSA) project (97,750 lb) lowers the commercial quota to 4.974 M lb and the RHL to 24.285 million lb.

Alternative 2 presumes that, in keeping with the stock assessment update, the bluefish stock is in fact rebuilt. In keeping with the FMP, a rebuilt bluefish stock can be fished at 90% of Fmsy ($F = 0.17$) as opposed to Frebuild (0.15) during the rebuilding phase. A target F of 0.17 for 2009 corresponds to a TAC of 36.929 M lb and a TAL of 32.205 M lb. Under this scenario, a transfer of quota to the commercial fishery would be allowable since the projected recreational landings

(24.719 M lb) are less than 83% of the TAL (projected rec. landings are 77% of the TAL). Accordingly, a transfer of 2.011 M lb would result in a commercial quota of 7.486 M lb and an RHL equal to the current recreational landings projection (24.719 M lb).

Alternative 3 (no-action) is considered to be synonymous with "status quo" management measures for 2009 since the alternative interpretation (failure to specify management measures) would be in gross violation of the Magnuson-Stevens Act. Therefore, Alternative 3 would maintain the 2008 TAL (28.156 M lb) and its respective allocations in 2009: A commercial quota of 7.678 M lb and an RHL of 20.380 M lb.

Box 4.3.1. Comparison of the alternatives under consideration in this specification package. All units are in pounds.

Alternative	2008 Initial TAL	2008 Initial Commercial Quota	2008 Initial Recreational Harvest Limit	2008 Research Set-Aside	2008 Adjusted Commercial Quota	2008 Adjusted Recreational Harvest Limit
Alternative 1 (Preferred)						
Most Restrictive Comm. Quota	29,356,411	4,990,590	24,365,821	97,750	4,973,972	24,284,688
Alternative 2 (Presumes rebuilt stock)						
2 nd Least Restrictive Comm. Quota	32,204,754	7,485,567	24,719,187	97,750	7,652,926	24,478,484
Alternative 3 (Status Quo/No Action)						
Least Restrictive Comm. Quota - Based on 2008 Final Rule	28,156,182	7,705,244	20,450,938	97,750	7,678,494	20,379,938

Box 4.3.2. Commercial quotas under each alternative compared to actual 2007 landings.

	Adjusted 2009 Commercial Quota (lbs)	Percent Change compared to 2007 landings (7.214 million lb)
Alternative 1 (Preferred)		
Most Restrictive	4,973,972	33% decrease
Alternative 2		
2 nd Least Restrictive	7,652,926	3% increase
Alternative 3 (Status Quo/No Action)		
Least Restrictive	7,678,494	4% increase

5.0 MANAGEMENT ALTERNATIVES

According to the FMP, the bluefish TAL is initially split with 17% going to the commercial quota and 83% available for recreational harvest. If recreational landings in the upcoming year are expected to be less than 83% of the TAL, then a "transfer" of quota can be made to increase the commercial allocation. Additionally, according to the FMP, up to 3% of the TAL can be allocated as a research set aside (RSA). If a project is approved that requests a bluefish RSA, the approved amount is deducted proportionally from the commercial quota and RHL.

The rebuilding plan established through Amendment 1 to the Bluefish FMP stipulates that until the stock has rebuilt, the target fishing mortality rate (F_{target}) in a given year is set at a set value or the status quo fishing mortality rate, whichever is less. The most recent stock assessment update (June 2008) resulted in an estimate of bluefish biomass for 2007 that is above B_{msy} ($B_{\text{msy}} = 147,051 \text{ mt}$; $B_{2007} \approx 153,843 \text{ mt}$).

After reviewing the assessment results, the Council's SSC believes that the bluefish stock is probably rebuilt. Nevertheless, they note that there is sufficient uncertainty in some of the assessment model data inputs to delay an "official" declaration of stock recovery unless/until a corroborating model solution is achieved in next year's assessment update. Given this advice, the SSC and Monitoring Committee recommended setting the total allowable catch (TAC) for 2009 at a level consistent with the rebuilding fishing mortality rate ($F = 0.15$) rather than increasing target to the level specified in the FMP for a recovered stock ($90\%F_{\text{msy}}$; $F = 0.17$). 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 2009.

5.1 Alternative 1 –Most Restrictive Commercial Quota (Preferred Alternative)

Alternative 1 specifies a total allowable catch (TAC) of 34.081 million pounds (M lb) which is projected to achieve the rebuilding target $F (0.15)$ in 2009 – the Council's preferred strategy. Subtracting average discards for 2005-2007 (4.725 M lb) from the TAC generates a TAL of 29.356 M lb. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 M lb. Because this estimate is not below 83% of the TAL, no transfer of quota to the commercial fishery can occur (see Section 5.0 above). Therefore, under Alternative 1, the 2009 commercial quota is 4.991 M lb, and the recreational harvest limit (RHL) is 24.366 M lb.

The Council approved a research set-aside (RSA) for bluefish of up to 3% of the TAL. Adjusting these initial values for the amount currently requested for a research set-aside (RSA) project (97,750 lb) lowers the commercial quota to 4.974 M lb and the RHL to 24.285 million lb.

5.2 Alternative 2 – Presumes Bluefish Stock Is Rebuilt

Alternative 2 presumes that, in keeping with the stock assessment update, the bluefish stock is in fact rebuilt. In keeping with the FMP, a rebuilt bluefish stock can be fished at 90% of Fmsy ($F = 0.17$) as opposed to Frebuild (0.15) during the rebuilding phase. A target F of 0.17 for 2009 corresponds to a TAC of 36.929 M lb and a TAL of 32.205 M lb. Under this scenario, a transfer of quota to the commercial fishery would be allowable since the projected recreational landings (24.719 M lb) are less than 83% of the TAL (projected rec. landings are 77% of the TAL). Accordingly, a transfer of 2.011 M lb would result in a commercial quota of 7.486 M lb and an RHL equal to the current recreational landings projection (24.719 M lb). The magnitude of the quota transfer under this alternative would maintain status quo fishing opportunity for the commercial bluefish fishery and is therefore associated with a lower probability of revenue losses compared to Alternative 1. Nevertheless, the Council rejected this alternative in keeping with the SSC's recommendation for a more risk-averse F target for 2009.

5.3 Alternative 3 - Status Quo/No Action

Alternative 3 (no-action) is considered to be synonymous with "status quo" management measures for 2009 since the alternative interpretation (failure to specify management measures) would be in gross violation of the Magnuson-Stevens Act. Therefore, Alternative 3 would maintain the 2008 TAL (28.156 M lb) and its respective allocations in 2009: A commercial quota of 7.678 M lb and an RHL of 20.380M lb. In reviewing this alternative at its August 2008 meeting, the Council determined that it is untenable under the allocation process described in the FMP (and in paragraph 1, above). This is because projected recreation landings are in excess of 83% of the TAL (projected rec. landings for 2009 are 88% of the Alternative 3 TAL), and, as such, the transfer necessary to achieve the commercial quota could not occur.

5.4 Research Set-Aside Alternatives

5.4.1 No Research Set-Aside (No Action)

Under this alternative, no RSA would be implemented for 2008.

5.4.2 Specify a Research Set-Aside for 2008 (Preferred/Status Quo Alternative)

As part of the RSA program, one research project was submitted to NMFS that could potentially require exemptions from bluefish regulations in 2009. The Council supported an RSA of up to 3% of the TAL. The bluefish research project request under review would reduce the TAL by 97,750 lb. A summary of the project is currently unavailable since it is currently under review. Presuming approval of the project proposal, the resulting deductions from the commercial quotas and RHLs described above are given in Box 4.3.1.

The impacts of the exemption to the human environment are considered in this specification package, but are expected to be negligible due to the minimal amount requested. Procedurally, because the RSA proposal is part of a separate action (NEAMAP request to the NOAA Grants

Office), formal evaluation of the impacts, including ESA and other regulatory consultations, will be documented as part of that action.

6.0 DESCRIPTION OF AFFECTED ENVIRONMENT

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. Among these two fishery sectors, the recreational fishery has consistently been the larger, ranging from 86% of total landings in 1986 to 54% in 1999 (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 million lb. A protracted decline reduced recreational harvest to less than one tenth that amount (8.253 million 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 million lb in 1981; 7.307 million lb in 1999). In recent years (1999-2007), recreational landings have increased; while commercial landings have remained more or less stable (Table 1).

6.1.2 Status of the Stock

The most recent 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 ($B_{2004} \cong 104,136$ mt which is greater than the minimum biomass threshold or $\frac{1}{2} B_{MSY} = 73,526$ mt) and overfishing was not occurring ($F_{2004} \cong 0.15$ which is less than the maximum fishing mortality threshold or $F_{MSY} = 0.19$). The most recent stock assessment update (June 2008) resulted in an estimate of bluefish biomass for 2007 that is above B_{msy} ($B_{msy} = 147,051$ mt; $B_{2007} \approx 153,843$ mt). As described above, the Council informed by its SSC and Monitoring Committee interpreted the assessment update with caution. As such, an "official" declaration of stock recovery will be delayed unless/until a corroborating model solution is achieved in next year's assessment update.

6.1.3 Stock Characteristics and Ecological Relationships

A full description of stock characteristics and ecological relationships of bluefish are found in section 2.1.3 of Amendment 1. Additional information can be found in the 41st Stock Assessment Workshop (SAW 41) documents. 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 Section 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 essential fish habitat (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 "Characterization of Fishing Practices and the Marine Benthic Ecosystems of the Northeast U.S. Shelf, and an Evaluation of the Potential Effects of Fishing on Essential Fish Habitat" (Stevenson *et al.* 2003).

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 2.2.2 of Amendment 1. Bluefish are a predominantly pelagic species (Fahay 1998). Life history data show that there are only loose associations of bluefish with any particular substrate or submerged aquatic vegetation (SAV; Fahay 1998). Juveniles are the only life stage which 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 (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 “Characterization of Fishing Practices and the Marine Benthic Ecosystems of the Northeast U.S. Shelf, and an Evaluation of the Potential Effects of Fishing on Essential Fish Habitat” (Stevenson *et al.* 2003).

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% of the area where bluefish eggs were collected in the MARMAP surveys; and 2) South of Cape Hatteras, 100% 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% of the area where bluefish larvae were collected during the MARMAP surveys; 2) South of Cape Hatteras, 100% 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% of the area where juvenile bluefish are collected in the NEFSC trawl survey; 2) South of Cape Hatteras, 100% 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% of the area where adult bluefish were collected in the NEFSC trawl survey; 2) South of Cape Hatteras, 100% 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 6.2.3 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, monkfish, ocean pout, American plaice, pollock, redfish, white hake, windowpane flounder, winter flounder, witch flounder, yellowtail flounder, and Atlantic halibut), 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 EFH impact sections of Amendment 1 to the Bluefish FMP were considered by NOAA Fisheries Service to be insufficient. As such, the agency determined that further documentation

of baseline impacts of the bluefish fishery had to be conducted in order to determine the impacts of the commercial fishery on bluefish EFH and EFH of other species. This baseline analysis is provided in the Mid-Atlantic Council's specification of management measures for the 2004 fishing year, although this analysis considered 2001 as the baseline year (MAFMC 2003). 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. In short, the evaluation on the use of bottom otter trawls, gillnets, and handlines for the commercial catch of bluefish indicated that the baseline impact of the bluefish fishery is minimal and temporary in nature. Therefore, it was concluded that adverse effects of the bluefish fishery on EFH did not need to be minimized.

6.3 Endangered and Other Protected Species

There are numerous species which inhabit the environment within the management unit of the Bluefish FMP that are afforded protection under the Endangered Species Act of 1973 (ESA; i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act of 1972 (MMPA). Sixteen are classified as endangered or threatened under the ESA, while the remainder is protected by provisions of the MMPA. The Council has determined that the following list of species protected either by the ESA, the MMPA, or the Migratory Bird Act of 1918 may be found in the environment utilized by bluefish:

Cetaceans

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

Seals

<u>Species</u>	<u>Status</u>
Harbor seal (<i>Phoca vitulina</i>)	Protected

Gray seal (<i>Halichoerus grypus</i>)	Protected
Harp seal (<i>Phoca groenlandica</i>)	Protected
Hooded seal (<i>Crystophora cristata</i>)	Protected

Sea Turtles

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

*Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered.

Fish

<u>Species</u>	<u>Status</u>
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)	Endangered
Atlantic salmon (<i>Salmo salar</i>)	Endangered
Smalltooth sawfish (<i>Pristis pectinata</i>)	Endangered

Birds

<u>Species</u>	<u>Status</u>
Roseate tern (<i>Sterna dougallii dougallii</i>)	Endangered

Critical Habitat Designations

<u>Species</u>	<u>Area</u>
Right whale	Cape Cod Bay Great South Channel Southeastern United States

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. (2008). The most recent information on the stock assessment of various marine mammals through 2008 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>,
<http://spo.nwr.noaa.gov/mfr611/mfr611.htm>, and
<http://www.nmfs.noaa.gov/pr/species/mammals>.

Protected Species Interactions with the Bluefish Fishery – Includes Fishery Classification under Section 118 of Marine Mammal Protection Act

Under Section 118 of the MMPA, NMFS must publish and annually update the List of Fisheries (LOF), which places all US 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). If the total annual mortality and serious injury of all fisheries that interact with a stock is less than 10% of the Potential Biological Removal (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. Potential Biological Removal (PBR) is the product of minimum population size, one-half the maximum productivity rate, and a “recovery” factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997).

Under Tier 2, individual fisheries are subject to the following categorization:

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

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

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

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

According to the 2008 LOF bluefish are a component of the Mid-Atlantic coastal gillnet fishery which is listed as a Category I fishery. NMFS notes that this fishery is classified as Category I because of serious injuries and mortalities for three protected resource stocks. These include the Western North Atlantic (WNA) coastal bottlenose dolphin, Gulf of Maine/Bay of Fundy harbor porpoise, and Gulf of Maine humpback whale populations. Similarly, NMFS has listed, as Category II, the North Carolina inshore gillnet, Southeast Atlantic gillnet (by analogy), Mid-Atlantic bottom trawl, Mid-Atlantic flynet (by analogy), Mid-Atlantic haul/beach seine and North Carolina long haul seine due to impacts on WNA coast bottlenose dolphin, WNA common dolphin, WNA long-finned pilot whale and WNA short-finned pilot whale. The complete list of Category I and II fisheries that target bluefish and their respective impacts are given in box 6.3.1 below. All listed fishing gears are required to meet gear restrictions under the Atlantic Large Whale Take Reduction Plan, Harbor Porpoise Take Reduction Plan, MMPA, and the ESA.

Box 6.3.1. Fishery gear types used for bluefish harvest that may also impact marine mammals according to the 2008 List of Fisheries (NMFS 2008). Importantly, the bluefish fishery is not identified as contributing to incidental takes in the "fishery interactions" sections of the stock assessment reports for any of these species.

CATEGORY I fisheries associated with bluefish harvest	
Fishery	Species affected
Mid-Atlantic gillnet	Bottlenose dolphin, WNA coastal ¹ Bottlenose dolphin, WNA offshore Common dolphin, WNA Gray seal, WNA Harbor porpoise, GME/BF ¹ Harbor seal, WNA Harp seal, WNA Humpback whale, Gulf of Maine ¹ Long-finned pilot whale, WNA Minke whale, Canadian east coast Short-finned pilot whale, WNA White-sided dolphin, WNA
CATEGORY II fisheries associated with bluefish harvest	
Fishery	Species affected
NC inshore gillnet	Bottlenose dolphin, WNA coastal ¹
Southeast Atlantic gillnet ²	Bottlenose dolphin, WNA coastal ¹
Mid-Atlantic bottom trawl	Common dolphin, WNA Long-finned pilot whale, WNA Short-finned pilot whale, WNA
Mid-Atlantic flynet ²	None documented
Mid-Atlantic haul/beach seine	Bottlenose dolphin, WNA coastal ¹
NC long haul seine	Bottlenose dolphin, WNA coastal ¹

List of Abbreviations and Symbols Used in Table 2: GME/BF - Gulf of Maine/Bay of Fundy; NC - North Carolina; WNA - Western North Atlantic

¹ - Fishery classified based on serious injuries and mortalities of this stock, which are greater than 1 percent of the stock's PBR

² - Fishery classified by analogy.

Description of species of concern that are protected under MMPA

Atlantic Bottlenose Dolphin (*Tursiops truncatus*)

There are two morphologically and genetically distinct bottlenose dolphin morphotypes described as the coastal and offshore forms. Both inhabit waters in the western North Atlantic Ocean along the U.S. Atlantic coast which overlap the temporal and spatial distribution of the bluefish fishery. The two morphotypes are genetically distinct based upon both mitochondrial and nuclear markers.

Offshore morphotype

The offshore form is distributed primarily along the outer continental shelf and continental slope in the Northwest Atlantic Ocean; however the offshore morphotype has been documented to occur relatively close to shore over the continental shelf south of Cape Hatteras, NC. Seasonally, bottlenose dolphins occur over the outer continental shelf and inner slope as far north as Georges Bank. Sightings have occurred along the continental shelf break from Georges Bank to Cape Hatteras during spring and summer. The range of the offshore bottlenose dolphin may include waters beyond the continental slope, and offshore bottlenose dolphins may move between the Gulf of Mexico and the Atlantic. Dolphins with characteristics of the offshore type have stranded as far south as the Florida Keys (Waring *et al.* 2008).

The best available abundance estimate for offshore morphotype bottlenose dolphins is the sum of the estimates from the summer 2002 aerial survey covering the continental shelf, the summer 2004 vessel survey south of Maryland, and the summer 2004 vessel and aircraft surveys north of Maryland (Waring *et al.* 2008). This joint estimate provides complete coverage of the offshore morphotype habitat from central Florida to Canada during summer months. The combined abundance estimate from these surveys is 81,588 (CV = 0.17). 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 minimum population estimate for western North Atlantic offshore bottlenose dolphin is 70,775. Available data are insufficient to determine population trends.

Potential biological removal (PBR) is the product of minimum population size, one-half the maximum productivity rate, and a “recovery” factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The minimum population size for offshore bottlenose dolphins is 70,775. The maximum productivity rate is 0.04, the default value for cetaceans. 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 0.4 because this stock is of unknown status and due to the uncertainty in bycatch estimates. PBR for the western North Atlantic offshore bottlenose dolphin is therefore 566 (Waring *et al.* 2008).

The status of this stock relative to OSP in the U.S. Atlantic EEZ is unknown. The western North

Atlantic offshore bottlenose dolphin is not listed as threatened or endangered under the Endangered Species Act. There are insufficient data to determine the population trends for this species. Average 2001-2005 annual U.S. fishery-related mortality and serious injury has not been estimated, and it is therefore unknown whether or not total mortality and serious injury can be considered insignificant (Waring *et al.* 2008).

Coastal morphotype

The coastal morphotype of bottlenose dolphin is continuously distributed along the Atlantic coast south of Long Island, around the Florida peninsula and along the Gulf of Mexico coast (see Figure 1). Based on differences in mitochondrial DNA haplotype frequencies, nearshore animals in the northern Gulf of Mexico and the western North Atlantic represent separate stocks. Genetic analyses of samples from northern Florida, Georgia, central South Carolina (primarily the estuaries around Charleston), southern North Carolina, and coastal Virginia, using both mitochondrial DNA and nuclear microsatellite markers indicate that a significant amount of the overall genetic variation can be explained by differences between these areas. Based upon available data and analysis, seven management units within the range of the coastal morphotype of western North Atlantic bottlenose dolphin have been defined. The true population structure is likely more complex than the seven units identified and research efforts continue to identify that structure (Waring *et al.* 2008).

Abundance estimates for bottlenose dolphins in each management unit were calculated using line transect methods and distance analysis (Waring *et al.* 2008). The independent and joint estimates from the two survey teams were used to quantify the probability that animals available to the survey on the track line were missed by the observer teams, or perception bias, using the direct duplicate estimator. These estimates were further partitioned between the coastal and offshore morphotypes based upon the results of the logistic regression models and spatial analyses described above. A parametric bootstrap approach was used to incorporate the uncertainty in the logistic regression models into the overall uncertainty in the abundance estimates for each management unit. The aerial surveys included only animals in coastal waters, and the resulting abundance estimates therefore do not include animals inside estuaries that are currently included in the defined management units. An abundance estimate was generated for bottlenose dolphins in estuaries from the North Carolina-South Carolina border to northern Pamlico Sound using mark-recapture methodology, and these estimates were post-stratified to be consistent with management unit definitions (Box 6.3.1). Since abundance estimates do not exist for all estuarine waters, the population estimates and PBRs for these management units are negatively biased. There are insufficient data to determine the population trend for these stocks.

Box 6.3.1^e. Estimates of abundance and the associated CV, n_{min} , and PBR for each stock of WNA coastal bottlenose dolphins (Waring *et al.* 2008). The PBR for the Northern Migratory, Northern NC, and Southern NC management units are applied semi-annually. South of NC, the PBR is applied annually. Except where noted, abundance estimates and PBR values do not include estuarine animals. The recovery factor (Fr) used to calculate PBR for each stock is based upon the CV of the mortality estimate based on the guidelines in Wade and Angliss (1997).

