2016-2018 Summer Flounder, Scup, and Black Sea Bass Specifications Environmental Assessment Initial Regulatory Flexibility Analysis

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

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1.0 EXECUTIVE SUMMARY

This document was prepared by the Mid-Atlantic Fishery Management Council (the Council) in consultation with the National Marine Fisheries Service (NMFS). This document was developed in accordance with all applicable laws and statutes as described in section 8.0.

The purpose of the management actions described in this document is to implement commercial quotas and recreational harvest limits for the summer flounder and scup fisheries for 2016-2018 and for the black sea bass fishery for 2016 and 2017 (Box ES-1). These measures are necessary to prevent overfishing and to ensure that annual catch limits (ACLs) are not exceeded. The actions described in this document do not include changes to any of the other fishery management measures for these three fisheries.

This specifications document details all evaluated management alternatives. The *status quo* alternative for each species is equivalent to the previously implemented 2015 specifications (79 FR 78311). The *status quo* alternative is not equivalent to a "no action" alternative for these species. If the actions proposed for 2016 are not taken, some existing management measures will remain in place, but the overall management program will not be identical to that of 2015. This is because the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP) does not include provisions that would allow the previous year's commercial quotas and recreational harvest limits to remain in place if new quotas and harvest limits are not implemented by January 1 of each year. Thus a no action alternative for each fishery would result in no specifications and unlimited fishing. This is infeasible as it is inconsistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA); therefore, the no action alternatives for 2016-2018 are presented in section 5.4 of this document but not analyzed further. For comparison purposes, the 2016-2018 alternatives are compared to the *status quo* alternatives (i.e., 2015 implemented specifications) as opposed to the true no action alternatives.

Summary of Alternatives

The following section presents a qualitative summary of expected impacts by species and cumulatively for the evaluated alternatives (Box ES-2).

Box ES-1. Summary of the 2016-2018 summer flounder, scup, and black sea bass alternatives analyzed in this specifications document. Commercial quotas and recreational harvest limits are in millions of pounds.

Year	Alternative	Species	Commercial Quota	Recreational Harvest Limit
2016	**Alternative 1** (Preferred)	Summer Flounder	8.12	5.42
		Scup	20.47	6.09
		Black Sea Bass	2.24	2.33
	Alternative 2 (Non-Preferred: *Status quo*)	Summer Flounder	11.07	7.38
		Scup	21.23	6.80
		Black Sea Bass	2.21	2.33
	Alternative 3 (Non-Preferred: Most Restrictive)	Summer Flounder	6.30	4.20
		Scup	2.53	1.24
		Black Sea Bass	1.13	1.17
	Alternative 4 (Non-Preferred: Least Restrictive)	Summer Flounder	18.18	12.12
		Scup	28.35	8.57
		Black Sea Bass	4.02	4.18
2017	**Alternative 1** (Preferred)	Summer Flounder	7.91	5.28
		Scup	18.38	5.50
		Black Sea Bass	2.24	2.33
	Alternative 2 (Non-Preferred: *Status quo*)	Summer Flounder	11.07	7.38
		Scup	21.23	6.80
		Black Sea Bass	2.21	2.33
	Alternative 3 (Non-Preferred: Most Restrictive)	Summer Flounder	6.30	4.20
		Scup	2.53	1.24
		Black Sea Bass	1.13	1.17
	Alternative 4 (Non-Preferred: Least Restrictive)	Summer Flounder	18.18	12.12
		Scup	28.35	8.57
		Black Sea Bass	4.02	4.18
2018	**Alternative 1** (Preferred)	Summer Flounder	7.89	5.26
		Scup	17.34	5.21
	Alternative 2 (Non-Preferred: *Status quo*)	Summer Flounder	11.07	7.38
		Scup	21.23	6.80
	Alternative 3 (Non-Preferred: Most Restrictive)	Summer Flounder	6.30	4.20
		Scup	2.53	1.24
	Alternative 4 (Non-Preferred: Least Restrictive)	Summer Flounder	18.18	12.12
		Scup	28.35	8.57

2016 Quota Alternatives

Overall, alternative 1 (the preferred alternative) for all three species is expected to result in biological impacts on the managed resources and non-target species that range from neutral to positive in 2016, when compared to the *status quo* alternative (Box ES-2). Alternative 1 represents a decrease in landings limits for summer flounder and for scup when compared to the *status quo* alternatives. Alternative 1 for black sea bass is nearly identical to the *status quo* alternative (Box ES-1).[1]