Unit	Best Abundance		N_{min}	Recovery Factor (Fr)	PBR		
	Estimate				CV	Annual	½ Yr
SUMMER (May - October)							
Northern migratory	17,466	0.19	14,621	0.50	(146.2)	73.1	
Northern NC							
	oceanic	6,160	0.52	3,255	0.48	(31.2)	15.6
	estuary ^a	919	0.13	828	0.50	(8.2)	4.2
	BOTH	7,079	0.45	4,083	0.48	(39.2)	19.6
Southern NC							
	oceanic	3,645	1.11	1,863	0.40	(14.9)	7.5

	estuary ^a	141	0.15	124	0.50	(1.2)	0.6
	BOTH	3,786	1.07	1,987	0.40	(15.9)	7.9

WINTER (November – April)							
NC mixed ^b		16,913	0.23	13,558	0.50	(135.6)	67.8
ALL YEAR							
South Carolina		2,325	0.20	1,963	0.50	19.6	na
Georgia		2,195	0.30	1,716	0.50	17.2	na
Northern Florida ^{c,d}		448	0.38	unk	unk	unk	unk
Central Florida ^d		10,652	0.46	unk	unk	unk	unk

a. Read *et al.* 2003; b. NC mixed = northern migratory, Northern NC, and Southern NC; c. Northern Florida estimates are a weighted mean of abundance estimates from the winter 1995 survey and the summer 2002 survey. Due to the age of the winter abundance estimate, PBR cannot be calculated for this stock; d. Northern and Central Florida estimates include data from the winter 1995 survey and cannot be used to determine PBR due to their age; e. from Waring *et al.* 2008.

The coastal migratory stock was designated as depleted under the MMPA. From 1995 to 2001, NMFS recognized only a single migratory stock of coastal bottlenose dolphins in the WNA, and the entire stock was listed as depleted. The management units described in Waring *et al.* 2008 replaced the single coastal migratory stock. It should be noted that dolphins residing in a number of bays, sounds, and estuaries in the mid-Atlantic region adjacent to the named stocks are included in these stocks, but for the most part they have not been assessed and are not included in the reported abundance, mortality, and PBR estimates. Since one or more of the management

units may be depleted, all management units retain the depleted designation. Mortality exceeded PBR in the North Carolina winter mixed stocks during the period from 1996 to 2000. However, due to recent declines in fishery effort and apparent declines in bycatch rates, estimated fishery mortality does not exceed PBR for any of the stocks (Table 1). It should be noted that the gillnet fishery effecting the summer southern North Carolina management unit has not been observed in recent years, and the impact of entanglements with crab pots in Georgia and South Carolina is unknown. The total U.S. fishery-related mortality and serious injury for most stocks is not less than 10% of the calculated PBR, and thus cannot be considered to be insignificant and approaching zero mortality and serious injury rate. The species is not listed as threatened or endangered under the Endangered Species Act, but the management units are strategic stocks due to the depleted listing under the MMPA.

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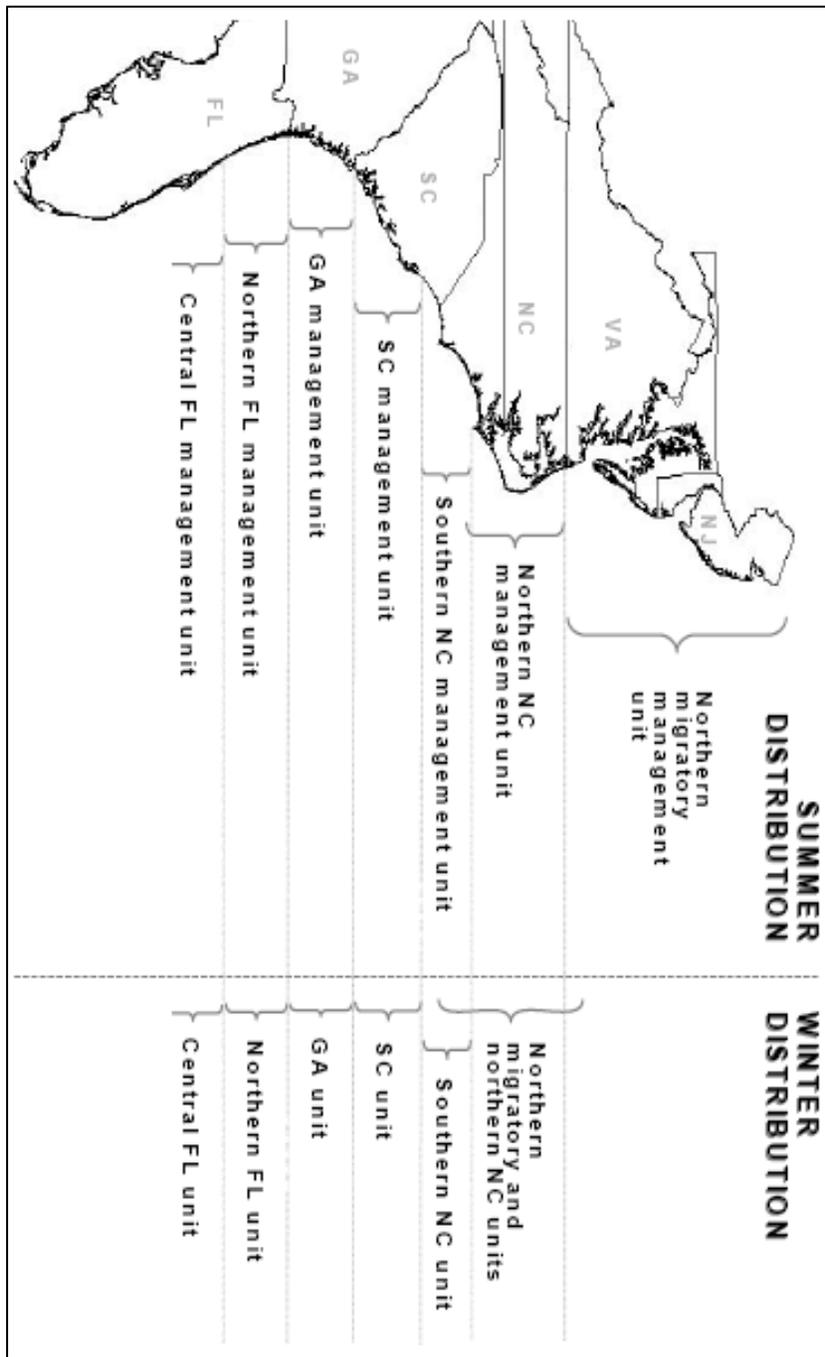


Figure 1. Management units of the coastal morphotype of bottlenose dolphin along the Atlantic coast of the US as defined from genetic, stable isotope ratio, photo-identification, and telemetry studies (taken from NMFS 2005).

Fishery interactions

The Mid-Atlantic coastal gillnet fishery has the highest documented level of mortality of WNA coastal morphotype bottlenose dolphins, and the North Carolina sink gillnet fishery is its largest component in terms of fishing effort and observed takes. Of 12 observed mortalities from 1995 to 2000, five occurred in sets targeting spiny or smooth dogfish and another in a set targeting “shark” species, 2 occurred in striped bass sets, 2 occurred in Spanish mackerel sets, and the remainder were in sets targeting kingfish, weakfish, or finfish generically (Rossman and Palka 2001). Only two bottlenose dolphin mortalities were observed in 2001-2002, both occurring in the winter mixed North Carolina unit. The overall estimated level of mortality has declined during the past two years associated with reductions in fishery effort, reduced levels of observer coverage, and reduced bycatch rates (Rossman and Palka, unpublished manuscript). Due to these significant changes in the behavior of the fishery, bycatch estimates for these fisheries are separated into two periods from 1996-2000 and 2001-2002 (Box 6.3.2).

Box 6.3.2. Summary of the 1996-2002 incidental mortality of bottlenose dolphins (<i>Tursiops truncatus</i>) by management unit in the commercial Mid-Atlantic coastal gillnet fisheries. Data include the years sampled (Years), the number of vessels active within the fishery (Vessels), type of data used (Data Type), observer coverage (Observer Coverage), mortalities recorded by on-board observers (Observed Mortality), estimated annual mortality (Estimated Mortality), estimated CV of the annual mortality (Estimated CVs), and mean annual mortality (CV in parentheses).									
Seasonal Management Unit	Years	Vessels	Data Type ^a	Observer Coverage ^b	Observed Serious Injury	Observed Mortality	Estimated Mortality ^c	Estimated CVs ^d	Mean Annual Mortality
Summer Northern Migratory	1996-2000	NA	Obs. Data, NER Dealer Data	.05, .03, .02, .03, .03,	0, 0, 0, 0, 0	0, 0, 1, 1, 1,	33, 30, 37, 19, 30,	0.48, 0.48, 0.48, 0.48, 0.48	30 (0.22)
	2001-2002			.02, .01	0, 0	0, 0	11, 11	0.35, 0.35	11 (0.25)
Summer Northern NC	1996-2000	NA	Obs. Data, NCDMF Dealer Data	.01, .00, <.01, .01, .03,	0, 0, 0, 0, 0	1, 0, 0, 0, 0,	27, 33, 17, 13, 26,	0.61, 0.61, 0.61, 0.61, 0.61	23 (0.29)
	2001-2002			.01, <.01	0, 0	0, 0	8, 8	1.06, 1.06	8 (0.75)
Summer Southern NC	1996-2000	NA	Obs. Data, NCDMF Dealer Data	.00, .00, .01, .03, .03,	0, 0, 0, 0, 0	0, 0, 0, 0, 0	0, 0, 0, 0, 0	NA	0 (NA)
	2001-2002			.02, <.01	0, 0	0, 0	0, 0	NA	0 (NA)
Winter NC mixed	1996-2000	NA	Obs. Data, NCDMF Dealer Data	.01, .01, .02, .02, .02,	0, 0, 0, 0, 0	1, 0, 1, 2, 2,	173, 211, 175, 196, 146,	0.46, 0.46, 0.46, 0.46, 0.46	180 (0.21)
	2001-2002			.01, .01	0, 0	0, 2	67, 50	0.45, 0.45	58 (0.32)
Total	2001-2002 Only								77 (0.26)
NA	Not Available								
a	Observer data (Obs. data) are used to measure bycatch rates; the data are collected within the Northeast Fisheries Observer Program. The NEFSC collects weighout landings data that are used as a measure of total effort for the sink gillnet fisheries.								
b	The observer coverage for the Mid-Atlantic coastal sink gillnet fishery is measured as a proportion of the tons of fish landed.								
c	The annual estimates of mortality from 2001-2002 were generated by applying the same method used in Palka and Rossman (2001). A new factor variable was added to the model to separate the time series of historical data (1996-2000) from data collected during the recent time period (2001-2002) (Rossman and Palka, unpublished manuscript).								
d	The annual estimates of mortality from 1998-2000 were generated by applying one bycatch rate per management unit as estimated by a generalized linear model (Palka and Rossman 2001). The CV does not account for variability that may exist in the unit of total landings (mt) from each year that are used to expand the bycatch rate. Therefore, the CV is the same for all five annual estimates.								

NMFS has developed a take reduction plan to reduce injuries and deaths to Atlantic bottlenose dolphins caused by fishing gear in Federal waters of the Mid- and South Atlantic. A team was convened in November of 2001 under authority of the MMPA in order to formulate a Bottlenose Dolphin Take Reduction Plan (BDTRP). Category II fisheries under the MMPA received a high priority with respect to observer coverage and consideration for measures under the Bottlenose Dolphin Take Reduction Plan. The resulting BDTRP implemented April 26, 2006 (71 CFR 24776), includes the regulatory management measures summarized in Box 6.3.3 for small, medium, and large mesh gillnets, which are organized by bottlenose dolphin Management Unit (MU), specific location, as well as non-regulatory conservation measures.

Box 6.3.3 Summary of BDTRP Regulations.

Fishing Area	Management Unit	Gillnet Mesh Size Requirements (Stretched Mesh)		
		Small (≤ 5 inch)	Medium (>5 in to <7 in)	Large (≥ 7 inch)
NJ-VA	Summer Northern Migratory	None	Jun. 1–October 31: Anchored gillnets- fishermen must remain within 0.5 nmi (0.93 km) of the closest portion of each gear fished at night in State waters, and any gear fished at night must be removed from the water and stowed on board the vessel before the vessel returns to port.	Jun. 1–October 31: Anchored gillnets- fishermen must remain within 0.5 nmi (0.93 km) of the closest portion of each gear fished at night in State waters, and any gear fished at night must be removed from the water and stowed on board the vessel before the vessel returns to port.
Cape Charles Light, VA to VA/NC border	Winter Mixed - Virginia	None	None	November 1–December 31: No fishing at night in State waters, and, at night, gear must be removed from the water and stowed on board the vessel.
VA/NC border to Cape Lookout, NC	Summer Northern North Carolina AND Winter Mixed Northern North Carolina	May 1–October 31: In State waters, net length must be less than or equal to 1,000 feet (304.8 m).	November 1–April 30: No fishing at night in State waters; sunset clause of 3 years for this restriction.	April 15–December 15: No fishing in State waters ¹ ; December 16–April 14: No fishing at night in State waters without tie-downs.
Cape Lookout, NC to the North Carolina/South Carolina Border ²	Summer Southern North Carolina AND Winter Mixed - Southern North Carolina	None	November 1–April 30: No fishing at night in State waters; sunset clause of 3 years for this restriction.	April 15–December 15: No fishing in State waters ¹ ; December 16–April 14: No fishing at night in State waters and, at night, gear must be removed from the water and stowed on board the vessel.
SC, GA, and FL	South Carolina, Georgia, Northern Florida, and Central Florida	Year-round for all gillnet gear: Fishermen must remain within 0.25 nautical mile (0.46 km) of the closest portion of their gear at all times in State and Federal waters within 14.6 nautical miles (27 km) from shore. Gear must be removed from the water and stowed on board the vessel before the vessel returns to port.		

¹ The dates for the large mesh prohibition codify current North Carolina state regulations, and therefore, slightly deviate from the BDTRP summer and winter dates in which other regulatory measures are applied.

² These prohibitions stop at the North Carolina/South Carolina border rather than extending to Murrelets Inlet, South Carolina as defined by the Southern North Carolina MU because gillnet fishing activity is limited in South Carolina.

Description of Sea Turtle Species with Documented Interactions with the Bluefish Fishery

Leatherback sea turtle

Leatherback turtles are widely distributed throughout the oceans of the world and are found in waters of the Atlantic, Pacific, Caribbean, and the Gulf of Mexico (Ernst and Barbour 1972). The leatherback sea turtle is the largest living turtle and ranges farther than any other sea turtle species, exhibiting broad thermal tolerances (NMFS and USFWS, 1995). Evidence from tag returns and strandings in the western Atlantic suggests that adults engage in routine migrations among boreal, temperate and tropical waters (NMFS and USFWS, 1992). In the U.S., leatherback turtles are found throughout the action area of this proposed action. Located in the northeastern waters during the warmer months, this species is found in coastal waters of the continental shelf and near the Gulf Stream edge but rarely in the inshore areas. However, leatherbacks may migrate close to shore, as a leatherback was satellite-tracked along the mid-Atlantic coast and thought to be foraging in these waters. A 1979 aerial survey of the outer Continental Shelf from Cape Hatteras, North Carolina to Cape Sable, Nova Scotia showed leatherbacks to be present throughout the area with the most numerous sightings made from the Gulf of Maine south to Long Island. Shoop and Kenney (1992) also observed concentrations of leatherbacks during the summer off the south shore of Long Island and off New Jersey. Leatherbacks in these waters are thought to be following their preferred jellyfish prey. This aerial survey estimated the leatherback population for the northeastern U.S. at approximately 300-600 animals (from near Nova Scotia, Canada to Cape Hatteras, North Carolina).

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

Leatherbacks are predominantly a pelagic species and feed on jellyfish (i.e., *Stomolophus*, *Chrysaora*, and *Aurelia* (Rebel 1974)), cnidarians (medusae, siphonophores) and tunicates (salps, pyrosomas). Time-Depth-Recorder data recorded by Eckert *et al.* (1998b) indicate that leatherbacks are night feeders and are deep divers, with recorded dives to depths in excess of 1000 meters. However, leatherbacks may come into shallow waters if there is an abundance of jellyfish nearshore.

Although leatherbacks are a long-lived species (> 30 years), they are slightly faster to mature than loggerheads, with an estimated age at sexual maturity reported as about 13-14 years for females, and an estimated minimum age at sexual maturity of 5-6 years for males, with 9 years reported as a likely minimum (Zug and Parham 1996) and 19 years as a likely maximum (NMFS 2001). In the U.S. and Caribbean, female leatherbacks nest from March through July. They nest frequently (up to 7 nests per year) during a nesting season and nest about every 2-3 years. During each nesting, they produce 100 eggs or more in each clutch and thus, can produce 700 eggs or more per nesting season (Schultz 1975). The eggs will incubate for 55-75 days before hatching. The habitat requirements for post-hatchling leatherbacks are virtually unknown (NMFS and USFWS 1992).

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

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

Leatherback interactions with the southeast shrimp fishery are also common. Turtle Excluder Devices (TEDs), typically used in the southeast shrimp fishery to minimize sea turtle/fishery interactions, are less effective for the large-sized leatherbacks. Therefore, NMFS has used several alternative measures to protect leatherback sea turtles from lethal interactions with the shrimp fishery. These include establishment of a Leatherback Conservation Zone (60 FR 25260). NMFS established the zone to restrict, when necessary, shrimp trawl activities from off the coast of Cape Canaveral, Florida to the Virginia/North Carolina Border. Leatherbacks are also susceptible to entanglement in lobster and crab pot gear, possibly as a result of attraction to gelatinous organisms and algae that collect on buoys and buoy lines at or near the surface, attraction to the buoys which could appear as prey, or the gear configuration which may be more likely to wrap around flippers.

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

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

Nest counts are currently the only reliable indicator of population status available for leatherback turtles. The status of the leatherback population in the Atlantic is difficult to assess since major nesting beaches occur over broad areas within tropical waters outside the United States.

Spotila et al. (1996) provided the most recent summary of the status of the total population of nesting leatherback turtles in the Atlantic Ocean. The largest nesting colonies of leatherbacks occur on the coasts of French Guiana (4,500-7,500 females per year) and Suriname, South America (600-2,000 females per year) and Gabon, West Africa (1,276-2,553 females per year). Smaller colonies occur among the Caribbean Islands but constitute a significant aggregation when considered collectively (1,437-1,780 females per year). For the Suriname nesting colony, Hilterman and Goverse (2004) estimated that the minimum annual number of nesting females is likely between 1,545 and 5,500.

Fishery Interactions

Two leatherback sea turtle captures have been documented on observed bluefish fishing trips according to the NMFS Observer Database. Both animals were caught in drift gill nets. One was captured in July 2004. The condition of the animal when captured was recorded as "unknown". No information is available on the subsequent survival of the turtle. The other recorded incident was in August 2003. The turtle was alive and in good condition upon release. There are no mortality estimates for leatherback turtles that are attributed to the bluefish fishery.

Bluefish fishery interaction with an unidentified sea turtle

The capture of an unidentified turtle species was recorded in June of 2004 in a bluefish drift net. The animal was captured alive and presumably released immediately. The capture condition was recorded as unknown. Brief descriptions of sea turtles other than the leatherback (only species with documented interactions) follow. Their inclusion in this document does not imply that the bluefish fishery has or is expected to interact with these species.

Loggerhead Sea Turtle

The loggerhead sea turtle occurs throughout the temperate and tropical regions of the Atlantic, Pacific and Indian Oceans (Dodd 1998). The loggerhead turtle was listed as "threatened" under the ESA on July 28, 1978, but is considered endangered by the World Conservation Union (IUCN) and under the Convention on International Trade in Endangered Species of Flora and Fauna (CITES). Loggerhead sea turtles are found in a wide range of habitats throughout the temperate and tropical regions of the Atlantic. These habitats include the open ocean, continental shelves, bays, lagoons, and estuaries (NMFS& FWS 2007b).

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

The most recent 5-year ESA loggerhead sea turtle status review was completed in 2007 (NMFS & USFWS 2007b) which included a review of the most recent research results for loggerhead sea turtles. Genetic analyses conducted since the last five-year review indicate there are five demographically independent groups in the Western North Atlantic, corresponding to nesting beaches found in Florida and Mexico. The primary metric used to evaluate trends in global loggerhead populations are counts of beach nests, many of which occur in areas outside U.S. waters. Given that loggerhead nest counts have generally declined during the period 1989-2005, NMFS & USFWS (2007b) concluded that loggerhead turtles should not be delisted or reclassified and should remain designated as threatened under the ESA. However, 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 application of the Distinct Population Segment policy under the ESA is warranted for the species. Additionally, the Center for Biological Diversity and the Turtle Island Restoration Network has recently filed a petition to reclassify loggerhead turtles in the North Pacific Ocean as a distinct population segment (DPS) with endangered status and designate critical habitat under the ESA (72 *Federal Register* 64585; November 16, 2007). While this petition is geared toward the North Pacific, the possibility exists that it could affect status in other areas. NMFS has found that the petition presents substantial scientific information that the petition action may be warranted, and has published a notice and request for comments, available at: <http://www.nmfs.noaa.gov/pr/pdfs/fr/fr72-64585.pdf>.