For all three species, alternative 2 (*status quo*) is expected to result in overall biological impacts on the managed resources and non-target species that range from negative to neutral in 2016, given measures that are slightly higher for summer flounder than those considered under alternative 1. For all three species, alternative 3 is the most restrictive alternative, and is expected to have overall biological impacts that are positive in 2016, when compared to the *status quo* alternative. The most restrictive alternative may be more restrictive than necessary given the advice of the Science and Statistical Committee (SSC). For all three species, alternative 4 is the least restrictive alternative and is expected to have negative biological impacts in 2016, compared to the *status quo* alternative. Ranking these four alternatives from more likely to less likely to result in overall positive biological impacts, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Preferred alternative 1 is expected to result in impacts to essential fish habitat (EFH) that range from neutral to positive in 2016, when compared to the *status quo* alternative. Alternative 2 is expected to result in habitat impacts that are neutral in 2016. Alternative 3 is the most restrictive alternative and is expected to have overall habitat impacts that are positive for 2016, when compared to the *status quo* alternative. Alternative 4 is the least restrictive alternative and is expected to result in habitat impacts that are negative, when compared to the *status quo*. Ranking these alternatives from more likely to less likely to result in overall positive habitat impacts, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Alternative 1 is expected to result in impacts on Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) protected resources that range from neutral to positive in 2016, when compared to the *status quo* alternative. Alternative 2 is expected to result in overall impacts on ESA and MMPA protected resources are neutral in 2016. Alternative 3 is the most restrictive alternative and is expected to have overall impacts on ESA and MMPA protected resources that are positive for 2016, when compared to the *status quo* alternative. Alternative 4 is the least restrictive alternative and is expected to have overall negative impacts on ESA and MMPA protected resources. Ranking these alternatives from more likely to less likely to result in overall positive impacts on ESA and MMPA protected resources, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Under 2016 alternative 1, it is expected that social and economic impacts will range from short-term negative to long-term positive, when compared to the *status quo* alternative. Under alternative 2

[1] Black sea bass commercial quotas under alternative 1 are 0.03 million pounds greater than the *status quo* alternative (alternative 2). This slight difference is due to changes in the patterns of discards used in the 2016-2017 quota calculations compared to the discard calculations used for the 2015 specifications. For the purposes of this analysis, this difference between the commercial quotas under alternative 1 and the *status quo* alternative is considered negligible.

(*status quo*) it is expected that impacts will range from neutral to negative in the long-term. Alternative 3 is expected to result in negative social and economic impacts overall because of the substantially lower landings limits relative to the *status quo* alternative. Alternative 4 is the least restrictive alternative and is expected to result in short-term positive social and economic impacts, but potential long-term negative impacts. Ranking these three alternatives from more likely to less likely to result in overall positive economic and social impacts, they rank as alternative 4, alternative 1, alternative 2, and alternative 3 (Box ES-2).

Box ES-2. Summary of the expected impacts of alternatives considered in this document. A minus sign (-) signifies a negative impact, a plus sign (+) signifies a positive impact, and zero (0) indicates a neutral impact. "sl" indicates a minor effect. "S" indicates short-term and "L" indicates long-term impacts.

Year	Alternative	Species	Biological	EFH	Protected Resources	Socio-economic
2016	**Alternative 1** (Preferred)	Summer flounder	0/+	0/+	0/+	S-/L+
		Scup	0	0	0	0
		Black sea bass	0	0	0	-/sl+
	Alternative 2 (Non-Preferred: *Status quo*)	Summer flounder	0/-	0	0	0/L-
		Scup	0/sl-	0	0	0/L-
		Black sea bass	0	0	0	sl-
	Alternative 3 (Non-Preferred: Most Restrictive)	Summer flounder	+	+	+	-
		Scup	+	+	+	-
		Black sea bass	+	+	+	-
	Alternative 4 (Non-Preferred: Least Restrictive)	Summer flounder	-	-	-	S+/L-
		Scup	-	-	-	S+/L-
		Black sea bass	-	-	-	S+/L-
2017	**Alternative 1** (Preferred)	Summer flounder	0/+	0/+	0/+	S-/L+
		Scup	0/sl+	0	0	0
		Black sea bass	0	0	0	-/sl+
	Alternative 2 (Non-Preferred: *Status quo*)	Summer flounder	0/-	0	0	0/L-
		Scup	sl-/0	0	0	0/L-
		Black sea bass	0	0	0	sl-
	Alternative 3 (Non-Preferred: Most Restrictive)	Summer flounder	+	+	+	-
		Scup	+	+	+	-
		Black sea bass	+	+	+	-
	Alternative 4 (Non-Preferred: Least Restrictive)	Summer flounder	-	-	-	S+/L-
		Scup	-	-	-	S+/L-
		Black sea bass	-	-	-	S+, L-
2018	**Alternative 1** (Preferred)	Summer flounder	0/+	0/+	0/+	S-/L+
		Scup	0	0	0	0
	Alternative 2 (Non-Preferred: *Status quo*)	Summer flounder	0/-	0	0	0/L-
		Scup	0/sl-	0	0	0/L-
	Alternative 3 (Non-Preferred: Most Restrictive)	Summer flounder	+	+	+	-
		Scup	+	+	+	-
	Alternative 4 (Non-Preferred: Least Restrictive)	Summer flounder	-	-	-	S+/L-
		Scup	-	-	-	S+/L-

2017 Quota Alternatives

Overall, alternative 1 (the preferred alternative) for all three species is expected to result in biological impacts on the managed resources and non-target species that range from neutral to positive in 2017, when compared to the *status quo* alternatives (Box ES-2). Alternative 1 represents a decrease in landings limits for summer flounder and for scup when compared to the *status quo* alternatives. Alternative 1 for black sea bass is nearly identical to the *status quo* alternative (Box ES-1).

For all three species, alternative 2 is expected to result in overall biological impacts on the managed resources and non-target species that range from negative to neutral in 2017, because measures are slightly higher for summer flounder than those considered under alternative 1. For all three species, alternative 3 is the most restrictive alternative, and is expected to have overall biological impacts that are positive in 2017, when compared to the *status quo* alternative. The most restrictive alternative may be more restrictive than necessary given the advice of the SSC. For all three species, alternative 4 is the least restrictive alternative and is expected to have negative biological impacts in 2017, compared to the *status quo* alternative. Ranking these four alternatives from more likely to less likely to result in overall positive biological impacts, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Preferred alternative 1 is expected to result in habitat impacts that range from neutral to positive in 2017, when compared to the *status quo* alternative. Alternative 2 is expected to result in habitat impacts that are neutral in 2017. Alternative 3 is the most restrictive alternative and is expected to have overall habitat impacts that are positive in 2017, when compared to the *status quo* alternative. Alternative 4 is the least restrictive alternative and is expected to result in habitat impacts that are negative compared to the *status quo*. Ranking these alternatives from more likely to less likely to result in overall positive habitat impacts, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Alternative 1 is expected to result in impacts on ESA and MMPA protected resources that range from neutral to positive in 2017, when compared to the *status quo* alternative. Alternative 2 is expected to result in neutral impacts on ESA and MMPA protected resources in 2017. Alternative 3 is the most restrictive alternative and is expected to have overall impacts on ESA and MMPA protected resources that are positive for 2017, when compared to the *status quo* alternative. Alternative 4 is the least restrictive and is expected to have overall negative impacts on ESA and MMPA protected resources. Ranking these alternatives from more likely to less likely to result in overall positive impacts on ESA and MMPA protected resources, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Under 2017 alternative 1, it is expected that social and economic impacts will range from short-term negative and long-term positive, when compared to the *status quo* alternative. Under alternative 2 (*status quo*) it is expected that impacts will range from neutral to long-term negative. Alternative 3 is expected to result in negative social and economic impacts overall because of the substantially lower landings limits relative to the *status quo* alternative. Alternative 4 is the least restrictive alternative and is expected to result in short-term positive social and economic impacts, but potential long-term negative impacts. Ranking these three alternatives from more likely to less likely to result in overall

positive economic and social impacts, they rank as alternative 4, alternative 1, alternative 2, and alternative 3 (Box ES-2).

2018 Quota Alternatives

The Council did not recommend specifications for black sea bass for 2018; therefore, the sections describing 2018 alternatives refer only to summer flounder and scup.

Overall, alternative 1 (the preferred alternative) for both species is expected to result in biological impacts on the managed resources and non-target species that range from neutral to positive in 2018, when compared to the *status quo* alternative (Box ES-2). Alternative 1 represents a decrease in landings limits for both summer flounder and scup when compared to the *status quo* alternative; however, the decrease in the scup quota is relatively small (Box ES-1).