Kemp's Ridley Sea Turtle

Kemp's ridley turtles (*Lepidochelys kempii*) were listed as endangered under the ESA on December 2, 1970. The only major nesting site for ridleys is a single stretch of beach near Rancho Nuevo, Tamaulipas, Mexico (Carr 1963). Juvenile Kemp's ridleys inhabit northeastern US coastal waters where they forage and grow in shallow coastal areas during the summer months. Juvenile ridleys migrate southward with autumnal cooling and are found predominantly in shallow coastal embayments along the Gulf Coast during the late fall and winter months.

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

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

The Kemp's ridley population, as measured by number of nesting females, declined precipitously from the late 1940's through the mid-1980's. Due to intensive conservation actions, the Kemp's ridley began to slowly rebound during the 1990's and this increasing trend has continued to this day (NMFS & USFWS 2007d). Approximately 4,000 females are currently documented nesting annually, which is less than half of the downlisting criterion of 10,000 nests. As a result, the most recent five year review conducted by NMFS & USFWS 2007d concluded that the species should not be reclassified under the ESA and should remain listed as endangered. In addition, a full revision of the current Recovery Plan for the Kemp's Ridley Sea Turtle (which was signed in 1992) is currently under way by the services.

Green Sea Turtle

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

The breeding colony populations in Florida and the Pacific coast of Mexico were listed as endangered under the ESA on July 28, 1978, while all other populations, wherever found, were listed as threatened on the same date. Green turtles are threatened by incidental captures in fisheries, pollution and marine habitat degradation, destruction/disturbance of nesting beaches, and other sources of man-induced and natural mortality.

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

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

The most recent 5-year ESA green sea turtle status review was completed in 2007 (NMFS & USFWS 2007a) which included an analysis of the most recent population and demographic data available for green sea turtles. Overall, of the 23 threatened population nesting sites for which data are available, 10 nesting populations are increasing, 9 are stable, and 4 are decreasing (NMFS & USFWS 2007a). Long term continuous data sets (i.e., ≥ 20 years) are available for nine sites, all of which are increasing. Despite the apparent global increase in numbers, NMFS & USFWS (2007a) noted that this positive overall trend should be viewed with caution because trend data are available for just over half of all sites examined. Within the Western Atlantic/Caribbean, there are five threatened breeding populations, all of which appear to be stable or increasing (NMFS & USFWS 2007a). The green turtle nesting population of Florida, which is listed as endangered, also appears to be increasing based on 18 years (1989-2006) of index nesting data collected throughout the state (NMFS & USFWS 2007a). While green turtle nest counts have generally increased, NMFS & USFWS (2007a) concluded that populations of both endangered and threatened green turtles should not be reclassified under the ESA. However, 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 application of the Distinct Population Segment policy under the ESA to both endangered and threatened green turtle populations is warranted.

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. Landings trends are provided in section 6.1 above.

6.4.1 Commercial Fishery

In 2007, the total value of bluefish landings along the Atlantic Coast was approximately \$2,640,000. Average coastwide ex-vessel price of bluefish was \$0.36/lb. The total value of bluefish commercial landings reported in the dealer reports to have come from state waters (\$152,856) was about 13 times greater than landings reported to have come from the Exclusive Economic Zone (EEZ) (\$11,384). However, the vast majority of dealer reports did not specify jurisdictional sources for bluefish landings.

Bluefish comprised 0.19% and 0.24% 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 2007. For states where bluefish were commercially landed, the contribution of bluefish to the total value of all finfish and shellfish varied by state in 2007 (Table 3). Bluefish ranged from less than 0.01% of total commercial value in Maine, South Carolina, and Georgia to 1.01% in New York. There were no bluefish landings in Pennsylvania in 2007. 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 change considerably from the previous complete fishing year (i.e., 2006), and it is not expected to change considerably in 2008.

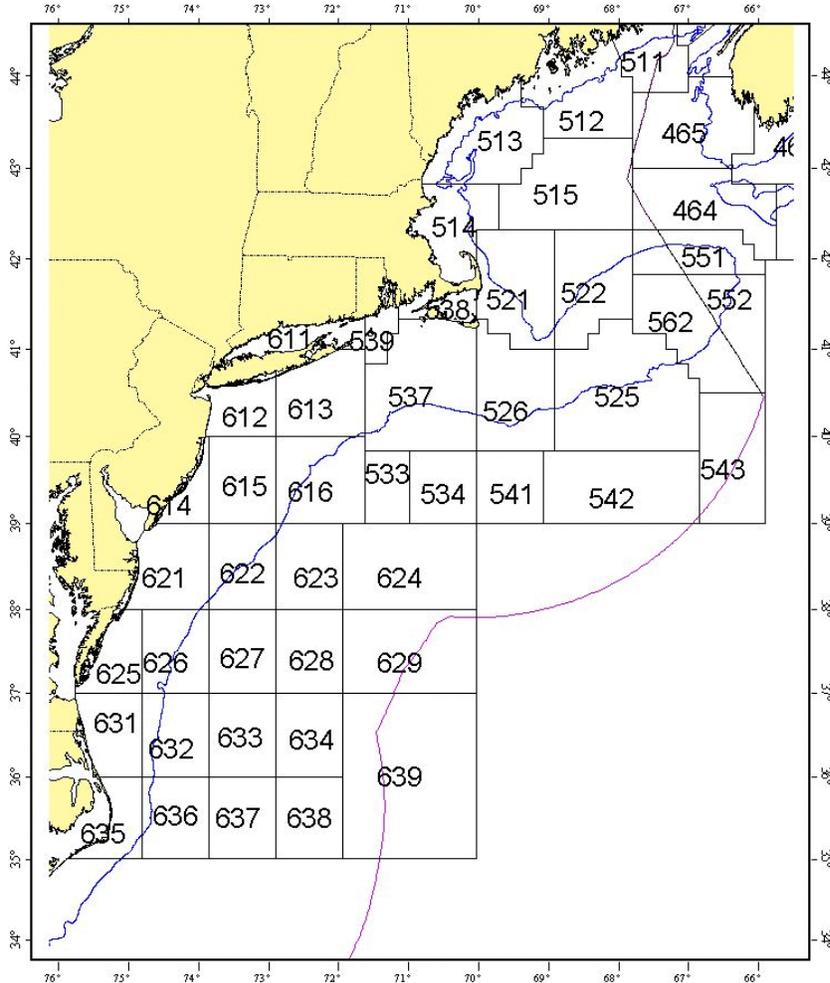
The economic impact of the commercial bluefish fishery relative to employment and wages is difficult to determine. According to NMFS data, commercial fishermen in the western Atlantic landed approximately 2.40 billion lb of fish and shellfish in 2007. Those landings have been valued at approximately \$1.35 billion. Total landed value ranged from approximately \$121 thousand in South Carolina to \$418 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 2,901 commercial trips targeting bluefish (bluefish \geq 50% of total catch) resulted in landings of 2.931 million lb from Maine to North Carolina in 2007 (Table 2). Landings from directed trips are approximately 40% of total commercial landings for 2007 (i.e., 7.414 million lb in Table 1). Gillnets accounted for 83.3% of the total commercial catch. Hook gear, and trawl gear accounted for 5.1%, and 4.4% respectively. The remaining gear types comprised 7.1% of the VTR catch.

6.4.1.2 Description of the Areas Fished

The Northeast Region is divided into 46 statistical areas for Federal fisheries management (Figure 1). According to VTR data, eight of these areas comprised at least 5 percent of the total commercial bluefish catch in 2007, and collectively accounted for 75.7% of the commercial trips that caught bluefish and 83.3% of the bluefish catch. These seven areas include 611, 613, 614, 612, 635, 539, 636, and 615; the percentages associated with each area are provided in Table 14. 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., to VA, SC, GA, FL).

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 million lb of fish, over half of which were bluefish (12.3 million 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 1996 – 2005, the proportion of party and charter trips that targeted bluefish has remained relatively constant.

MRFSS catch data by mode indicates that approximately 51% of bluefish were caught by private and rental boats between 1997 and 2007 (Table 4). In addition to private and rental boats, 42% of bluefish were caught from shore and 6% from party and charter boats for the same time period (Table 4).

Trends in directed fishing for bluefish from 1991 to 2007 are provided in Table 5. 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 2007, anglers targeted bluefish in 2.6 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 would decrease demand and an increase in the catch (or retention rate) should 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 1998, saltwater anglers from Maine through Virginia spent an estimated \$903.3 million on trip-related goods and services (Table 6;

Steinback and Gentner 2001). Private/rental boat fishing comprised the majority of these expenditures (\$561.8 million), followed by shore fishing (\$259.8 million) and party/charter fishing (\$81.7 million). Survey results indicate that the average trip expenditure in 1998 was \$47.42 for anglers fishing from a private/rental boat, \$32.48 for shore anglers, and \$67.12 for anglers that fished from a party/charter boat. Adjusted average expenditures in 2007 dollars are \$87.06 for party/charter boat trips, \$61.52 for private/rental boat trips, and \$42.13 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 7) by the total estimated trip expenditures from the Steinback and Gentner study. According to this procedure, anglers fishing for bluefish from Maine through Virginia spent an estimated \$122.35 million on trip-related goods and services in 2007. Approximately \$49.13 million was spent by anglers fishing aboard private/rental boats, \$57.97 million by those fishing from shore, and \$15.26 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 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, pers. comm.). 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 2007 was likely to be between \$183.53 million (\$122.35 million * 1.5) and \$244.70 million (\$122.35 million * 2.0) from Maine through Virginia. A similar procedure could be used to calculate the total personal income, value-added, and employment generated

¹The 1998 estimate of expenditures by mode were adjusted to its 2007 equivalent by using the Bureau of Labor Statistics Consumer Price Index.

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 8 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 8 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 8. 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 8 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 9 shows the aggregate estimated willingness to pay by state for anglers that targeted bluefish in 2007 (i.e., the value of the opportunity to go recreational fishing for bluefish). New York, New Jersey, and Massachusetts 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 10 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 \$4.39 (the 1994 value adjusted to its 2007 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 10.

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 2007 was \$133.25 million (total trips (32.42 million) x average per trip value (\$4.11)). 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 assess 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% in 1993 (2.7 million) and increased another 14% in 1994 (3.1 million), exceeding the ten-year average of 2.9 million. Although the total number of finfish caught in the Northeast Region has declined over the past ten years effort (trips) has remained relatively stable. An estimated 22.4 million fishing trips were taken in 1994, up from 19.3 million in 1993."

The following discussion contains demographic and socioeconomic characteristics of anglers, as well as their preferences, attitudes, and opinions, toward recreational fishing activities and regulations. There was little or no difference in mean age across subregions. "The largest

proportion of anglers in both sub-regions were 36-45 years old (NE=28%, MA=25%). 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% in NE and 25.6% in MA; between the ages of 18-24, 9.8% in NE and 9.7% in MA; between 25-34, 16.4% in NE and 17.0% in MA; between 35-44, 16.3% in NE and 16.2% in MA; between 45-54, 11.5% in NE and 11.8% in MA; between 55-64, 8.2% in NE and 8.4% in MA; and 65 and over, 12.6% in NE and 11.3% in MA. In this survey, anglers under the age of 16 were not interviewed and are not included in the analysis.

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

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

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

If it is assumed that "years fished" is a proxy for "experience," the survey data shows that anglers in New England are relatively less experienced than anglers in the Mid-Atlantic. The distribution of recreational anglers years' of experience is as follows: 0-5 years of experience,

22% in NE and 16% in MA; 6-10 years of experience, 10% in NE and 10% in MA; 11-15 years of experience, 13% in NE and 14% in MA; 16-20 years of experience, 9% in NE and 9% in MA; 21-25 years of experience, 12% in NE and 12% in MA; 26-30 years of experience, 13% in NE and 12% in MA; and 30 or more years of experience, 21% NE and 26% in MA.

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

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

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

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

Recreational anglers' ratings of reasons (7 pre-established reasons) for marine fishing are presented in Table 11. More than 65% of the anglers in both subregions said that it was very important to go marine fishing because it allowed them to: spend quality time with friends and family (NE=81%, MA=85%); enjoy nature and the outdoors (NE=89%, MA=87%); experience or challenge of sport fishing (NE=69%, MA=66%); and relax and escape from my daily routine (NE=83%, MA=86%). "The reasons that were rated as not important by the largest proportion of anglers consisted of: catch fish to eat (NE=42%), to be alone (NE=55%, MA=58%), and to fish in a tournament or when awards were available (NE=79%, MA=73%). In the Mid-Atlantic, although to catch fish to eat was rated as being somewhat important by the largest proportion of anglers (40%), approximately 31% felt that catching fish to eat was very important. However, in New England, only 20% concurred. It is clear from these responses that marine recreational fishing offers much more than just catching fish to anglers. Over 80% of the respondents in both subregions perceived recreational fishing as a time to spend with friends and family, a time to escape from their daily routine, and time to enjoy nature and outdoors. While catching fish to eat is somewhat important to anglers, findings of this survey generally concur with previous studies that found non-catch reasons are rated highly by almost all respondents while catch is very important for about a third and catching to eat fish is moderately important for about another third."

"The economic survey sought to solicit anglers opinions regarding four widely applied regulatory methods used to restrict total recreational catch of the species of fish for which they typically fish: (1) limits on the minimum size of the fish they can keep; (2) limits on the number of fish they can keep; (3) limits on the times of the year when they can keep the fish they catch; and (4) limits on the areas they fish. Anglers were asked whether or not they support or opposed the regulations." As indicated in Table 12, strong support existed for all regulatory methods in both subregions. Limits on the minimum size of fish anglers could keep generated the highest support in both regions (NE=93%, MA=93%), while limits on the area anglers can fish, although still high, generated relatively lower support (NE=68%, MA=66%).

Regulations which limit the number of fish anglers can keep ranked second (NE=91%, MA=88%). The results from this solicitation indicate that recreational anglers in the Northeast Region appear to be conservation oriented and generally support regulations employed to restrict total catch. Not surprisingly, when analyzing anglers' opinions regarding the four widely applied regulatory methods, it was found that anglers in all modes indicated strong support for the regulatory measures, with minimum size limits generating the strongest support, followed by

catch limits, seasonal closures, and lastly, area closures (Table 13). "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 2007 were used to rank fishing ports in order of importance for bluefish commercial landings. Thirteen 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 by far the most important commercial bluefish port with over 1.7 million lb landed, which is close to three times the landings from the second ranked port (Long Beach/Barnegat Light, NJ; 584 thousand lb).

The ranking of recreational fisheries landings (numbers of fish and pounds of fish) by state in 2007 is provided in Table 16.

6.4.4 Permit Data

Federally Permitted Vessels

NMFS Federal permit data indicate that a total of 3,296 commercial and 952 recreational (party/charter) bluefish permits were issued in 2007. Among these, 486 vessels had both commercial and recreational bluefish permits.

A subset of federally-permitted vessels was active in 2007. Dealer reports indicate that 594 vessels with commercial bluefish permits actually landed bluefish (18.0% of the permitted fleet); and VTR data show 270 party/charter vessels catching bluefish (28.4% of the permitted fleet).

Dealers

According to NMFS permit data, 499 dealers had Federal bluefish permits in 2007. Dealer reports, however, indicate that 160 of these dealers (32%) actually bought bluefish. The distribution of permitted and active dealers by state is provided in Table 17. While employment data for these dealers are not available, dealer reports indicate that gross revenues from the purchase of bluefish in 2007 were \$2.595 million.

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7.0 ANALYSIS OF (DIRECT AND INDIRECT) IMPACTS

7.1 Impacts of Alternative 1 (Preferred Alternative)

7.1.1 Biological Impacts

Because the TAL associated with the preferred alternative is based on achieving the 2007 fishing mortality in 2009 (0.15), this alternative is not, by definition, expected to increase fishing mortality for bluefish. Additionally, in setting target F at F_{rebuild} , this alternative perpetuates management consistent with the prescribed rebuilding plan for bluefish - a precautionary management approach given the possibility that the stock is already rebuilt (see section 6.1 above). 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 expected reduction in commercial quota under Alternative 1 would reduce (or at least not increase), overall directed fishing effort on bluefish. It should follow that fishing mortality on non-target species will also decrease relative to the status quo (Alternative 3). Heretofore, problems with the incidental catch of other species have not been documented in bluefish specification documents.

7.1.2 Habitat Impacts

Table 18 presents a range of potential habitat impacts that could occur under each of the alternatives. 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. The preferred alternative would decrease the commercial quota by one-third. The baseline impacts of the bluefish fishery on EFH have been characterized, and, as stated in section 6.2.3, are minimal and temporary in nature. The preferred bluefish alternative is not expected to result in an increase in the overall distribution or intensity of commercial bluefish fishing relative to the status quo alternative or the baseline, and as such, is expected to maintain minimal and temporary impacts to EFH. Because bluefish fishing impacts on bottom habitats are not expected to increase under this alternative, this action would continue to minimize the adverse effects of fishing 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 this document. 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. As such, overall fishing effort is not expected to increase substantially (Table 18), and 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.

7.1.4 Socioeconomic Impacts

Alternative 1 would set the TAL at 29.356 million lb. The preferred alternative includes an adjusted commercial quota of 4.974 million lb, an adjusted RHL of 24.285 million lb, and an RSA of 97,750 lb for 2009. Under this alternative, the allocations to the commercial and recreational fisheries are approximately 35% lower and 19% greater than the commercial quota and recreational harvest limit under the status quo alternative, respectively (Alternative 3).

Because of the decreased commercial quota, the overall preferred alternative would provide commercial fishermen with less fishing opportunities in 2009 compared to 2008. Stable or increased landings from one year to the next are desirable from an industry perspective. Decreased fishing opportunity provides fishermen, processors, party/charter boat operators, equipment and bait suppliers with decreased income potential. The adjusted RHL for 2009 is expected to allow for greater recreational fishing opportunities in 2009 compared to 2008. 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 this 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 reductions is on profitability. Only where there are significant reductions in net revenues or in the ability to meet costs are substantial social impacts likely. The 2009 commercial quota under the preferred alternative will be allocated as indicated in Table 19.

A description of ports and communities is found in the 2002 Bluefish Specifications Document (MAFMC 2001; available via the internet at <http://www.nero.noaa.gov/ro/doc/nr02.htm>). Additionally, the “top bluefish ports” that landed bluefish in 2007 are identified in section 6.4 of this document.

Commercial Impacts

Vessels affected by the preferred alternative

The analysis of the harvest levels under this alternative indicates that the economic impacts ranged from no change in revenues for 36 vessels to revenue losses of $\geq 5\%$ for 71 vessels. More specifically, 27 vessels were projected to incur revenue losses of 5-9%, 11 vessels of 10-19%, 14 vessel of 20-29%, 3 vessel of 30-39%, 14 vessel of 40-49%, and 2 vessels of 50% or more. While the analysis presented above indicates that in relative terms a large number of vessels (71) are likely to be impacted with revenue reductions of more than 5 percent or more, 30 percent of these vessels (21 vessels) had gross sales of \$1,000 or less and 58 percent of the impacted vessels (41 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. In addition, 602 vessels were projected to incur revenue losses of less than 5%, and 36 vessels were projected to have no change in revenue (Table 20). Since Alternative 1 is the most restrictive alternative (i.e., most restrictive commercial quota), impacts of other alternatives will be less than the impacts under this alternative. A detailed description of how economic impacts were estimated 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).

All of the 71 vessels projected to have revenue reductions of $\geq 5\%$, 53 are identified as holders of federal permits (Table 21). It is possible that the remaining 18 vessels that do not show having any Federal permits in 2007 have opted for fishing in state waters only and as such, did not renew Federal permits in 2007, or have ceased business. Many of these vessels hold permits in various fisheries (Table 22) -- especially commercial permits for squid-mackerel-butterfish, dogfish, tilefish (incidental), skate, and monkfish. As a result, they have access to some alternative fisheries, although some like multi-species and dogfish are already under heavy regulation and are likely to have increasingly stringent catch limits in the near future.

The majority of the impacted vessels (revenue reduction of ≥ 5 percent) with federal permits have home ports in New York and New Jersey and their principal port of landings are also mainly located in New York and New Jersey (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 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 27 feet for vessels in Massachusetts to 50 feet for vessels in New Jersey (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.

Most commercial vessels showing revenue reductions in the ≥ 5 percent range are concentrated in New York and New Jersey (Table 24). Within these states, the most impacted counties (largest

number of impacted vessels) are: Ocean county in New Jersey and Suffolk county in New York. Some individual ports with large numbers of impacted vessels (5 or more) in these counties are: Barnegat Light and Point Pleasant (Ocean county) in New Jersey and New York (New York county) in New York. Counties not included in this analysis (e.g., Cumberland (ME); New Heaven (CT); Monmouth and Cape May (NJ); Kings (NY); Boston and Essex (MA); Washington (RI), 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, most of these counties only had one or two affected vessels. 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 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; available via the internet at <http://www.nero.noaa.gov/ro/doc/nr02.htm>). Additionally, the “top bluefish ports” that landed bluefish in 2007 are identified in section 6.4 of this document.

The threshold analysis presented above represents potential impacts on vessels participating in the fisheries on the North Atlantic region. In order to further assess the impacts of the commercial 2009 quota measure on commercial vessels participating in the bluefish fishery in North Carolina, South Atlantic Trip Ticket Report data was reviewed.¹ South Atlantic Trip Ticket Report data indicate that 856 vessels (270 vessels \leq 18 ft; 481 vessels between 19-38 ft; and 105 vessels \geq 39 ft) landed bluefish in North Carolina in 2007. On average, these vessels generated 10.4% of their total ex-vessel revenue from bluefish landings. By vessel size, the contribution of bluefish to total revenue for these vessels was 5.9% for vessel \leq 18 ft; 12.4% for vessels 19-38 ft; and 9.8% for vessels \geq 39 ft. Under this alternative, landings are projected to decrease as a consequence of the 2009 allocation when compared to 2007 landings by approximately 32% in North Carolina (Tables 19 and 32). On average, reduction in revenues due to the potential decrease in landings associated with the 2009 quota compared to the 2007 landings are expected to be approximately 3.1% for fishermen that land bluefish in that state. By vessel size, the potential revenue decrease of bluefish to total revenue for these vessels is approximately 1.8% for vessel \leq 18 ft; 3.6% for vessels 19-38 ft; and 2.9% for vessels \geq 39 ft. No revenue reduction is expected for vessels that land bluefish in Florida as a consequence of the

¹ Bluefish landings in South Carolina and Georgia were almost nil in 2007, 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 2007 (section 3.0 of the IRFA).

proposed 2009 quota compared to 2007 landings in that state (A detailed analysis of the potential impacts to bluefish participants is presented in section 5.1 of the RIR/IRFA.).

The changes described above are based on the potential changes in landings associated with the 2009 quotas versus 2007 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 2009 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 2009 is substantially lower than the 2008 quota and the 2007 landings, the amount of bluefish that could potentially be transferred among states would be lower than under Alternatives 2 and 3, thus potentially allowing for less economic relief (section 5.1 of the RIR/IRFA).

This alternative was chosen by the Council because it is associated with a more risk-averse F target for 2009 when compared to Alternative 2 and 3 (see section 1.0, 4.3 and 5.0 of the EA for additional discussion). However, the potential economic losses associated with this alternative are higher than those under Alternatives 2 and 3.

Recreational Impacts

Under Alternative 1, the adjusted bluefish 2009 recreational harvest limit would be 24.285 million lb. This limit would be approximately 15% above the recreational landings for 2007 (21.163 million lb) and 19% above the limit implemented for 2008 (20.414 million lb). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is near identical (less than 2% lower) than the projected recreational landings for 2009.

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 2009 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 2009.

Other Impacts

Effects of the research set-aside

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 2009 (Alternative 7.4.2). That is, the RSA for bluefish was deducted from the RHL and commercial quota in an amount proportional to the overall bluefish TAL for 2009 to derive adjusted 2009 quotas and limits on recreational harvest. Therefore, the threshold analyses conducted under each alternative have accounted for overall reductions in fishing opportunities in 2009 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 2009 RSA projects. This would be particularly true under the assumption that 2009 allocations to a particular state represent harvest constraints to the commercial fishery. Given the substantial decrease in the fishing opportunity associated with the 2009 commercial quotas relative to 2007 landings under Alternative 1 (most restrictive), 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 Recreational Transfer)

7.2.1 Biological Impacts

Alternative 2 presumes that, in keeping with the stock assessment update, the bluefish stock is in fact rebuilt. In keeping with the FMP, a rebuilt bluefish stock can be fished at 90% of F_{msy} ($F = 0.17$) as opposed to $F_{rebuild}$ (0.15) during the rebuilding phase. A target F of 0.17 for 2009 corresponds to a TAC of 36.929 M lb and a TAL of 32.205 M lb. Under this scenario, a transfer of quota to the commercial fishery would be allowable since the projected recreational landings (24.719 M lb) are less than 83% of the TAL (projected rec. landings are 77% of the TAL). Accordingly, a transfer of 2.011 M lb would result in a commercial quota of 7.486 M lb and an RHL equal to the current recreational landings projection (24.719 M lb). Changes in forthcoming recreational projection withstanding, an increase in directed commercial effort is expected under Alternative 2 relative to the status quo. This would tend to increase encounters with non-target species compared to the status quo (Alternative 3) and consequently increase fishing mortality on non-target species, albeit marginally. Because Alternative 2 would allow commercial fishermen to retain more bluefish, fewer bluefish would be discarded by the commercial fishery. Additionally, avoidance of bluefish by commercial fishing operations would not be expected.

7.2.2 Habitat Impacts

Table 18 presents the range of potential habitat impacts that could occur under each of the alternatives. Because harvest of the commercial quota under Alternative 2 would correspond to a 33.7 % decrease relative to the status quo (Alt 3), impacts on EFH related to the commercial

harvest of bluefish should also decrease. The baseline impacts of the bluefish fishery on EFH have been characterized and, as stated in section 6.2.3, are minimal and temporary in nature. Because bluefish fishing impacts on bottom habitats are expected to increase only marginally under this alternative, it would continue to minimize the adverse effects of fishing 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 this document. 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 marginally increase commercial bluefish fishing effort and, as such, are expected to decrease the likelihood of interactions between the bluefish fishery, marine mammals, sea turtles, or other protected resources or their respective habitats.

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 32.205 million lb. This TAL includes a preliminary adjusted commercial quota of 7.463 million lb, a preliminary adjusted recreational harvest limit of 24.644 million lb, and an RSA of 97,750 lb for 2009. Under this alternative, the allocations to the commercial and recreational fisheries are approximately 3% lower and 21% higher, respectively, than the commercial quota and recreational harvest limit under the status quo alternative, respectively (Alternative 3).

The state-by-state quota allocation for 2009 under Alternative 2 is shown in Table 19. The commercial quota allocation under this alternative would provide commercial fishermen with slightly lower (i.e., 3%) fishing opportunities in 2009 compared to the status quo alternative (Alternative 3).

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 small to large revenue losses. According to Northeast dealer data, 49 vessels were projected to incur revenue losses of more than 5%. More specifically, 16 vessels were projected to incur revenue losses of 5-9%, 20 vessels of 10-19%, 10 vessels of 20-29%, 1 vessel of 30-39%,

and 2 vessels of 40-49%. In addition, 513 vessels were projected to incur revenue losses of less than 5%, and 147 vessels were projected to have no change in revenue (Table 25). While the analysis presented above indicates that in relative terms a large number of vessels (49) are likely to be impacted with revenue reductions of more than 5 percent or more, 33 percent of these vessels (16 vessels) had gross sales of \$1,000 or less and 73 percent of the impacted vessels (36 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. A detailed description of how economic impacts were estimated is presented in sections 3.1 and 5.0 of the RIR/IRFA. Since there are a number of vessels that could experience substantial revenue reductions under this alternative, additional analysis regarding these vessels is presented below (e.g., evaluation of permit status, geographic distribution of permitted vessel).

Of the 49 vessels projected to have revenue reductions of more than 5%, 35 (71%) hold permits in other fisheries (Table 27). It is possible that the remaining 14 vessels that do not show having any Federal permits in 2007 have opted for fishing in state waters only and as such, did not renew Federal permits in 2007, or have ceased business. In particular, most vessels have monkfish, squid-mackerel-butterfish, dogfish, and tilefish (incidental; Table 27). As a result, they have access to some alternative fisheries, although some like multispecies, dogfish, and scallops are already under heavy regulation and are likely to have increasingly stringent catch limits in the near future.

The majority of the 53 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. Thus, of the three states home-porting the greatest number of vessels projected to have revenue reductions of more than 5% (New Jersey, New York, and Massachusetts), vessels in those states are likely to land in their home port state (68 to 100%; Table 28). This information is important because impacts will occur both in the community of residence and in the community where the vessel's catch is landed and sold. The largest vessels are found in New Jersey. 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, most commercial vessels showing revenue reductions of more than 5% are concentrated in New York and New Jersey (Table 29). Within these states, the most impacted counties are: Ocean (NJ), Nassau, New York, and Suffolk (NY). Within these counties, some individual ports have concentrations of vessels; in other cases only one or three vessels may be found per port, but the overall number in some of the counties (Ocean, NJ) is relatively large. Some individual ports with large numbers of impacted vessels are: Barnegat Light and Point Pleasant (Ocean county) in New Jersey and New York (New York county) and Hampton Bays (Suffolk county) in New York. Counties not included in this analysis (e.g., Cumberland (ME));

New Heaven (CT); Monmouth (NJ); Kings (NY); Essex, Boston, and Barnstable (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, most of these counties only had one or two affected vessels. If communities having larger numbers of impacted vessels also have a larger total number of vessels, the proportion that may be impacted may be lower. This effect may mitigate the impacts on the community as a whole.

The threshold analysis presented above represents potential impacts on vessels participating in the fisheries on the North Atlantic region. In order to further assess the impacts of the commercial 2009 quota measure on commercial vessels participating in the bluefish fishery in North Carolina and Florida, South Atlantic Trip Ticket Report data was reviewed. No revenue reduction is expected for vessels that land bluefish in North Carolina or Florida as a consequence of the proposed 2009 quota compared to 2007 landings in those states (Tables 19 and 32). A detailed analysis of the potential impacts to bluefish participants is presented in section 5.2 of the RIR/IRFA.

These economic changes presented here are based on the potential changes in landings associated with the 2009 quotas versus 2007 landings (section 5.2 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 2009, then the number of affected entities described in this threshold analysis could potentially decrease and thus, decrease economic burden.

Recreational Impacts

Under Alternative 2, the bluefish 2009 recreational harvest limit would be 24.644 million lb. This limit would be approximately 16% higher than the recreational landings for 2007 (21.163 million lb) and 21% larger than the recreational harvest limit for 2008 (20.414 million lb). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is near identical (less than 1% lower) than the projected recreational landings for 2009. The possession limit would remain at 15 fish. The recreational impacts under this alternative are expected to be similar to those described under Alternative 1 (sections 7.1.4). 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.

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 (Status Quo)

7.3.1 Biological Impacts

The TAL proposed under the status quo alternative is, by definition, equivalent to the current year TAL (28.156 million lb). Given the increase in bluefish biomass, marginally lower landings under this alternative should correspond to fishing mortality below F_{target} when compared to the TAL under the preferred alternative (Alternative 1 – TAL = 29.356 M lb) and Alternative 2 (TAL = 32.204 M lb). Status quo commercial landings of bluefish while availability of bluefish has increased could produce a slight increase in incidentally captured bluefish. This would be a negative, albeit small, impact to bluefish in that a change in discarding patterns would affect assumptions about the importance of commercial discards relative to overall removals, which would result in less informed management of the resource.

7.3.2 Habitat Impacts

Table 18 presents the range of potential habitat impacts that could occur under each of the alternatives. Because harvest of the commercial quota under Alternative 3 would maintain the status quo, impacts on EFH related to the commercial harvest of bluefish should not change. 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 (see section 6.2.3). Therefore, this action would continue to minimize the adverse effects of fishing 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 this document. 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 or slightly reduce commercial bluefish fishing effort and, as such, are not expected to increase 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 28.156 million lb. This TAL includes an adjusted commercial quota of 7.678 million lb, an adjusted recreational harvest limit of 20.380 million lb, and an RSA of 97,750 lb for 2009. Under this alternative, the allocations to the commercial and recreational fisheries are approximately <1% lower than both the commercial quota and recreational harvest limit implemented in 2008. Note that even though the TAL under this alternative is identical to the TAL implemented in 2008 (status quo measure), the 2009 adjusted commercial quota and recreational harvest limit are slightly different than the limits implemented in 2008 due to differences in the RSA amounts deducted from the two time periods.

The state-by-state quota allocation for 2009 under Alternative 3 is shown in Table 19. The overall commercial quota allocation under this alternative (status quo) would provide commercial fishermen with slightly greater fishing opportunities in 2009 compared to 2007 landings (section 2.5 of the RIR/IRFA). This alternative also provides greater fishing opportunities to commercial fishermen compared to Alternatives 1 and 2 in 2009.

Commercial Impacts

Vessels affected under the least restrictive alternative (Alternative 3)

According to Northeast dealer data, 45 vessels were projected to incur revenue losses in the range of 5 to 49%. In addition, 517 vessels were projected to incur revenue losses of less than 5%, and 147 vessels were projected to have no change in revenue (Table 30). A detailed description of how economic impacts were estimated is presented in sections 3.1 and 5.0 of the RIR/IRFA.

Of the 45 vessels projected to have revenue reductions of more than 5%, 32 (71%) hold federal permits (Table 31). It is possible that the remaining 13 vessels that do not show having any Federal permits in 2007 have opted for fishing in state waters only and as such, did not renew Federal permits in 2007, or have ceased business (Table 31).

The threshold analysis presented above represents potential impacts on vessels participating in the fisheries on the North Atlantic region. In order to further assess the impacts of the commercial 2009 quota measure on commercial vessels participating in the bluefish fishery in North Carolina and Florida, South Atlantic Trip Ticket Report data was reviewed. No revenue reduction is expected for vessels that land bluefish in North Carolina or Florida as a consequence of the proposed 2009 quota compared to 2007 landings in those states (Tables 19 and 32). A detailed analysis of the potential impacts to bluefish participants is presented in section 5.3 of the RIR/IRFA.

Recreational Impacts

Under Alternative 3, the bluefish 2009 recreational harvest limit would be 20.380 million lb. This limit would be approximately 4% below the recreational landings for 2007 (21.163 million lb) and near identical (less than 1% below) the limit implemented for 2008 (20.414 million lb). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is approximately 18% lower than the projected recreational landings for 2009. It is likely that proposed recreational harvest limit under this alternative may cause some decrease in recreational satisfaction (i.e., 2009 harvest limit lower than projected 2009 recreational landings).

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 negatively impacted. Some anglers may choose to reduce their effort in 2009 as a consequence of the recreational harvest limits are likely to transfer this effort to alternative species (i.e., 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. This alternative is expected to have a potential decrease in recreational satisfaction when compared to Alternatives 1 and 2.

Other Impacts

Effects of the research set-aside

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

7.4 Impacts of Alternative 4 on the Environment

Framework Adjustment 1 to the Bluefish FMP established a program in which data collection projects can be funded in part through a portion of the TAL set-aside for research. The purpose of this 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 research set-aside amount may vary between 0 and 3% of a species' quota. For those species that have both a commercial quota and a recreational harvest limit, the set-aside calculation shall be made from the combined TAL.

7.4.1 No Research Set-Aside (No Action)

Under this alternative no RSA would be implemented for 2009.

7.4.1.1 Environmental Impacts, Not Including Socioeconomic Impacts

Under this alternative there would not be a bluefish RSA implemented for 2009. Because all bluefish landings would count against the overall quota whether or not a RSA is implemented, the biological/ecological impacts would not change relative to the status quo. Nevertheless, there would also be no indirect benefit from information gained through the research set-aside program if the no action alternative is implemented.

7.4.1.4 Socioeconomic Impacts

Under this alternative there will 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). More specifically, an RSA of 97,750 lb was used to derive the adjusted commercial quotas and RHLs in all evaluated alternatives.

Tables 19 and 32 show the potential impacts of the three commercial quotas evaluated for 2009. These impacts are associated with the specific changes associated with the 2009 quota compared to the 2007 landings.

For example, under Alternative 1 the states of Massachusetts, Rhode Island, New York, New Jersey, Virginia, North Carolina, and Georgia show a potential decrease in landings when the 2009 quotas are compared to the 2007 landings (Table 32). If commercial quotas not adjusted for RSA are considered, the potential decrease in landings associated with the 2009 quotas compared to the 2007 landings would change by less than 0.5% for these states. In other words, the additional amount of bluefish available in these states to non-research participants in these states under Alternative 1 would range from 2 lb in Georgia to 5,328 lb in North Carolina. 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), 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 nil; the recreational limit under all these alternatives would change (i.e., reduction) by less than < 1% as a consequence of the RSA. It is not anticipated that the RSA will affect angler satisfaction or recreational demand for bluefish.

Under non-preferred Alternative 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 Specify a Research Set-Aside for 2009 (Status Quo Alternative)

The Council recommended a maximum bluefish RSA of 3% of the TAL for 2009. The currently approved project, however, is requesting only 97,750 lb. If the RSA is not used, the RSA quota would be put back into the overall TAL. This alternative is the status quo alternative.

7.4.2.1 Environmental Impacts, Not Including Socioeconomic Impacts

The currently approved RSA amount is minimal (97,750 lb or 0.18% of the TAL) and is not expected to significantly affect the distribution or intensity of fishing effort. As such this alternative does not have meaningful biological/ecological impacts.

7.4.2.4 Socioeconomic Impacts

Under Council-preferred Alternative 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 describe 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 2.

The MAFMC recommended research set-aside quotas of 97,750 lb for bluefish for 2009. 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 2007 was estimated at \$0.36/lb. Assuming this ex-vessel price, the 2009 RSA for the commercial component of the fishery could be worth as much as \$6,000 under Alternative 1, \$8,200 under Alternative 2, and \$9,600 under Alternative 3.

As such, on a per vessel basis, the commercial RSA could result in a potential decrease in bluefish revenues of \$1,102, \$942, and \$1,136 under alternatives 1, 2, and 3, respectively; just a few dollars per vessel assuming all active vessels in 2007 (approximately 1,600 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 this 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 7.3.

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 less than < 1% as a consequence of the RSA. It is not anticipated that the RSA will affect angler satisfaction or recreational demand for bluefish.

Given the substantial decrease in the commercial quota in 2009 relative to 2008 for bluefish under Alternative 1 (most restrictive), 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, the extent of RSA activity under these three projects (e.g., fishing trips, no. of tows, landings) are negligible when compared to the overall activity of the directed fisheries for the managed resources; therefore, overall impacts of research trips and compensation trips are expected to be negligible.

7.5 Cumulative Impacts of Preferred Alternative on Identified VECs

The biological and socioeconomic impacts of the preferred alternative for 2009 are expected to be minimal since they are expected to meet the target fishing mortality rate and do not reduce opportunities to participate in the fishery. The preferred alternative 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 formal cumulative impact assessment is not necessarily required as part of an Environmental Assessment under NEPA as long as the significance of cumulative impacts has been considered (U.S. EPA 1999). The following discussion addresses the significance of the expected cumulative impacts as they relate to the federally managed bluefish fisheries.

Past, Present, and Reasonably Foreseeable Future Actions

The cumulative impacts of past, present and future Federal fishery management actions (including the specification recommendations proposed in this document) should generally be positive. Although past fishery management actions to conserve and protect fisheries resources and habitats may have been more timely, the mandates of the MSFCMA as currently amended by the SFA require the management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. It is, therefore, expected that under the current management regime, the totality of Federal fisheries management impacts to the environment will, in general, contribute toward improving the human environment.

Past actions under this FMP are described in section 4.1, "History of Development of the Plan" in the FMP and section 1.1.1, "History of FMP Development" in Amendment 1. Overall, actions implemented by the FMP were to address the management objectives described in section 1.1.3 of Amendment 1. Amendment 1 implemented the current annual specifications process to set commercial quotas and recreational harvest limits. In addition, Amendment 1 addressed the new requirements of the SFA, including the new revised National Standards, such as the bluefish overfishing definition (National Standard 1), the effects on fishing communities (National Standard 8), bycatch reduction (National Standard 9), safety at sea (National Standard 10), and identification of EFH for bluefish. Finally, Amendment 1 added a framework adjustment procedure that allowed the Council to add or modify management measures through a

streamlined public review process. The bluefish fisheries throughout the management unit are managed primarily via an annual commercial quota and a recreational harvest limit to control fishing mortality. The specification process allows for the review and modifications to the commercial quota, recreational harvest limit, and other management measures on an annual basis. Assessment of the commercial bluefish quota indicates that overall commercial landings have been at or below the quota specifications for the last decade. In addition, since the establishment of the bluefish recreational harvest limit in 2000, recreational landings have been lower than the recreational harvest limits established for those years.

The purpose of this specifications package is to examine the impacts to the environment that would result from the implementation of the 2006 management measures for the bluefish fisheries. These measures include commercial quota and recreational harvest limits and other measures that allow the target exploitation rate to be achieved on an annual basis. The annual quota setting process ensures that the rebuilding schedule for bluefish is maintained so the FMP remains in compliance with the MSFCMA as amended by the SFA.