Alternative 2 is expected to result in overall biological impacts on the managed resources and non-target species that range from negative to neutral in 2018, given measures that are slightly higher for summer flounder than those considered under alternative 1. Alternative 3 is the most restrictive alternative and is expected to have overall biological impacts that are positive in 2018, when compared to the *status quo* alternatives. Alternative 3 may be more restrictive than necessary given the advice of the SSC. Alternative 4 is the least restrictive alternative and is expected to have negative biological impacts in 2018, compared to the *status quo* alternative. Ranking these four alternatives from more likely to less likely to result in overall positive biological impacts, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Preferred alternative 1 is expected to result in habitat impacts that range from neutral to positive in 2018, when compared to the *status quo* alternative. Alternative 2 is expected to result in habitat impacts that are neutral in 2018. Alternative 3 is the most restrictive alternative and is expected to have overall habitat impacts that are positive in 2018, when compared to the *status quo* alternative. Alternative 4 is the least restrictive and is expected to result in habitat impacts that are negative compared to the *status quo*. Ranking these alternatives from more likely to less likely to result in overall positive habitat impacts, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Alternative 1 is expected to result in impacts on ESA and MMPA protected resources that range from neutral to positive in 2018, when compared to the *status quo* alternative. Alternative 2 is expected to result in overall impacts on ESA and MMPA protected resources that are neutral in 2018. Alternative 3 is the most restrictive alternative and is expected to have positive overall impacts on ESA and MMPA protected resources in 2018, when compared to the *status quo* alternative. Alternative 4 is the least restrictive alternative and is expected to have overall negative impacts on ESA and MMPA protected resources, compared to the *status quo*. Ranking these alternatives from more likely to less likely to result in overall positive impacts on ESA and MMPA protected resources, they rank as alternative 3, alternative 1, alternative 2, and alternative 4 (Box ES-2).

Under 2018 alternative 1, it is expected that social and economic impacts will range from short-term negative to long-term positive, when compared to the *status quo* alternative. Under alternative 2 (*status quo*) it is expected that social and economic impacts will range from neutral to long-term negative. Alternative 3 is expected to result in negative social and economic impacts overall because

of the substantially lower landings limits relative to the *status quo* alternative. Alternative 4 is the least restrictive alternative and is expected to result in short-term positive social and economic impacts, but potential long-term negative impacts. Ranking these three alternatives from more likely to less likely to result in overall positive social and economic impacts, they rank as alternative 4, alternative 1, alternative 2, and alternative 3 (Box ES-2).

Cumulative Impacts

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

Conclusions

A detailed description and discussion of the expected environmental impacts, as well as any cumulative impacts resulting from each of the alternatives considered in this document, are provided in section 7.0. None of the preferred action alternatives are associated with significant impacts to the biological, social or economic, or physical environment individually or in conjunction with other actions under the National Environmental Protection Act (NEPA); therefore, a "Finding of No Significant Impact" is warranted.

2.0 LIST OF ACRONYMS

ABC	Acceptable Biological Catch
ACL	Annual Catch Limit
ACT	Annual Catch Target
ALWTRP	Atlantic Large Whale Take Reduction Plan
AM	Accountability Measure
ASM	At Sea Monitoring Program
ASMFC	Atlantic States Marine Fisheries Commission or Commission
ATGTRS	Atlantic Trawl Gear Take Reduction Strategy
ATGTRT	Atlantic Trawl Gear Take Reduction Team
ASSRT	Atlantic Sturgeon Status Review Team
BMSY	Biomass at MSY
CEA	Cumulative Effects Analysis
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPUE	Catch Per Unit Effort
CV	Coefficient of Variation
CZMA	Coastal Zone Management Act
DPS	Distinct Population Segment
DPSWG	Data Poor Stocks Working Group
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
F	Fishing Mortality Rate
F_{MSY}	Fishing Mortality Rate at Maximum Sustainable Yield
FMP	Fishery Management Plan
FR	Federal Register
FONSI	Finding of No Significant Impact
GARFO	Greater Atlantic Regional Fisheries Office
GOM	Gulf of Maine
IRFA	Initial Regulatory Flexibility Analysis
LNG	Liquefied Natural Gas
LOF	List of Fisheries
MAFMC	Mid-Atlantic Fishery Management Council
MC	Monitoring Committee
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistical Survey
MRIP	Marine Recreational Information Program
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
NAO	National Oceanic and Atmospheric Administration Administrative Order
NEFSC	Northeast Fisheries Science Center
NEFOP	Northeast Fisheries Observer Program
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	Overfishing Limit
OY	Optimum Yield
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
RHL	Recreational Harvest Limit
SARC	Stock Assessment Review Committee

SAW	Stock Assessment Workshop
SBA	Small Business Administration
SSB	Spawning Stock Biomass
SSB_{MSY}	Spawning Stock Biomass at Maximum Sustainable Yield
SSC	Scientific and Statistical Committee
STDN	Sea Turtle Disentanglement Network
USASAC	United States Atlantic Salmon Assessment Committee
USFWS	United States Fish and Wildlife Service
VECs	Valued Ecosystem Components
VTR	Vessel Trip Report