By continuing to meet the national standards and other requirements of the SFA through future FMP amendments and actions under the annual specification process, the expectation is that the management objectives will be met and the expected benefits will not be compromised. In addition, the framework adjustment procedure added in Amendment 1 allows the Council to add or modify management measures through a streamlined public review process. As such, the Council will ensure that cumulative impacts of these actions will remain positive, both for the ports and communities that depend on these fisheries and the Nation through a sustainable bluefish fishery. Additionally, the action in this EA is not expected to result in negative or positive biological, EFH, or endangered and other protected resources impacts. However, as stated above, the purpose of the specification process in this action and future actions is expected to result in a rebuilt fishery. As such, cumulative biological impacts to the bluefish stock are expected to be positive. As the stock rebuilds it is possible that CPUE of bluefish will increase, which could result in an overall decrease in fishing effort. If this action in addition to future actions results in a decrease in fishing effort, positive cumulative impacts will result related to non-target species, EFH, and protected resources.

Overall bluefish commercial landings have been below the commercial quotas established for that fishery since the implementation of the coast-wide commercial quota system in 1994. In addition, recreational landings have also been below the recreational harvest limits first established in 2000. To compensate for any overharvest and to preserve the conservation intent of the management regime, the FMP under which bluefish is managed includes provisions that require that any commercial landings that exceed the specifications in one year be deducted from the commercial quota that would otherwise have been allowed in the following year. Thus, the FMP and the annual specifications anticipate the possibility that landings may exceed targets in any given year and provide a remedy that at least partially compensates for such occurrences in terms of maintaining the conservation goals of the FMP and the rebuilding programs and thus, mitigating the impacts of those overages. In addition, overages in the recreational fishery would be addressed by way of changes in management measures to reduce the harvest in the following year to the specified level. The annual nature of the management measures is intended to

provide the opportunity for the Council and NMFS to assess regularly the status of the fishery and to make necessary adjustments to ensure that there is a reasonable expectation of meeting the objectives of the FMP and the targets associated with any rebuilding programs under the FMP.

During the 1980s, bluefish was consistently one of the top three species most frequently sought by marine recreational fishermen along the Atlantic coast of the United States. In fact, more bluefish (by weight) were landed by anglers coast-wide than any other marine fish each year from 1979 to 1987. An increase in the number of marine anglers, an apparent increase in bluefish abundance, and a decline in the abundance of other desired finfish such as striped bass and weakfish during this time period may explain this predominance. Although most bluefish are harvested by sport fishermen, commercial landings have averaged about 14 million lb per year since 1981, or approximately 20% of the total bluefish landings along the Atlantic coast in the 1980s (MAFMC 1999).

In the late 1970s, potential markets for bluefish in Africa and South America stimulated tuna purse seiners to consider harvesting bluefish. This interest prompted concerned fishermen to petition the MAFMC to develop an FMP for this species. Seven fact finding meetings were held by the Council in early 1979 to give fishermen from Virginia through New England an opportunity to present information on the bluefish fishery. Public attendance at most of these meetings was exceptional. At every meeting, the desire for the development of a Plan was strongly expressed by the recreational community. As a result, in May 1979, the Council held a scoping meeting to develop a work plan for the FMP. The work plan was adopted by the Council in July 1979 and approved by the NMFS in March 1980. Additional impetus to FMP development was provided by the 1982 harvest of bluefish by Florida fishermen using runaround gill nets in Chesapeake Bay (MAFMC 1999).

The Council, in cooperation with the NMFS, New England and South Atlantic Fishery Management Councils, and Commission, completed a Bluefish FMP in 1984. However due to technical issues, the 1984 Council bluefish plan was rejected by the Secretary of Commerce. Although the 1984 Plan was rejected, bluefish remained a major value to the nation and public concerns about bluefish overexploitation were not abated. Subsequently, the fishery management councils and the Commission agreed to proceed jointly on the development of a new bluefish management plan containing compatible management measures that could be enacted in both state and Federal waters. This cooperative venture represented a new approach for managing interjurisdictional fisheries (MAFMC 1999).

The current bluefish management plan was prepared cooperatively by the Council and the ASMFC and was implemented in 1990. The management measures adopted in the FMP included license/permit requirements, recreational possession limits, and a coast-wide commercial quota. Regulations considered include trip limits, area closures or restrictions, and other measures that may be appropriate, including gear prohibitions. The Bluefish FMP Review and Monitoring Committees annually review landing statistics to determine if commercial controls will be implemented.

In 1996, the Council and Commission began development of Amendment 1 to the 1990 Bluefish FMP. Because the Bluefish FMP has a limited number of management options to control fishing mortality, the Council and Commission identified the need to broaden the suite of management measures that could be used to reduce fishing mortality on the bluefish stock. In addition, the amendment was developed to meet the requirements of the SFA that was enacted in October 1996. Specifically, the amendment revised the overfishing definitions (National Standard 1) for bluefish and addressed the new and revised National Standards (National Standard 8 - consider effects on fishing communities; National Standard 9 - reduce bycatch; and National Standard 10 - promote safety at sea) relative to the existing management measures. The amendment also identified essential fish habitat for bluefish. Amendment 1 was partially approved on 29 July 1999.

The cumulative impacts of this FMP were last fully addressed in the Environmental Impact Statement for Amendment 1. The FMP and prior annual management specifications comprise past actions that have produced positive effects on the bluefish fishery. More specifically, the present direct effect of these past actions is the expansion of bluefish stock biomass. Indirect positive impacts associated with greater availability of the resource have been realized for non-target species, habitat, protected resources, and human communities. These impacts are expanded on in the sections below. The incremental effect of the proposed action in conjunction with other past, present and reasonably foreseeable future actions will continue to directly improve stock conditions and indirectly improve the conditions of the VECs associated with the resource.

Bluefish in the management unit are managed primarily via annual quotas to control fishing mortality. This FMP requires a specifications process which allows for the review and modifications to management measures specified in the FMP on an annual basis. As noted above, the cumulative impact of this FMP and annual specification process has been positive since its implementation after passage of the Magnuson-Stevens Act. Bluefish were overfished prior to management, and the status of this fishery has subsequently improved. The most recent peer-reviewed assessment of bluefish (NEFSC 2005) produced updated fishing mortality and population biomass estimates. An overview of this information is provided in section 6.1 of this document. In short, the bluefish stock is not overfished, and overfishing is not occurring. Furthermore, stock size is increasing and is expected to achieve the biomass target by 2010, which is the ten-year rebuilding deadline based on National Standard 1.

Through development of the FMP and the subsequent annual specification process, the Council continues to manage this resource in accordance with the National Standards required under the Magnuson-Stevens Act. First and foremost the Council has met the obligations of National Standard 1 by adopting and implementing conservation and management measures that have prevented overfishing, while achieving, on a continuing basis, the optimum yield for this species and the United States fishing industry. The Council uses the best scientific information available (National Standard 2) and manages this resource throughout its range (National Standard 3). The management measures do not discriminate among residents of different states (National Standard 4), they do not have economic allocation as the sole purpose (National Standard 5), the measures account for variations in fisheries (National Standard 6), avoid unnecessary duplication (National

Standard 7), they take into account the fishing communities (National Standard 8), reduce bycatch (National Standard 9), and promote safety at sea (National Standard 10). Amendment 1 fully addresses how the management measures implemented to successfully manage this species comply with the National Standards. The fishing gear impacts to EFH are discussed in section 6.2.1.2 of this document.

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

Non-Fishing Impacts

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

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

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

7.5.2 Targeted Fishery Resources

First and foremost with this species, the Council has met the obligations of National Standard 1 by adopting and implementing conservation and management measures that have prevented overfishing, while achieving, on a continuing basis, the optimum yield for this species and the United States fishing industry. Bluefish were overfished prior to management, and the status of

this fishery has subsequently improved. As stated above, and in section 6.1, fishing mortality and biomass indicate that the stock is not overfished and overfishing is not occurring.

The Council manages this species only in the EEZ. Any anthropogenic activities in the EEZ that did not consider this species could impact their populations locally. The Council has commented on anthropogenic projects such as beach replenishment and ocean dumping in the past while raising concerns for the local health of bluefish. Since this species occurs over wide areas of the North, mid, and South Atlantic, it is unlikely that any anthropogenic activity could currently significantly impact the population on more than simply a local level.

As stated above, expansion of bluefish biomass is a positive impact resulting from past actions (FMP, annual specifications). The proposed action represents a continuation of this positive outcome, which will incrementally, and in the context of future actions, contribute to continued improvement of stock conditions. Furthermore, reallocation of TAL and RSA will not result in any cumulative effects.

7.5.3 Non-Target Fish Species or Bycatch

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

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

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. 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. The past activities of the bluefish fishery

have not greatly impacted non-target species. In addition, the proposed action will not impact non-target species.

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

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

The lack of discard data for bluefish has hampered the ability of the Council and Commission to respond to potential discard problems in the commercial fishery. The collection of additional data by NMFS will allow the Council and Commission to more effectively respond to discard problems by changes in management measures.

The mortality of fish released due to the recreational measures for bluefish is expected to be low. In fact, only about 15% of the fish are expected to die after release by anglers. The fish that survive are not defined as bycatch under the SFA. The Council and Commission believe that information and education programs relative to proper catch and release techniques for bluefish and other species caught by recreational fishermen should help to maximize the number of these species released alive. The Council believes that information and education programs relative to proper catch and release techniques for bluefish and other species caught by recreational fishermen should help to maximize the number of fish species released alive.

Current recreational management measures could affect the discards of bluefish (possession limits). The effects of the possession limit would be greatest at small limits and be progressively less at higher limits. Minimum size limits, bag limits and seasons have proven to be effective management tools in controlling fishing mortality in the recreational fishery. A notable example is the recent success in the management of the Atlantic coast striped bass fishery. The recreational striped bass fishery is managed principally through the use of minimum size limits, bag limits and seasons. When these measures were first implemented, release rates in the recreational striped bass fishery exceeded 90%. However, the quick and sustained recovery of the striped bass stock after implementation of these measures provides evidence of their effectiveness in controlling fishing mortality in recreational fisheries.

The Council and Commission can currently implement annual changes in commercial and recreational management measures in response to changes in fishermen behavior or an increased level of discards through the annual specifications process. The commercial quota under the preferred alternative in 2007 would not result in an increase of effort in the bluefish commercial fishery and thus, the impact on incidental catch rates of other species in 2007 relative to 2006 would be insignificant.

7.5.4 Habitat (Including EFH Assessment)

It was concluded in the 2002 through 2007 Annual Specifications EAs that impacts of the bluefish fishery on EFH are minimal and temporary in nature. Catch quotas specified for the recreational and commercial fisheries in the current year did not require mitigation. Among the gears used for the commercial fishery, impacts to benthic EFH are highest for bottom trawls, lowest for hook and line, and intermediate for bottom gillnets. The preferred alternative would marginally increase the catch quota in the commercial bluefish fishery relative to the status quo (2%). Although the specific consequences for habitat are unknown, it can be assumed that the cumulative effects of an expected increase in trawling would be related to fishing effort. Several possibilities exist that would influence fishing effort. A modestly increased commercial quota could result in more fishing trips or longer fishing trips. Similarly, with increased species abundance, CPUE could increase which would result in no increase or a modest increase in effort landing the increased quota. Alternatively, states could establish larger trip limits, which would result in stable fishing effort. Nevertheless, since it has been concluded that the baseline impacts of the bluefish fishery on EFH are minimal and temporary, continuation of the bluefish TAL will not result in any significant cumulative effects in addition to those of the baseline.

7.5.5 Protected Species

Commercial capture of bluefish occurs predominately with gillnets and bottom otter trawls. Bottom otter trawls used to harvest bluefish have not been implicated in marine mammal or turtle mortalities. Prior to 2001, the North Carolina inshore gillnet fishery, which harvests bluefish, was not known to interact with marine mammals; however, an evaluation of NMFS Sea Sampling data demonstrated that the gillnet gear incidentally injured and killed Atlantic bottlenose dolphin (WNA stock) during 1993-1997. Therefore, beginning in 2001, observer coverage of this gillnet fishery was increased. Additionally, NMFS has developed a take reduction plan to reduce injuries and deaths to Atlantic bottlenose dolphins caused by fishing gear in Federal waters of the Mid- and South Atlantic. A team was convened in November of 2001 under authority of the MMPA to formulate a Bottlenose Dolphin Take Reduction Plan (BDTRP). The resulting BDTRP, implemented April 26, 2006 (71 CFR 24776), includes the regulatory management measures summarized in Box 6.3.3 in section 6.3 for small, medium, and large mesh gillnets, which are organized by bottlenose dolphin management unit (MU), specific location, as well as non-regulatory conservation measures. These past actions are expected to have already reduced adverse impacts of gillnet fisheries on bottlenose dolphins, although the magnitude of the reduction is not known.

Although bottom otter trawls are known to capture and kill (as a result of capture) sea turtles, no record exists of turtle capture or death as a result of bluefish fishing with this gear (e.g., Murray 2006). There are documented encounters of leatherback turtle takes in drift gillnet gear used in the harvest of bluefish, but no mortalities have been confirmed (section 6.4). In 2003, NMFS developed the Strategy for Sea Turtle Conservation and Recovery in Relation to Atlantic and Gulf of Mexico Fisheries to evaluate and address domestic sea turtle bycatch comprehensively across jurisdictional (i.e., state and Federal) and fishing sector (i.e., commercial and recreational)

boundaries on a per-gear basis in fisheries of the Atlantic and Gulf of Mexico. NMFS implements measures to reduce sea turtle interactions in fisheries by regulations and permits under the ESA and Magnuson-Stevens Fishery Conservation and Management Act. Since the early 1990s, NMFS has implemented sea turtle conservation measures including, but not limited to, TEDs in trawl fisheries, large circle hooks in longline fisheries, time and area closures for gillnets, and modifications to pound net leaders.

All of these conservation measures will extend into the future such that the incremental impacts of the proposed management measures will not have any significant cumulative effect on marine mammals, sea turtles or other protected resources.

7.5.6 Community

National Standard 8 requires that management measures take into account the fishing communities. The ports and communities that are dependent on bluefish are fully described in the 2002 Bluefish Specification Document (section 4.3; MAFMC 2001). To examine recent landings patterns among ports, 2007 NMFS dealer data are used. The top commercial landings ports of bluefish are discussed in section 6.5.1 of the EA.

The commercial quota allocation under the preferred alternative would provide commercial fishermen with increased fishing opportunities in 2007 compared to 2006. Stable or increased landings from one year to the next are desirable from both a management perspective and an 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.

With regard to the specific quota and recreational harvest limit recommendations proposed in this document, impact to the affected biological, physical, and human environment are described in section 7.0. Given that no negative impacts are anticipated to result from the preferred alternatives, the synergistic interaction of improvements in the efficiency of the fisheries are expected to generate positive impacts overall. These impacts will be felt most strongly in the social and economic dimension of the environment. Direct economic and social benefit from improved fishery efficiency is most likely to affect participants in the bluefish fisheries. These benefits are addressed under the socioeconomic impacts discussion in section 7.1.4 (preferred alternative) of the EA.

The proposed actions, together with past and future actions are expected to result in positive cumulative impacts on the biological, physical, and human components of the environment. As long as management continues to prevent overfishing and continue the rebuilding process, the fisheries and their associated communities will continue to prosper over the long-term. In summary, no significant cumulative impacts are expected on the fisheries and their associated communities based on the implementation of the proposed 2007 management measures.

7.5.7 Conclusions

This action builds on actions taken in the original Bluefish FMP, Amendment 1, and the annual specification process for the 2006 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 2009 bluefish specifications.

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 2009. In accordance with the bluefish FMP, the purpose of this action is to ensure that overfishing does not occur in 2009 and that stock recovery can occur such that stock biomass is rebuilt to B_{msy} within the rebuilding timeframe established through Amendment 1 (i.e., by 2010). Indeed, the stock is already believed to be rebuilt, however, the proposed action would maintain precautionary management of the resource until that conclusion can be affirmed in the upcoming year.

8.2 Analysis of the Potential Adverse Effects of the Proposed Action

A description 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 gears for bluefish include bottom otter trawls and gillnets. The preferred alternative could increase the catch in the overall bluefish fishery by 4% relative to the status quo. Although the specific consequences of this increase are unknown for habitat, it can be assumed that the effects would be related to mostly to changes in commercial fishing effort. The smaller commercial quota should result in fewer fishing trips or shorter fishing trips. Similarly, with increased species abundance, CPUE could increase which would result in no increase or even a decrease in effort. However, some states could modify their trip limits, which would result in slight changes in overall fishing effort.

8.3 Determination of Habitat Impacts of the Proposed Action

It was concluded in the 2003 through 2008 Annual Specifications EAs that the baseline impact of the bluefish fishery on EFH is minimal and temporary in nature. Additionally, the specified recreational and commercial catch quotas have not required any habitat impact mitigation. Since the proposed action is an extension of past actions to establish quotas for the fishery, it is not expected this action will pose any increased risk to bottom habitats.

8.4 Evaluation of Measures to Avoid, Minimize, or Mitigate Adverse Impacts of the Proposed Action

As stated above, the proposed action is not associated with measures that require mitigation.

9.0 OTHER APPLICABLE LAWS

9.1 NEPA

National Oceanic and Atmospheric Administration Administrative Order 216-6 (May 20, 18.28.28.2) 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. The preferred quota specifications for each species are consistent with the FMP objectives. The preferred bluefish TAL of 29.356 million lb for 2009 is expected to likely achieve the rebuilding fishing mortality rate in 2009. The proposed action will aid in the long-term sustainability of harvests from the bluefish stock.

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

None of the 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. In addition, none of the specifications are expected to increase fishing effort.

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

The proposed action as described in section 7.0 of the EA is not expected to cause damage to the ocean, coastal habitats, and/or EFH as defined under the Magnuson-Stevens Act and identified in the FMP. In general, bottom-tending mobile gear, primarily otter trawls, 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 and prosecuted using hook and line and handlines. Overall, the measures proposed in this action are not expected to have adverse impacts to any EFH associated with the fishing activities managed under the FMP.

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

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

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

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. This action merely revises the proposed annual commercial quota, recreational harvest limit, and research set-aside for the 2009 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 substantial economic impact or result in significant impacts on the natural or physical environment. None of the specifications are expected to alter fishing methods or activities or are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, there are no social or economic impacts interrelated with significant natural or physical environmental effects.

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

The impacts of the proposed measures on the human environment are described in section 7.0 of the EA. The proposed action merely revises the proposed annual commercial quota, recreational harvest limit, and research set-aside for the 2009 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 research set-aside for the 2009 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 research set-aside for the 2009 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, 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 research set-aside for the 2009 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 research set-aside for the 2009 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 alter fishing methods or activities. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed specifications would be expected to result in the introduction or spread of a non-indigenous species.

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

This proposed action merely revises the proposed annual commercial quota, recreational harvest limit, and research set-aside for the 2009 bluefish fishery. None of the proposed specifications are expected to increase fishing effort or 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 research set-aside for the 2009 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 (see sections 9.2 to 9.11 below).

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

The impacts of the preferred alternatives on the biological, physical, and human environment are described in section 7.0. The cumulative effects of the proposed action on target and non-target species are detailed in section 7.5 of the EA. None of the proposed specifications are expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The synergistic interaction of improvements in the efficiency of the fishery through implementation of annual quotas based on the overfishing definitions contained in the FMP are expected to generate positive impacts overall, but the implementation of the proposed 2009 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 2008 Bluefish Specifications, it is hereby determined that the 2008 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.

Assistant Administrator for Fisheries, NOAA

Date

9.2 Endangered Species Act

Sections 6.3, 7.1.3, 7.4.2.3, and 7.5.4 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 2009 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, 7.1.3, 7.4.2.3, and 7.5.4 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 North Carolina).

9.5 Administrative Procedure Act

Section 553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process and to give the public adequate notice and opportunity for comment. At this time, the Council is not requesting any abridgement of the rulemaking process for this action.

The Administrative Procedure Act requires solicitation and review of public comments on actions taken in the development of a fishery management plan and subsequent amendments and framework adjustments. Development of this specifications document provided many opportunities for public review, input, and access to the rulemaking process. This proposed specifications document was developed as a result of a multi-stage process that involved review of the source document (2009 Specifications package) by affected members of the public. The public had the opportunity to review and comment on management measures during the Bluefish Monitoring Committee Meeting held on August 1, 2008, and during the MAFMC meeting held on August 13, 2008, in Philadelphia, PA. In addition, the public will have further opportunity to comment on this specifications package once NMFS publishes a request for comments notice in the Federal Register (FR).

9.6 Section 515 (Data Quality Act)

Utility of Information Product

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 2009 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 Magnuson-Stevens Act 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 (2009 Specifications package) by affected members of the public. The public had the opportunity to review and comment on management measures during the Bluefish Monitoring Committee Meeting held on August 1, 2008, and during the MAFMC meeting held on August 13, 2008, in Philadelphia, PA. In addition, the public will have further opportunity to comment on this specifications package once NMFS publishes a request for comments notice on the 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 Magnuson-Stevens Act; 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 DQA 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 Magnuson-Stevens Act, the National Environmental Policy Act, the Regulatory Flexibility Act, the Administrative Procedure Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Data Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas).

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 2007 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 Paperwork Reduction Act.

9.8 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/NER/NEFSC) assisted in describing the economic environment of the recreational fishery.

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.

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 2009 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 Magnuson-Stevens Act 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; available via the internet at <http://www.nero.noaa.gov/ro/doc/nr02.htm>). Additionally, the “top bluefish ports” that landed bluefish in 2007 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 2007 (Maine through Florida's east coast) was estimated at approximately \$2.6 million for bluefish.

The preliminary adjusted commercial bluefish quota for 2009 is lower (i.e., 35%) than the adjusted bluefish commercial quota for 2008 and approximately 33% below the commercial landings for 2007. This commercial quota would allow fishermen lower fishing opportunities for bluefish in 2009 compared to the 2008 adjusted quota and 2007 landings. The NMFS Quota Report as of the week ending September 13, 2008 indicates that overall bluefish commercial landings are within the overall commercial quota for 2008 (51% of the quota landed). Therefore, the 2009 overall quota was not adjusted for overages. Given the potential decrease in commercial bluefish landings under the preferred alternative (Alternative 1) in 2009 compared to 2007, it is expected that overall ex-vessel revenues from bluefish will decrease in 2009 when compared to 2007 as a consequence of the adjusted commercial quota. For example if we assumed that commercial bluefish landings in 2008 are the same as 2007 (7.414 million lb), the commercial quota under preferred Alternative 1 (4.974 million lb) would represent a potential decrease in landings of 2.440 million lb in 2009 compared to 2008. Assuming the average coastwide ex-vessel price of \$0.36/lb in 2007, the 2009 commercial quota under preferred Alternative 1 could potentially represent a decrease in ex-vessel revenue of \$878,400. However, it is possible that given the potential decrease in bluefish landings under preferred Alternative 1, price for this species may increase if all other factors are held constant. If this occurs, an increase in the price for bluefish may mitigate some of the revenue decreases associated with lower quantities of bluefish quota availability under alternative. In addition, increase in effort in the directed bluefish fishery is not expected.

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 2007 were 9.7, 22.7, and 25.7 million, respectively. Of the total number of fishing trips for all modes combined in the North Atlantic, Mid-Atlantic, and South-Atlantic regions, approximately 0.48 million (5.0%), 1.40 million (6.2%), and 0.62 million trips (2.4%) 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 through Virginia (i.e., total effort targeting bluefish by party/charter mode) in 2007 was approximately 175 thousand (Table 7).

Under Alternative 1, the bluefish 2009 adjusted recreational harvest limit would be 24.285 million lb. This limit would be approximately 15% above the recreational landings for 2007 (21.163 million lb) and 19% above the limit implemented for 2008 (20.414 million lb). The possession limit would remain at 15 fish. Bluefish recreational landings for the 2000 to 2005 period have been substantially lower than the RHLs established for those years; ranging from 10% in 2005 to 59% in 2000. For the 2000-2005 period, recreational landings have ranged from 10.606 million lb (2000) to 18.132 million lb (2005), averaging 13.718 million lb or about 41%

below the average recreational harvest limit implemented for those years combined. However, in 2006 and 2007, recreational landings were 16.752 and 21.163 million lb, respectively, or about 2% higher than the RHL implemented each of those years. Given recent trends in recreational landings it is expected that the recreational sector will land close to the adjusted recreational harvest limit for 2009. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is near identical (less than 2% lower) than the projected recreational landings for 2009.

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 adjusted recreational harvest limit for 2009 and recreational landings in recent years, it is not anticipated that this management measure will affect the demand for party/charter boat trips. Overall, the final recreational management measures will not 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 recovery 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 determined 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 29.356 million lb. This alternative includes a preliminary adjusted commercial quota of 4.974 million lb (the least restrictive commercial quota), a preliminary adjusted recreational harvest limit of 24.285 million lb, and a RSA of 97,750 lb for 2009.

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 2007. This comparison will allow for the evaluation of the potential fishing opportunities

associated with each alternative in 2009 versus landing that took place in 2007. Aggregate changes in fishing opportunities in 2009 (preliminary adjusted commercial quota) versus 2007 landings are shown in Table 32. The information presented in Table 32 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 adjusted commercial quota for 2009 would allow for an overall 33% decrease in landings in 2009 compared to actual landings in 2007 (7.414 million lb).

Prices

Given that this alternative will result in lower 2009 landings compared to the overall 2007 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 inelastic²: 1) the number and closeness of substitutes for the commodity under consideration, 2) the number of uses to which the commodity can be put, and 3) the price of the commodity relative to the consumers' purchasing power (income). There are other factors that may also determine the elasticity of demand but are not mentioned 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 1, the bluefish 2009 adjusted recreational harvest limit would be 24.285 million lb. This limit would be approximately 15% above the recreational landings for 2007 (21.163 million lb) and 19% above the limit implemented for 2008 (20.414 million lb). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is near identical (less than 2% lower) than the projected recreational landings for 2009. There is very little information available to empirically estimate how sensitive the affected party/charter boat

²Price 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.

anglers might be to the fishing regulations. However, given the level of the adjusted recreational harvest limit for 2009 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 2009.

Alternative 2

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 32.205 million lb. This TAL includes a preliminary adjusted commercial quota of 7.463 million lb, a preliminary adjusted recreational harvest limit of 24.644 million lb, and an RSA of 97,750 lb for 2009.

Commercial Fishery

Landings

Under this alternative aggregate landings for bluefish in 2009 are expected to be <1% higher when compared to 2007 landings (7.414 million lb). However, in reality the 2007 bluefish commercial landings (7.414 million lb) were below (i.e., 14%) the commercial quota implemented that year (8.575 million lb). In addition, it is expected that 2008 commercial landings will be below the commercial quota for that year. There is no indication that the market environment for commercially caught bluefish will substantially change in 2009 compared to 2007. As such, it is expected that bluefish commercial landings in 2009 will be similar to those that occurred in 2007.

Prices

Given that this alternative is expected to result in the same overall landings level as in 2007 and that there is no indication that the market environment for commercially caught bluefish will change considerably in year 2009, it would be anticipated that there will be no change in the price for this species holding all other factors constant.

Consumer Surplus

Given that no change in the price for this species under this scenario is anticipated, it is expected that consumer surplus associated with this fishery will not change.

Harvest Costs

No changes in harvest costs are identified under this alternative.

Producer Surplus

Given that no change in the price for this species under this scenario is anticipated, it is expected that producer surplus associated with this fishery will not change.

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 2009 recreational adjusted harvest limit would be 24.644 million lb. This limit would be approximately 16% higher than the recreational landings for 2007 (21.163 million lb) and 21% larger than the limit implemented for 2008 (20.414 million lb). Given recent trends in recreational landings it is expected that the recreational sector will land less than the adjusted recreational harvest limit for 2009 (section 2.5 of the RIR/RFA). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is near identical (less than 1% lower) than the projected recreational landings for 2009. 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 adjusted recreational harvest limit for 2009 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 2009.

Alternative 3 (Status Quo/No Action Alternative)

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 28.156 million lb. This TAL includes a preliminary adjusted commercial quota of 7.678 million lb, a preliminary adjusted recreational harvest limit of 20.380 million lb, and an RSA of 97,750 lb for 2009.

Landings

Under this alternative aggregate landings for bluefish in 2009 are expected to be approximately 4% higher when compared to 2007 landings (7.414 million lb). However, in reality the 2007 bluefish commercial landings (7.414 million lb) were below (i.e., 14%) the commercial quota implemented that year (8.575 million lb). In addition, it is expected that 2008 commercial landings will be below the commercial quota for that year. There is no indication that the market environment for commercially caught bluefish will substantially change in 2009 compared to 2007. As such, it is expected that bluefish commercial landings in 2009 will be similar to those that occurred in 2007.

Given that this alternative is expected to result in the same overall landings level as in 2007 and that there is no indication that the market environment for commercially caught bluefish will change considerably in year 2009, it would be anticipated that there will be no change in the price for this species holding all other factors constant. Impacts on CS, harvest costs, PS, enforcement costs, and distributive effects associated with Alternative 3 are expected to be identical as those discussed under Alternative 2 above.

Recreational Fishery

Under Alternative 3, the bluefish 2009 adjusted recreational harvest limit would be 20.380 million lb. This limit would be approximately 4% below the recreational landings for 2007 (21.163 million lb) and near identical (less than 1% below) the limit implemented for 2008 (20.414 million lb). A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is approximately 18% lower than the projected recreational landings for 2009. It is likely that proposed recreational harvest limit under this alternative may cause some decrease in recreational satisfaction (i.e., 2009 harvest limit lower than projected 2009 recreational landings).

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 negatively impacted. Some anglers may choose to reduce their effort in 2009 as a consequence of the recreational harvest limits are likely to transfer this effort to alternative species (i.e., 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.

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 2009 compared to overall landings in 2007.

Preferred Alternative 1 show a potential increase in price, a decrease in consumer surplus, and a potential increase in producer surplus. Non-preferred Alternative 2 and non-preferred Alternative 3 (status-quo alternative), are expected to have no impacts on prices, consumer surplus, or producer surplus in the commercial sector.

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 were estimated. More specifically, changes in landings for bluefish in 2009 compared to the 2007 base year were derived to assess the potential changes in fishing opportunities between these two time periods. Potential changes in landings (i.e., fishing opportunities) for bluefish were then multiplied by the overall 2007 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 2007 was estimated at \$0.36/lb. The aggregate change in landings in 2009 compared to the base year landings (2007) is expected to be nil under Alternatives 2 and 3. Therefore, no overall changes in revenues are expected under these two alternatives. However, due to the potential decrease in landings associated with Alternative 1 quota (preferred alternative) in 2009 compared to landings in 2007, an overall decrease in revenue of approximately \$878, 400 is expected under that alternative. While Alternative 1 is likely to result in bluefish revenue reductions in 2009 compared to 2007 landings, the Council decided to select Alternative 1 as the preferred alternative because it is associated with a more risk-averse F target for 2009 when compared to Alternative 2 and 3 (see sections 1.0, 4.3, and 5.0 of the EA for additional discussion).

The changes in gross revenues estimated above assumed static prices (i.e., 2007) for bluefish. However, if prices for this species decrease or increase as a consequence of changes in landings,

then the associated revenue decreases could be different than those estimated above. For example, it is possible that due to the large decrease in landings in 2009 under preferred Alternative 1 when compared to 2007 landings, price for this species may increase holding all other factors constant. If this were to occur, the projected loss in ex-vessel revenue under Alternative 1 presented above would likely be lower.

The changes in gross revenues indicate that Alternatives 2 and 3 will provide the largest commercial net benefits. However, Alternative 1 provides the best allocation to the commercial and recreational sectors given the current status of the fishery and recent recreational fishing trends; however, Alternative 1 would result in lower ex-vessel revenues in 2009 (compared to the based year) when compared to Alternatives 2 and 3. Alternative 1 would result in substantially lower commercial landings in 2009 when compared to Alternatives 2 and 3. 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.

Given the level of the recreational harvest limit for 2009, recreational landings in recent years, and projected recreational landings for 2009, it is not expected that the recreational harvest limits under Alternatives 1 and 2 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 2009 is not expected to affect the number of bluefish recreational trips. In addition, the recreational possession limit remains unchanged for 2009. It is possible that proposed recreational harvest limit under Alternative 3 may cause some decrease in recreational satisfaction (i.e., 2009 harvest limit lower than projected 2009 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 2009 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 2007 overall commercial and recreational landings were below the commercial TALs and recreational harvest limits implemented those years; except for the last two years (2006 and 2007) where recreational landings exceeded the recreational harvest limit by 2% and 12%, respectively. In all, the combined commercial and recreational landings for 2007 (28.577 million lb) were above the TAL for that year (27.762 million lb). While the overall commercial quota was not taken in 2000-2007, 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 September 13, 2008 indicates that overall bluefish commercial landings are within the overall commercial quota for 2008 (51% of quota landed). The most recent 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 ($B_{2004} \cong 104,136$ mt which is greater than the minimum biomass threshold or $\frac{1}{2} B_{MSY} = 73,526$ mt) and overfishing was not occurring ($F_{2004} \cong 0.15$ which is less than the maximum fishing mortality threshold or $F_{MSY} = 0.19$). The most recent stock assessment update (June 2008) resulted in an estimate of bluefish biomass for 2007 that is above B_{msy} ($B_{msy} = 147,051$ mt; $B_{2007} \approx 153,843$ mt). The Council informed by its SSC and Monitoring Committee interpreted the assessment update with caution. As such, an "official" declaration of stock recovery will be delayed unless/until a corroborating model solution is achieved in next year's assessment update (see section 6.1.2 of the EA for additional discussion).

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 Magnuson-Stevens Act and regulations at 50 CFR part 648.

3.1.3 Estimate of the Number of Small Entities

The potential number of small entities that may be affected by the proposed rule is presented below.

3.1.4 Reporting Requirements

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; available via the internet at <http://www.nero.noaa.gov/ro/doc/nr02.htm>). Additionally, the “top bluefish ports” that landed bluefish in 2007 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 2009 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 2007. This data covers activity by unique vessels. Of the active vessels reported in 2007, 709 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 75 vessels landed bluefish in North Carolina in 2007. However, the North Carolina landings data for bluefish may be incomplete in this data system. South Atlantic Trip Ticket Report data indicate that 856 vessels landed bluefish in North Carolina in 2007 (Stephanie McInerny, NC Division of Marine Fisheries, pers. comm., 2008). Some of these vessels may be included among the 75 vessels identified as landing bluefish in the dealer data. As such, double counting is possible. In addition, up to 586 vessels may have landed bluefish in Florida’s east coast in 2007 (Steve Brown, Fla Fish and Wildlife Conservation Commission, pers. comm., 2008). Bluefish landings in Georgia and South Carolina were almost nil in 2007, 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 2007. 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 as 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 2007 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 2007. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since 2007 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 2008 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 2009 adjusted quota compared to the 2007 landings). The NMFS Quota Report as of the week ending September 13, 2008 indicates that overall bluefish commercial landings are within the overall commercial quota for 2008. Therefore, the 2009 overall quota was not adjusted for overages.

The fourth step was to compare the estimated 2009 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 affect on profits, costs, or net revenue is expected to occur for a substantial number of small entities compared to large entities, that is, if a regulation places a substantial number of small entities at a significant competitive disadvantage. According to the SBA definition of small business presented above, all permitted vessels in these fisheries readily fall within the definition of small business. Therefore, there are no disproportionality issues.

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles are typically constructed. Each profile is based on impacts under the most restrictive possible alternative. The most restrictive alternative is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. The following criteria was employed to derive the range of counties profiled: the number of vessels with revenue losses exceeding 5% per county was either greater than 4, or all vessels with losses exceeding 5% 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 eight counties were identified: Dare, NC; Ocean, NJ; Nassau, New York, and Suffolk, NY; New Heaven, CT; Washington, RI; and Philadelphia, PA (section 6.1 of the RIR/IRFA). Counties not included in this analysis (e.g., Cumberland, ME; Essex, Barnstable, and Boston, MA; Cape May and Monmouth, NJ; Kings, 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, most of these 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 2007 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 32 shows the percentage change of the 2009 allowable commercial landings (adjusted for RSA) relative to the 2007 landings. Note that the overall changes in commercial fishing opportunity in 2009 compared to 2007 landings are 1 and 4% increase for Alternatives 2 and 3 (status quo), respectively, and a 33% decrease under Alternative 1 (preferred alternative). While most states show a similar directional changes in fishing opportunities as the overall change in fishing opportunity in 2009 compared to 2007 landings under quota Alternatives 2 and 3, the states of Massachusetts, Rhode Island, New York, and New Jersey show a reduction in fishing opportunity under Alternatives 2 and 3. Under preferred Alternative 1, seven states (Massachusetts, Rhode Island, New York, New Jersey, Virginia, and Georgia) show a reduction in bluefish landings ranging from 10% in Virginia to 65% in New York. While the overall coastwide reduction in fishing opportunity in 2009 compared to 2007 landings under preferred Alternative 1 is 33% lower, some states will incur in a larger percentage reduction in bluefish landings in 2009 (>33%; Massachusetts, Rhode Island, New York, and New Jersey) due to the fact those states landed a substantially higher amount of bluefish in 2007 compared to their originally allocated (without transfers) commercial quotas that year. The same occurrence is evident for five states (Massachusetts, Rhode Island, New York, and New Jersey) under Alternatives 2 and 3. That is, while the coastwide fishing opportunity in 2009 when compared to 2007 landings is 1 and 4% higher under Alternatives 2 and 3, respectively, the states of Massachusetts, Rhode Island, New York, and New Jersey show a reduction in bluefish landings because these states landed a substantially higher amount of bluefish in 2007 compared to their commercial quotas that year.

Quota Alternatives 1, 2, and 3 are based on a TAL of 29.356, 32.205, and 28.156 million lb, respectively. Alternative 1 (preferred) specifies a total allowable catch (TAC) of 34.081 million lb which is projected to achieve the rebuilding target F in 2009. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb. Because this estimate is not below 83% of the TAL, no transfer of quota to the commercial fishery can occur. Therefore, under Alternative 1, the 2009 commercial quota is 4.991 million lb, and the recreational harvest limit is 24.366 million lb. Adjusting these initial values for the amount currently requested for a research set-aside project (97,750 lb) lowers (adjusted values) the commercial quota to 4.974 million lb and the recreational harvest limit to 24.285 million lb (sections 1.0, 4.3, and 5.0 of the EA). In acknowledgement of the decrease in commercial fishing opportunity under Alternative 1 despite the improvement in stock status, the Council recommended that updated projections of recreational landings be made before final rule-making. If these projections allow for any transfer of quota to the commercial fishery, then the Council strongly recommends that the full allowable transfer be allowed to occur (section 1.0 of the EA).

Alternative 2 presumes that, in keeping with the stock assessment update, the bluefish stock is in fact rebuilt. In keeping with the FMP, a rebuilt bluefish stock can be fished at 90% of F_{msy} ($F =$

0.17) as opposed to F_{rebuild} (0.15) during the rebuilding phase. A target F of 0.17 for 2009 corresponds to a TAC of 36.929 million lb and a TAL of 32.205 million lb. Under this scenario, a transfer of quota to the commercial fishery would be allowable since the projected recreational landings (24.719 million lb) are less than 83% of the TAL (projected recreational landings are 77% of the TAL). Under non-preferred Alternative 2, the adjusted commercial quota and recreational harvest limit for 2009 are 7.463 and 24.644 million lb, respectively (sections 1.0, 4.3, and 5.0 of the EA).

Alternative 3 (no-action) is considered to be synonymous with "status quo" management measures for 2009 since the alternative interpretation (failure to specify management measures) would be in gross violation of the Magnuson-Stevens Act. Therefore, Alternative 3 would maintain the 2008 TAL (28.156 million lb) and its respective allocations in 2009: A commercial quota of 7.678 M lb and an RHL of 20.380 M lb. In reviewing this alternative, the Council determined that it is untenable under the allocation process described in the FMP. This is because projected recreation landings are in excess of 83% of the TAL (projected rec. landings for 2009 are 88% of the Alternative 3 TAL), and, as such, the transfer necessary to achieve the commercial quota could not occur. The magnitude of the quota transfer under this alternative would maintain status quo fishing opportunity for the commercial bluefish fishery and is therefore associated with a lower probability of revenue losses compared to Alternative 1. Nevertheless, the Council rejected this alternative in keeping with the SSC's recommendation for a more risk-averse F target for 2009 (sections 1.0, 4.3, and 5.0 of the EA). Under non-preferred Alternative 3, the adjusted commercial quota and recreational harvest limit for 2009 are 7.678 and 20.380 million lb, respectively (sections 1.0, 4.3, and 5.0 of the EA).

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.

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 2007 were identified. Total revenues from all species landed by each vessel during calendar year 2007 were estimated using the dealer data. Since the dealer data only provides information from Maine through North Carolina, vessel trip report data was used to generate average revenues from all species landed by federally permitted vessels during calendar year 2007. These estimates provided the base from which to compare the effects of the 2009 adjusted quota compared to the 2007 landings and associated potential changes in revenues.

The proposed overall bluefish quota for 2009 would allow fishermen to land approximately 2.440 million lb less of bluefish compared to 2007. While the overall coastwide commercial quota for 2009 is lower than the bluefish landings for 2007, some states are projected to have a larger 2009 bluefish quota when compared to 2007 landings because these states landed a substantially lower amount of bluefish in 2007 compared to their originally allocated commercial

quotas that year. Unless market conditions change substantially in year 2009 in those states that are projected to have a larger 2009 bluefish quota when compared to 2007 landings, commercial bluefish fishermen in those states would likely have bluefish landings close to the 2007 landings. There is no indication that the market environment for commercially caught bluefish in those states will change considerably in year 2009. As such, for states that show a 2009 quota allocation greater than their 2007 landings, it is assumed that 2009 landings would be equal to the 2007 landings. However, for states that show a 2009 quota allocation smaller than their 2007 landings, the 2009 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% 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% 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 0.19% and 0.24% 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 2007. For states where bluefish were commercially landed, the contribution of bluefish to the total value of all finfish and shellfish varied by state in 2007 (Table 3). Bluefish ranged from less than 0.01% of total commercial value in Maine, South Carolina, and Georgia to 1.01% in New York. There were no bluefish landings in Pennsylvania in 2007. 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 change considerably from the previous complete fishing year (i.e., 2006), and it is not expected to change considerably in 2008.

5.1 Quota Alternative 1 (preferred 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 33% lower than the 2007 commercial landings. The recreational allocation under this alternative is approximately 15% higher than the recreational landings for 2007.

Even though the overall commercial allocation for 2009 is lower than the 2007 landings, when this allocation is distributed to the states, all states except Maine, New Hampshire, Connecticut, Delaware, Maryland, South Carolina, and Florida show a 2009 quota level which is lower than their 2007 landings (Tables 19 and 32). This is due to the fact those states landed a substantially lower amount of bluefish in 2007 compared to their originally allocated commercial quotas that year. For states that show a 2009 quota level that is lower than their 2007 landings (Massachusetts, Rhode Island, New York, New Jersey, Virginia, and North Carolina; Tables 19

and 32), their 2009 landings will be constrained by the 2009 quota when compared to landings in 2007.

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 life. 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 2009 quotas be increased by the amounts transferred. However, given that under this alternative the overall commercial quota in 2009 is substantially lower than the 2008 quota and the 2007 landings, the amount of bluefish that could potentially be transferred among states would be lower than under Alternatives 2 and 3, thus potentially allowing for less economic relief. In fact, if the states that show larger fishing opportunity in 2009 when compared to 2007 landings under Alternative 1 (Maine, New Hampshire, Connecticut, Delaware, Maryland, South Carolina, and Florida) were to land in 2009 the same amount of bluefish that they landed in 2007 and their entire surplus 2009 allocation were to be transferred to other states showing a 2009 quota decrease, only about 0.5 million lb could potentially be transferred. Even under this unlikely scenario, the prospective decrease in negative impacts to affected vessels in states showing a large quota decrease in 2009 when compared to 2007 landings would likely be minimal.

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 36 vessels to revenue losses of more than 5% for 71 vessels. More specifically, 27 vessels were projected to incur revenue losses of 5-9%, 11 vessels of 10-19%, 14 vessels of 20-29%, 3 vessels of 30-39%, 14 vessels of 40-49%, and 2 vessels of 50% or more. In addition, 602 vessels were projected to incur revenue losses of less than 5%.

Given that a large number of vessels are projected to incur large revenue reduction, Council staff further examined the level of ex-vessel revenues for the impacted vessel to assess further impacts. For example, according to dealer data, it was estimated that 11 percent of the vessels (3 out of 27 vessels) projected to incur revenue reductions of 5-9 percent had total gross sales (all

possible species combined not just bluefish in 2007) of \$1,000 or less and 30 percent (8 vessels) had total gross sales of \$10,000 or less. Furthermore, 27 percent of the vessels (3 out of 11 vessels) projected to incur revenue losses of 10-19 percent had total gross sales of approximately \$1,000 or less and 45 percent (5 vessels) had total gross sales of \$10,000 or less; 29 percent of the vessels (4 out of 14 vessels) projected to incur revenue losses of 20-29 percent had total gross sales of approximately \$1,000 or less and 64 percent (9 vessels) had total gross sales of \$10,000 or less; 33 percent of the vessels (1 out of 3 vessels) projected to incur revenue losses of 30-39 percent had total gross sales of approximately \$1,000 or less and 100 percent (3 vessels) had total gross sales of \$10,000 or less; 57 percent of the vessels (8 out of 14 vessels) projected to incur revenue losses of 40-49 percent had total gross sales of approximately \$1,000 or less and 100 percent (14 vessels) were projected have total gross sales of \$10,000 or less; and 100 percent of the vessels (2 out of 2 vessels) projected to incur revenue losses of 50 percent or more had total gross sales of approximately \$1,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (71) are likely to be impacted with revenue reductions of more than 5 percent or more, 30 percent of these vessels (21 vessels) had gross sales of \$1,000 or less and 58 percent of the impacted vessels (41 vessels) had gross sales of \$10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels is very small.

Impacts of the 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% by home state ranged from 1 in Maryland to 185 in Massachusetts. The number of vessels with revenue reduction of 5% or more ranged from 1 in each Maine, Pennsylvania, and Rhode Island to 19 in New York. Four states (Delaware, Maryland, New Hampshire, and Virginia) had no vessels impacted with revenue reduction \geq 5%. The larger number of impacted vessels with revenue reduction of 5% or more in New York, New Jersey, Massachusetts, and North Carolina 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.

The threshold analysis presented in Table 21 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 2009 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 856 vessels (270 vessels \leq 18 ft; 481 vessels between 19-38 ft; and 105 vessels \geq 39 ft) landed bluefish in North Carolina in 2007. On average, these vessels generated 10.4% of their total ex-vessel revenue from bluefish landings. By vessel size, the contribution of bluefish to total revenue for these vessels was 5.9% for vessel \leq 18 ft; 12.4% for vessels 19-38 ft; and 9.8% for vessels \geq 39 ft. Under this alternative, landings are projected to decrease as a consequence of the 2009 allocation when compared to 2007 landings by approximately 32% in North Carolina (Tables 19 and 32).

On average, reduction in revenues due to the potential decrease in landings associated with the 2009 quota compared to the 2007 landings are expected to be approximately 3.1% for fishermen that land bluefish in that state. By vessel size, the potential revenue decrease of bluefish to total revenue for these vessels is approximately 1.8% for vessel ≤ 18 ft; 3.6% for vessels 19-38 ft; and 2.9% for vessels ≥ 39 ft. No revenue reduction is expected for vessels that land bluefish in Florida as a consequence of the proposed 2009 quota compared to 2007 landings in that state (Tables 19 and 32).

The changes described above are based on the potential changes in landings associated with the 2009 quotas versus 2007 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 2009, then the number of affected entities described in this threshold analysis could potentially decrease, thus decreasing economic burden. However, since the overall quota in 2009 is substantially lower than the 2008 quota and the 2007 landings, the amount of bluefish that could potentially be transferred among states would be lower than under Alternatives 2 and 3, thus potentially allowing for less economic relief.

5.1.2 Recreational Impacts

Under Alternative 1, the adjusted bluefish 2009 recreational harvest limit would be 24.285 million lb. This limit would be approximately 15% above the recreational landings for 2007 (21.163 million lb) and 19% above the limit implemented for 2008 (20.414 million lb). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is near identical (less than 2% lower) than the projected recreational landings for 2009. 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 2009 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 2009.

Effects of research set-aside quota

The Council approved an RSA amount of 97,750 lb for 2009 (Alternative 5.4 below). A research project as part of the RSA program was submitted to NMFS that would require an exemption from some of the current bluefish regulations.

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 2009. That is, the RSA for bluefish was deducted from the initial overall TAL for 2009 to derive adjusted 2009 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.

5.1.3 Summary of Impacts

In sum, Alternative 1 would result in a commercial and recreational allocation that is approximately 33% and 15%, respectively, lower than the commercial and recreational landings for 2007.

Under this alternative, according to dealer data, a total of 71 of the 709 commercial vessels reporting landings in 2007 were projected to incur revenue losses in the 5% or more. Furthermore, 602 vessels were projected to incur in revenue losses of less than 5%. While the conducted analysis indicates that in relative terms a large number of vessels (71) are likely to be impacted with revenue reductions of 5 percent or more, 30 percent of these vessels (21 vessels) had gross sales of \$1,000 or less and 58 percent of the impacted vessels (41 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. In addition, given recent South Atlantic Trip Ticket Report data, 856 vessels in North Carolina could potentially lose, on average, approximately 3.1% of their total ex-vessel revenue. No revenue reduction is expected for vessels that land bluefish in Florida as a consequence of the proposed 2009 quota compared to 2007 landings in that state.

This alternative is not expected to affect angler satisfaction nor expected to have any negative effects on recreational fishermen or affect the demand for party/charter boat trips.

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.

This alternative was chosen by the Council because it is associated with a more risk-averse F target for 2009 when compared to Alternative 2 and 3 (see sections 1.0, 4.3 and 5.0 of the EA for additional discussion). However, the potential economic losses associated with this alternative are higher than those under Alternatives 2 and 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 1% above the 2007 commercial landings. The recreational allocation under this alternative is approximately 16% above the recreational landings for 2007.

Even though the overall commercial allocation for 2009 is slightly higher than the 2007 landings, when this allocation is distributed to the states, all states except Massachusetts, Rhode Island, New York, and New Jersey show a 2009 quota level which is higher than their 2007 landings (Tables 19 and 38).

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 2009 quotas be increased by the amounts transferred.

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 49 vessels were projected to incur revenue losses of more than 5%. More specifically, 16 vessels were projected to incur in revenue losses of 5-9%, 20 vessels of 10-19%, 10 vessels of 20-29%, 1 vessel of 30-39%, and 2 vessels of 40-49%. In addition, 513 vessels were projected to incur in revenue losses of less than 5% and 147 vessels were projected to have no change in revenue relative to 2007.

Given that a large number of vessels are projected to incur large revenue reduction, Council staff further examined the level of ex-vessel revenues for the impacted vessel to assess further impacts. For example, according to dealer data, it was estimated that 13 percent of the vessels (2 out of 16 vessels) projected to incur revenue reductions of 5-9 percent had total gross sales (all possible species combined not just bluefish in 2007) of \$1,000 or less and 38 percent (6 vessels) had total gross sales of \$10,000 or less. Furthermore, 40 percent of the vessels (8 out of 20 vessels) projected to incur revenue losses of 10-19 percent had total gross sales of approximately \$1,000 or less and 85 percent (17 vessels) had total gross sales of \$10,000 or less; 30 percent of the vessels (3 out of 10 vessels) projected to incur revenue losses of 20-29 percent had total gross sales of approximately \$1,000 or less and 100 percent (10 vessels) had total gross sales of \$10,000 or less; 100 percent of the vessels (1 out of 1 vessel) projected to incur revenue losses of 30-39 percent had total gross sales of approximately \$10,000 or less; and 100 percent of the vessels (2 out of 2 vessels) projected to incur revenue losses of 40-49 percent had total gross sales of approximately \$1,000 or less.

While the analysis presented above indicates that in relative terms a large number of vessels (49) are likely to be impacted with revenue reductions of more than 5 percent or more, 33 percent of these vessels (16 vessels) had gross sales of \$1,000 or less and 73 percent of the impacted vessels (36 vessels) had gross sales of \$10,000 or less, thus likely indicating that the dependence on fishing for some of these vessels is very small.

Impacts of the 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 in both Connecticut and Pennsylvania to 187 in Massachusetts. The number of vessels with revenue reduction of 5% or more ranged from 1 in each Maine, Rhode Island, and Pennsylvania to 17 in New York. Five states (Delaware, Maryland, North Carolina, New Hampshire, and Virginia) had no vessels impacted with revenue reduction $\geq 5\%$. The larger number of impacted vessels with revenue reduction of 5% or more in New York and New Jersey 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.

The threshold analysis presented in Table 26 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 2009 quota measure on commercial vessels participating in the bluefish fishery in North Carolina and Florida, South Atlantic Trip Ticket Report data was reviewed. No revenue reduction is expected for vessels that land bluefish in North Carolina or Florida as a consequence of the proposed 2009 quota compared to 2007 landings in those states (Tables 19 and 32).

The changes described above are based on the potential changes in landings associated with the 2009 quotas versus 2007 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 2009, then the number of affected entities described in this threshold analysis could potentially decrease, thus decreasing economic burden.

5.2.2 Recreational Impacts

Under Alternative 2, the bluefish 2009 recreational harvest limit would be 24.644 million lb. This limit would be approximately 16% higher than the recreational landings for 2007 (21.163 million lb) and 21% larger than the recreational harvest limit for 2008 (20.414 million lb). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is near identical (less than 1% lower) than the projected recreational landings for 2009. 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 2009 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 2009.

5.2.3 Summary of Impacts

In sum, Alternative 2 would result in a 1% increase in commercial bluefish landings in 2009 compared to 2007 landings. The 2009 recreational harvest limit is 16% higher than the recreational landings in 2007.

Under this alternative, according to dealer data, a total of 49 of the 709 commercial vessels reporting landings in 2007 were projected to incur revenue losses in the 5% or more. Furthermore, 513 vessels were projected to incur in revenue losses of less than 5%. While the conducted analysis indicates that in relative terms a large number of vessels (49) are likely to be impacted with revenue reductions of 5 percent or more, 33 percent of these vessels (16 vessels) had gross sales of \$1,000 or less and 73 percent of the impacted vessels (36 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, given recent South Atlantic Trip Ticket Report data, no additional revenue reduction is expected for vessels that land bluefish in North Carolina or Florida as a consequence of the proposed 2009 quota compared to 2007 landings in that state.

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 2009 to states that are constrained by the 2009 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 the second smallest among all alternatives evaluated. This alternative was not chosen by the Council because it is not associated with a more risk-averse F target for 2009 when compared to Alternative 1.

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 and recreational fisheries is approximately 4% higher and 4% lower than the commercial and recreational landings for 2007, respectively.

As with Alternative 2, even though the overall commercial allocation for 2009 is higher than the 2007 landings, when this allocation is distributed to the states, all states except Massachusetts, Rhode Island, New York, and New Jersey show a 2009 quota level which is higher than their 2007 landings (Tables 19 and 38).

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 2009 quotas be increased by the amounts transferred.

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. The economic range from expected revenue losses are losses on the order of 5 to 49% for a total of 45 vessels of the 709 commercial vessels reporting landings in 2007. In addition, 517 vessels were projected to incur revenue losses of less than 5%.

Impacts of the quotas provisions 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 impacted vessels with revenue reduction in the 5 to 49% range by home state ranged from 1 in both Maine and Pennsylvania to 16 vessels in New York. Most states had no vessels impacted with revenue reduction $\geq 5\%$. The larger number of impacted vessels with revenue reductions in the 5 to 49% range in New York and New Jersey may be due to a relatively higher dependence on bluefish.

The threshold analysis presented in Table 31 is based on Northeast dealer data and represents potential impacts on vessels participating in the fisheries on the North Atlantic region. In order to further assess the impacts of the commercial 2009 quota measure on commercial vessels participating in the bluefish fishery in North Carolina and Florida, South Atlantic Trip Ticket Report data was reviewed. No revenue reduction is expected for vessels that land bluefish in North Carolina or Florida as a consequence of the proposed 2009 quota compared to 2007 landings in those states (Tables 19 and 32).

The changes described above are based on the potential changes in landings associated with the 2009 quotas versus 2007 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 2009, 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 2009 recreational harvest limit would be 20.380 million lb. This limit would be approximately 4% below the recreational landings for 2007 (21.163 million lb) and near identical (less than 1% below) the limit implemented for 2008 (20.414 million lb). The possession limit would remain at 15 fish. A projection of recreational landings for 2009 using a three year linear additive approach resulted in a landings estimate of 24.719 million lb (section 4.3 of the EA). The proposed adjusted recreational harvest limit under this alternative is approximately 18% lower than the projected recreational landings for 2009. It is likely that proposed recreational harvest limit under this alternative may cause some decrease in recreational satisfaction (i.e., 2009 harvest limit lower than projected 2009 recreational landings).

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 negatively impacted. Some anglers may choose to reduce their effort in 2009 as a consequence of the recreational harvest limits are likely to transfer this effort to alternative species (i.e., 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. This alternative is expected to have a potential decrease in recreational satisfaction when compared to Alternatives 1 and 2.

5.3.3 Summary of Impacts

In sum, under this alternative, the allocation to the commercial and recreational fisheries is approximately 4% higher and 4% lower than the commercial and recreational landings for 2007, respectively.

Under this alternative, according to dealer data, a total of 517 of the 709 commercial vessels reporting landings in 2007 were projected to incur revenue losses of less than 5% and 45 vessels were projected to incur revenue losses in the 5 to 49% range. Furthermore, given recent South Atlantic Trip Ticket Report data, no additional revenue reduction is expected for vessels that land bluefish in North Carolina or Florida as a consequence of the proposed 2009 quota compared to 2007 landings in that state.

The proposed recreational management measures may affect the demand for party/charter boat trips.

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 2009 to states that are constrained by the 2009 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 the smallest among all alternatives evaluated. This alternative was not chosen by the Council because it is not associated with a more risk-averse F target for 2009 when compared to Alternative 1.

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 research set-aside amount may vary between 0 and 3% of a species' quota. For those species that have both a commercial quota and a recreational harvest limit, 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 a 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 2009

The Council and Board recommended to specify a bluefish RSA of 97,750 lb for 2009. If the RSA is not used, the RSA quota would be put back into the overall TAL. **A summary of the**

RSA project requesting bluefish for 2009 is presented in Appendix B. This description includes project name, description and duration, amount of RSA requested, and gear to be used to conduct the project???. This alternative is the status quo alternative.

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. More specifically, a RSA of 97,750 lb was used to derive the adjusted commercial quotas and RHLs in all evaluated alternatives.

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 2007 was estimated at \$0.36/lb. Assuming this ex-vessel price, the 2009 RSA for the commercial component of the fishery could be worth as much as \$6,000 under Alternative 1, \$8,200 under Alternative 2, and \$9,600 under Alternative 3.

As such, on a per vessel basis, the commercial RSAs could result in a potential decrease in bluefish revenues of \$1,102, \$942, and \$1,136, just a few dollars per vessel assuming all active vessels in 2007 (approximately 1,600 vessels). The adjusted commercial quotas analyzed in sections 5.1, 5.2, and 5.3 account for the RSAs (as described in sections 4.3 and 5.0 of the EA). If RSAs are not used, the landings would be included in the overall TAL for each fishery. As such, the estimated economic impacts would be smaller than those estimated under each alternative 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 these alternatives would change (i.e., reduction) by less than < 1% as a consequence of the RSA. It is not anticipated that the RSA will affect angler satisfaction or recreational demand for bluefish.

Given the substantial decrease in the commercial quota in 2009 relative to 2008 for bluefish under Alternative 1 (most restrictive), 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, the extent of RSA activity under these three projects (e.g., fishing trips, no. of tows,

landings) are negligible when compared to the overall activity of the directed fisheries for the managed resources; therefore, overall impacts of research trips and compensation trips are expected to be negligible. 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 2009 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% per county was either greater than 4, or all vessels with revenue loss exceeding 5% in a given state were from the same home county.

Based on these criteria, a total of eight counties were identified: Dare, NC; Ocean, NJ; Nassau, New York, and Suffolk, NY; New Heaven, CT; Washington, RI; and Philadelphia, PA. Counties not included in this analysis (e.g., Cumberland, ME; Essex, Barnstable, and Boston, MA; Cape May and Monmouth, NJ; Kings, 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, most of these counties only had one or two affected vessel.

Table 33 details population, employment personal income and the contribution of commercial fishing and sea food processing to total personal income for selected counties. Counties presented in Table 33 correspond to the counties identified as impacted (≥ 4 vessels with revenue loss exceeding 5% per county) due to the management measures evaluated (i.e., as described in the above paragraph). Data presented in Table 33 were obtained from data bases supplied by the Minnesota IMPLAN Group for the calendar year 2001.

Of the counties identified in Table 33, the percentage of total personal income derived from commercial fishing sales and from seafood processing was less than 1% for all counties. These data indicate that each of the counties in Table 33 is not substantially dependent upon sales of commercial fishing products to sustain the county economies. Population in these counties ranged from 31 thousand in Dare (NC) County to 1.5 million in New York County (NY).

TABLES

Table 1. Bluefish commercial and recreational landings ('000 lb), 1981-2007.

Year	Comm	Rec	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	9,495	15,541	25,036	38	62
1995	8,009	14,307	22,316	36	64
1996	9,301	11,746	21,047	44	56
1997	9,063	14,302	23,365	39	61
1998	8,247	12,334	20,581	40	60
1999	7,307	8,253	15,560	47	53
2000	8,036	10,606	18,642	43	57
2001	8,689	13,230	21,919	40	60
2002	6,864	11,371	18,235	38	62
2003	7,403	13,136	20,539	36	64
2004	8,041	15,828	23,869	34	66
2005	7,026	18,132	25,158	28	72
2006	6,985	16,752	23,737	29	71
2007	7,414	21,163	27,373	23	77
Avg 81-07	10,666	35,157	45,823	29	71
Avg 98-07	7,481	14,081	21,561	36	64
Avg 03-07	7,133	17,002	24,135	30	70

Table 2. Fishing effort of the bluefish fishery relative to other fisheries by gear type from Maine through North Carolina in 2007 (VTR data).

	GILL NET	TRAWL, OTTER, BOTTOM	HOOK AND LINE	OTHER	TOTAL
Total Trips (N)	18,613	31,279	10,542	64,820	125,254
Trips that caught bluefish (N)	4,304	5,358	2,360	1,092	13,114
% of All Trips That Caught Bluefish by Gear (row 2/row 1)	23.1%	17.1%	22.4%	1.7%	10.5%
Distribution of Trips That Caught Bluefish (%)	32.8%	40.9%	18.0%	8.3%	100%
% of Directed Bluefish Trips^a	7.5%	0.7%	8.3%	0.6%	2.3%
Directed Bluefish Trip landings (lbs)	2,442,546	129,700	149,916	208,712	2,930,874

^aA 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".

Table 3. The percentage contribution of bluefish to the commercial landings and value of all species combined from Maine through East Coast of Florida, 2007.

State	Pounds of Bluefish as a Percentage of all Species	Value of Bluefish as a Percentage of all Species
ME	<0.01%	<0.01%
NH	0.14%	0.04%
MA	0.19%	0.07%
RI	0.84%	0.28%
CT	0.22%	0.01%
NY	4.04%	1.01%
NJ	0.91%	0.33%
DE	0.38%	0.11%
MD	0.23%	0.10%
VA	0.15%	0.19%
NC	3.71%	0.85%
SC	<0.01%	<0.01%
GA	<0.01%	<0.01%
FL (East Coast)	0.67%	0.11%
Total	0.24%	0.19%

Source: NOAA Fisheries - Office of Science and Technology, NMFS Dealer Weighout data, and South Atlantic General Canvass data.

Note: There were no bluefish landings reported in PA in 2007.

Table 4. The percentage (%) of bluefish caught and landed by recreational fishermen for each mode, Maine through Florida, 1997-2007.

Mode	Catch (Number A+B1+B2)	Landings (Weight A+B1)
Shore	42.3%	40.9%
Party/Charter	6.4%	12.9%
Private/Rental	51.2%	46.2%
Total	100.0%	100.0%

Source: MRFSS.

Table 5. Number of bluefish recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2009.

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	2,629,194	18,823 ^c	21,163
2008	n/a	20,414 ^c	n/a
2009	-	24,285 ^c	-

^aEstimated number of recreational fishing trips (expanded) where the primary species targeted was bluefish, Maine – Florida's East Coast. Source: Scott Steinback, NMFS/NER/NEFSC.

^bAtlantic coast from Maine through Florida's east coast. Source: MRFSS

^cAdjusted for RSA.

Source: MRFSS.

n/a = Data not available.

Table 6. Total angler trip expenditures ('000 \$) by mode and state in 1998.

State	Party/Charter	Private/Rental	Shore
CT	1,707	28,132	11,032
DE	2,190	18,272	17,609
ME	189	7,656	13,401
MD	15,468	70,297	48,753
MA	10,686	73,391	51,829
NH	1,231	4,394	4,429
NJ	28,785	143,130	33,430
NY	12,055	102,358	24,138
RI	4,191	15,944	16,586
VA	5,190	98,208	38,634
Total	81,692	561,782	259,841

Table 7. Angler effort that targeted bluefish in 2007, Maine through Virginia.

Mode	Total Angler Effort	Angler Effort Targeting Bluefish ^a	Percent Angler Effort Targeting Bluefish
Party/Charter	1,879,275	175,284	9.33%
Private/Rental	17,413,993	798,645	4.59%
Shore	13,123,386	1,375,647	10.48%
Total	32,416,654	2,349,576	7.25%

^aTotal effort targeting bluefish as primary species. Source: Scott Steinback NMFS/NER/NEFSC.

Table 8. Average willingness to pay for a one-day fishing trip, by state.

State	Mean 1994 (\$'s)	Adjusted to 2007 (\$'s) ^a
ME	6.40	9.10
NH	0.85	1.21
MA	8.38	11.91
RI	4.23	6.01
CT	3.07	4.36
NY	21.58	30.68
NJ	14.12	20.07
DE	1.43	2.03
MD	12.09	17.19
VA	42.33	60.18

^aPrices were adjusted using the Bureau of Labor Statistics Consumer Price Index.

Table 9. Aggregate willingness to pay for anglers that indicated they were targeting bluefish in 2007.

State	Total Effort Targeting Bluefish ^a	Willingness to Pay (\$'s)
ME	34,852	317,153
NH	31,058	37,580
MA	339,518	4,043,659
RI	158,240	951,022
CT	240,366	1,047,996
NY	778,866	23,896,222
NJ	568,176	11,403,292
DE	63,764	129,441
MD	110,820	1,899,839
VA	24,196	1,456,115

Source: Scott Steinback NMFS/NER/NEFSC.

Table 10. Willingness to pay for a one fish increase in the catch rate of small game per trip, Maine through Virginia.

State	Mean 1994 (\$'s)	Adjusted to 2007 (\$'s)^a
ME	3.74	5.32
NH	3.25	4.62
MA	3.09	4.39
RI	3.13	4.45
CT	3.29	4.68
NY	2.43	3.45
NJ	2.69	3.82
DE	3.00	4.26
MD	3.44	4.89
VA	2.46	3.50
All States	2.89	4.11

^aPrices were adjusted using the Bureau of Labor Statistics Consumer Price Index.

Table 11. Recreational anglers' ratings (mean) of reasons for marine fishing, by subregion.

Statement	New England			Mid-Atlantic		
	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 12. Recreational anglers' ratings (mean) of fishing regulation methods, by subregion.

Type of Regulation	New England		Mid-Atlantic	
	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 13. Recreational anglers' ratings (mean) of fishing regulation methods, by mode.

Type of Regulation	Party/Charter		Private/Rental		Shore	
	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 14. Statistical areas that accounted for at least 5 percent of the bluefish landings and/or trips in 2007, NMFS VTR data. (A map showing the location of these statistical areas is presented in Figure 1).

Statistical Area	Catch (percent)	Trips (percent)
611	16.4%	32.1%
613	14.9%	16.7%
614	10.9%	2.4%
612	10.5%	9.1%
635	9.3%	1.7%
539	8.3%	11.6%
636	7.4%	0.5%
615	5.6%	1.7%

Table 15. Top ports of bluefish landings (in pounds), based on NMFS 2007 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.

Port	Pounds	# Vessels
WANCHESE, NC	1,731,076	42
LONG BEACH/BARNEGAT LIGHT, NJ	583,819	38
HAMPTON BAY, NY	483,675	41
POINT JUDITH, RI	398,725	83
BELFORD, NJ	473,871	17
GREENPORT, NY	304,297	6
MONTAUK, NY	256,349	64
PT. PLEASANT, NJ	261,969	27
CHATHAM, MA	287,070	39
CHINCOTEAGUE, VA	106,696	27
HATTERAS, NC	115,993	15
AMMAGANSETT, NY	133,073	4
LITTLE COMPTON, RI	124,839	17

Note: Ports with less than 3 vessels not reported for confidentiality issues.

Table 16. MRFSS preliminary estimates of 2007 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	180,828	37,437	109,716
NH	184,962	32,497	50,537
MA	2,608,181	587,303	1,930,964
RI	956,446	326,785	1,186,701
CT	2,273,529	375,064	1,222,424
NY	5,347,015	1,659,941	3,578,803
NJ	5,111,724	1,645,368	4,791,572
DE	210,546	172,152	651,010
MD	1,045,765	705,366	2,086,422
VA	490,695	373,352	1,184,564
NC	1,469,414	1,338,333	3,834,440
SC	195,921	297,328	1,317,227
GA	6,925	10,725	102,652
FL (East Coast)	1,098,781	806,861	1,738,547

Table 17. Permitted dealers and dealers reporting buying bluefish (active dealers) by state in 2007 (from NMFS commercial dealer landings database).

State	Permitted Dealers	Active Dealers
MA	139	46
NY	99	44
NJ	72	9
RI	48	23
NC	32	20
VA	32	11
ME	22	≤ 3
MD	15	≤ 3
NH	10	≤ 3
FL	9	0
CT	8	0
DE	6	≤ 3
PA	≤ 3	0
LA	≤ 3	0
GA	≤ 3	0
HI	≤ 3	0
Total	499	160

*Not specified for confidentiality purposes.

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

Alternative	Commercial Quota (million lb)¹	Potential Change in CPUE and Habitat Impacts	Considerations for Selecting Alternative
Alternative 1 (Most Restrictive /Preferred)	4.991	As bluefish abundance increases, greater CPUE will tend to lead toward stable or decreased impacts to habitat. The potential for maintaining or decreasing impacts is greatest with this alternative.	Commercial landings are reduced relative to status quo b/c allocation process does not allow for transfer.
Alternative 2 (Assumes Rebuilt Bluefish Stock)	7.486	Based upon bluefish abundance, habitat impacts may remain the same as existing, or decrease. As abundance increases, increased CPUE will tend to lead toward stable or decreased impacts to habitat.	Commercial landings allocated maximize financial benefit to industry under the assumption that the stock is rebuilt
Alternative 3 (Least Restrictive/No Action/Status Quo)	7.705	Based upon bluefish abundance, habitat impacts are likely to remain similar to existing (minimal and temporary). The <i>potential</i> for increased impacts to habitat is greatest under this alternative.	Maintains status quo quota in order to maintain stable fishing opportunity, financial benefit to industry

¹ Not adjusted for research set-aside.

Table 19. The 2008 state-by-state commercial bluefish quota^a allocations and the 2006 commercial landings by state.

State	% of Quota	2008 Commercial Quota Alternative 1	2008 Commercial Quota Alternative 2	2008 Commercial Quota Alternative 3	2007 Landings
ME	0.6685	59,224	31,941	57,980	22,863
NH	0.4145	36,722	19,805	35,950	19,558
MA	6.7167	595,049	320,927	582,547	4,779
RI	6.8081	603,146	325,294	590,474	120,013
CT	1.2663	112,185	60,504	109,828	572,906
NY	10.3851	920,041	496,205	900,711	11,604
NJ	14.8162	1,312,603	707,926	1,285,025	1,403,717
DE	1.8782	166,394	89,741	162,898	1,468,013
MD	3.0018	265,937	143,428	260,349	635,572
VA	11.8795	1,052,433	567,609	1,030,322	655,906
NC	32.0608	2,840,343	1,531,881	2,780,669	2,331,033
SC	0.0352	3,118	1,682	3,053	267
GA	0.0095	842	454	824	488
FL	10.0597	891,213	480,658	872,489	167,516
Total	100	8,859,240	4,778,051	8,673,111	7,414,235

^a2008 quota adjusted for RSA.

Source: Preliminary Dealer Data (as of 05/21/2007) and South Atlantic General Canvass Data (as of 6/25/2007).

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

Quota Alternative 1 (Preferred)		No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Total Vessels	Number of Vessels Impacted by $\geq 5\%$ Reduction		<5	5-9	10-19	20-29	30-39	40-49	≥ 50
709	71	36	602	27	11	14	3	14	2

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 $\geq 5\%$	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	4	2	0	2	0	0	0	0	2	0
DE	4	0	4	0	0	0	0	0	0	0
MA	191	6	0	185	2	2	1	0	1	0
MD	11	0	10	1	0	0	0	0	0	0
ME	7	1	2	4	0	0	1	0	0	0
NC	68	6	0	62	4	0	2	0	0	0
NH	26	0	16	10	0	0	0	0	0	0
NJ	84	17	1	66	7	2	2	2	4	0
NY	100	19	0	81	9	3	5	0	1	1
PA	3	1	0	2	0	0	0	0	1	0
RI	94	1	0	93	0	1	0	0	0	0
VA	22	0	0	22	0	0	0	0	0	0
OTHER ^a	0	0	0	0	0	0	0	0	0	0
NOT KNOWN ^b	95	18	3	74	5	3	3	1	5	1
Total	709	71	36	602	27	11	14	3	14	2

^aStates with fewer than 3 vessels were aggregated.

^bVessels have shown landings of bluefish in 2007, but do not hold any commercial Federal permits in 2007.

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 53 commercial vessels (holding any Federal fishing permit in 2007) 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	9	17
	Multispecies	Open Access	11	21
	Surfclam	Open Access	13	25
	Ocean Quahogs	Open Access	9	17
	Lobster, Non-trap	Limited Access	1	2
	Lobster, Trap	Limited Access	3	6
	Tilefish	Open Access	36	68
	Summer Flounder	Limited Access	8	15
	Scup	Limited Access	14	26
	Black Sea Bass	Limited Access	17	32
	Squid/Mackerel/Butterfish	Open Access	41	77
	Squid/Mackerel/Butterfish	Limited Access	1	2
	Dogfish	Open Access	40	75
	Monkfish	Limited Access	14	26
	Monkfish	Open Access	30	57
	Skate	Open Access	34	64
	Atl. Deep-Sea Red Crab	Open Access	16	30
Recreational (Party/Charter)	Multispecies	Open Access	12	23
	Summer Flounder	Open Access	15	28
	Scup	Open Access	14	26
	Black Sea Bass	Open Access	15	28
	Squid/Mackerel/Butterfish	Open Access	13	25
	Lobster, Non-trap	Limited Access	1	2

Table 23. Descriptive information for the 53 commercial vessels (holding any Federal fishing permit in 2007) projected to have revenue reductions of more than 5% under Alternative 1 (preferred alternative). Based on 2007 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	6	6	17	19	5
# Permits by Principal Port State	6	6	18	19	4
# Permits by Mailing Address State	5	6	18	19	5
Avg. Length in Feet by Principal Port	27	42	50	31	-
Avg. GRT by Principal Port	6	15	35	10	-
Avg. Vessel Horsepower by Principal Port	286	471	731	298	-
% of Vessels where Home Port State = Principal Port State	100	100	94	100	-

Table 24. Distribution of the 53 commercial vessels (holding any Federal fishing permit in 2007) projected to have revenue reductions of more than 5% under Alternative 1 (preferred alternative). Distribution by state, county, and home port, from 2007 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
Massachusetts	Barnstable	Other	3
New Jersey	Ocean	Barnegat Light	9
		Pt. Pleasant	5
		Other	1
New York	Nassau	Other	4
	New York	New York	5
	Suffolk	Hampton Bays	3
		Other	6
North Carolina	Dare	Other	6

Other counties with impacted vessels were: Cumberland (ME); New Heaven (CT); Monmouth and Cape May (NJ); Kings (NY); Boston and Essex (MA); Washington (RI), and Philadelphia (PA).

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
709	49	147	513	16	20	10	1	2	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	4	2	0	2	0	1	1	0	0	0
DE	4	0	4	0	0	0	0	0	0	0
MA	191	3	1	187	2	0	1	0	0	0
MD	11	0	11	0	0	0	0	0	0	0
ME	7	1	2	4	1	0	0	0	0	0
NC	68	0	63	5	0	0	0	0	0	0
NH	26	0	20	6	0	0	0	0	0	0
NJ	84	10	5	69	3	3	4	0	0	0
NY	100	17	0	83	7	8	0	1	1	0
PA	3	1	0	2	0	0	1	0	0	0
RI	94	1	1	92	1	0	0	0	0	0
VA	22	0	22	0	0	0	0	0	0	0
OTHER ^a	0	0	0	0	0	0	0	0	0	0
NOT KNOWN ^b	95	14	18	63	2	8	3	0	1	0
Total	709	49	147	513	16	20	10	1	2	0

^aStates with fewer than 3 vessels were aggregated.

^bVessels have shown landings of bluefish in 2007, but do not hold any commercial Federal permits in 2007. 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 35 commercial vessels (holding any Federal fishing permit in 2007) 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	7	20
	Multispecies	Open Access	6	17
	Surfclam	Open Access	8	23
	Ocean Quahogs	Open Access	5	14
	Lobster, Trap	Limited Access	4	11
	Lobster, Non-trap	Limited Access	3	9
	Tilefish	Open Access	25	71
	Summer Flounder	Limited Access	7	20
	Scup	Limited Access	11	31
	Black Sea Bass	Limited Access	11	31
	Squid/Mackerel/Butterfish	Limited Access	1	3
	Squid/Mackerel/Butterfish	Open Access	27	77
	Dogfish	Open Access	26	74
	Monkfish	Limited Access	6	17
	Monkfish	Open Access	23	66
	Skate	Open Access	23	66
	Atl. Deep-Sea Red Crab	Open Access	12	34
Recreational (Party/Charter)	Multispecies	Open Access	11	31
	Summer Flounder	Open Access	13	37
	Scup	Open Access	13	37
	Black Sea Bass	Open Access	13	37
	Squid/Mackerel/Butterfish	Open Access	12	34
	Lobster, Non-trap	Limited Access	1	3

Table 28. Descriptive information for the 35 commercial vessels (holding any Federal fishing permit in 2007) projected to have revenue reductions of more than 5% under non-preferred Alternative 2 quota. Based on 2007 descriptive data from NMFS permit files - No vessel characteristics data are reported for states with fewer than 3 permits.

	MA	NJ	NY	Other
# Permits by Home Port State	3	10	17	5
# Permits by Principal Port State	3	11	17	4
# Permits by Mailing Address State	2	11	17	4
Avg. Length in Feet by Principal Port	28	56	31	-
Avg. GRT by Principal Port	8	46	9	-
Avg. Vessel Horsepower by Principal Port	338	995	297	-
% of Vessels where Home Port State = Principal Port State	68	91	100	-

Table 29. Distribution of the 35 commercial vessels (holding any Federal fishing permit in 2007) projected to have a revenue reductions of more than 5% under non-preferred Alternative 2 quota. Distribution by state, county, and home port, from 2007 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	4
		Pt. Pleasant	4
		Other	1
New York	Nassau	Other	4
	New York	New York	4
	Suffolk	Hampton Bays	3
		Other	4

Other counties with impacted vessels were: Cumberland (ME); New Heaven (CT); Monmouth (NJ); Kings (NY); Essex, Boston, and Barnstable (MA); and 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)		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
709	45	147	517	16	26	0	1	2	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	4	2	0	2	1	1	0	0	0	0
DE	4	0	4	0	0	0	0	0	0	0
MA	191	2	1	188	1	1	0	0	0	0
MD	11	0	11	0	0	0	0	0	0	0
ME	7	1	2	4	1	0	0	0	0	0
NC	68	0	63	5	0	0	0	0	0	0
NH	26	0	20	6	0	0	0	0	0	0
NJ	84	10	5	69	4	6	0	0	0	0
NY	100	16	0	84	6	8	0	1	1	0
PA	3	1	0	2	0	1	0	0	0	0
RI	94	0	1	93	0	0	0	0	0	0
VA	22	0	22	0	0	0	0	0	0	0
OTHER ^a	0	0	0	0	0	0	0	0	0	0
NOT KNOWN ^b	95	13	18	64	3	9	0	0	1	0
Total	709	45	147	517	16	26	0	1	2	0

^aStates with fewer than 3 vessels were aggregated.

^bVessels have shown landings of bluefish in 2007, but do not hold any commercial Federal permits in 2007. 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. Percentage changes associated with allowable commercial landings for various quota alternatives in 2009 (adjusted quota for RSA) relative to 2007 landings by state.

State	2009 Commercial Quota Alternative 1	2009 Commercial Quota Alternative 2	2009 Commercial Quota Alternative 3
ME	596%	944%	974%
NH	78%	167%	174%
MA	-42%	-13%	-10%
RI	-47%	-20%	-18%
CT	175%	313%	325%
NY	-65%	-47%	-46%
NJ	-47%	-21%	-19%
DE	378%	617%	637%
MD	24%	87%	92%
VA	-10%	35%	39%
NC	-32%	3%	6%
SC	556%	884%	912%
GA	-3%	45%	49%
FL	199%	348%	361%
Total	-33%	1%	4%

Table 33. Counties identified as having ≥ 4 commercial vessels showing revenue reductions of 5% or more as a consequence of the most restrictive commercial quota alternative (preferred Alternative 1) 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
ME	Cumberland	266,988	223,061	7,834.43	1,189	.12%	125	.05%
RI	Washington	125,991	62,870	4,212.16	793	.46%	96	.11%
CT	New Heaven	828,374	469,966	29,191.17	66	.0025%	0	0%
NY	Nassau	1,334,648	761,530	63,524.34	198	.0039%	84	.0029%
NY	Suffolk	1,438,973	752,834	52,116.44	1,111	.01%	0	0%
NJ	Ocean	527,207	187,627	15,742.25	166	.04%	0	0%
NY	New York	1,541,150	2,768,774	144,033.30	0	0%	23	.0013%
NC	Dare	31,168	25,453	830.10	77	.08%	17	.01%

a = Data obtained from the Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, www.implan.com, 2001.

b = Year-round population.

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

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

Source: Scott Steinback (NEFSC).

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.