3.0 TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY II

2.0 LIST OF ACRONYMS X

3.0 TABLE OF CONTENTS 12

***ENVIRONMENTAL ASSESSMENT* 17**

4.0 INTRODUCTION AND BACKGROUND 17

4.1 PURPOSE AND NEED OF THE ACTION 17
4.2 THE SPECIFICATIONS PROCESS 17
4.2.1 Summer Flounder Specifications Process 19
4.2.2 Scup Specifications Process 21
4.2.3 Black Sea Bass Specifications Process 22

5.0 MANAGEMENT ALTERNATIVES 23

5.1 QUOTA ALTERNATIVES FOR 2016 (SUMMER FLOUNDER, SCUP, AND BLACK SEA BASS) 28
5.1.1 Alternative 1 (Preferred: Consistent with SSC Recommended ABCs) 28
5.1.2 Alternative 2 (Non-Preferred: Status Quo) 30
5.1.3 Alternative 3 (Non-Preferred: Most Restrictive) 31
5.1.4 Alternative 4 (Non-Preferred: Least Restrictive) 31
5.2 QUOTA ALTERNATIVES FOR 2017 (SUMMER FLOUNDER, SCUP, AND BLACK SEA BASS) 32
5.2.1 Alternative 1 (Preferred: Consistent with SSC Recommended ABCs) 32
5.2.2 Alternative 2 (Non-Preferred: Status Quo) 34
5.2.3 Alternative 3 (Non-Preferred: Most Restrictive) 34
5.2.4 Alternative 4 (Non-Preferred: Least Restrictive) 34
5.3 QUOTA ALTERNATIVES FOR 2018 (SUMMER FLOUNDER AND SCUP) 35
5.3.1 Alternative 1 (Preferred: Consistent with SSC Recommended ABCs) 35
5.3.2 Alternative 2 (Non-Preferred: Status Quo) 36
5.3.3 Alternative 3 (Non-Preferred: Most Restrictive) 36
5.3.4 Alternative 4 (Non-Preferred: Least Restrictive) 36
5.4 TRUE NO-ACTION ALTERNATIVES (SUMMER FLOUNDER, SCUP, AND BLACK SEA BASS) 37

6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES 39

6.1 DESCRIPTION OF THE MANAGED RESOURCE 39
6.1.1 Description of the Fisheries 39
6.1.2 Description of the Stock (Including Status, Stock Characteristics, and Ecological Relationships) 42
6.1.3 Non-Target Species 43
6.2 HABITAT (INCLUDING ESSENTIAL FISH HABITAT) 44
6.2.1 Physical Environment 44
6.2.2 Essential Fish Habitat (EFH) 45
6.2.3 Fishery Impact Considerations 46
6.3 ESA AND MMPA PROTECTED SPECIES 46
6.3.1 Species and Critical Habitat Not Likely to be Affected by the Proposed Action 47
6.3.2 Species Potentially Affected by the Proposed Action 49
6.3.3 Gear Interactions and Protected Species 51
6.4 HUMAN COMMUNITIES AND ECONOMIC ENVIRONMENT 57
6.4.1 Fishery Descriptions 57
6.4.2 Description of the Areas Fished 62
6.4.3 Port and Community Descriptions 66
6.4.4 Analysis of Permit Data 68

7.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES 71

7.1 BIOLOGICAL IMPACTS **78**
7.1.1 Quota Alternatives for 2016 ..... ***78***
7.1.2 Quota Alternatives for 2017 ..... ***82***
7.1.3. Quota Alternatives for 2018 ..... ***84***
7.2 HABITAT **86**
7.2.1 Quota Alternatives for 2016 ..... ***86***
7.2.2 Quota Alternatives for 2017 ..... ***88***
7.2.3 Quota Alternatives for 2018 ..... ***89***
7.3 ESA AND MMPA PROTECTED SPECIES **89**
7.3.1 Quota Alternatives for 2016 ..... ***90***
7.3.2 Quota Alternatives for 2017 ..... ***92***
7.3.3 Quota Alternatives for 2018 ..... ***94***
7.4 SOCIOECONOMIC IMPACTS **95**
7.4.1 Quota Alternatives for 2016 ..... ***95***
7.4.2 Quota Alternatives for 2017 ..... ***97***
7.4.3 Quota Alternatives for 2018 ..... ***98***
7.5 CUMULATIVE EFFECTS ANALYSIS **99**
7.5.1 Consideration of the VECs ***100***
7.5.2 Geographic Boundaries ***100***
7.5.3 Temporal Boundaries ***100***
7.5.4 Actions Other Than Those Proposed in this Document ***100***
7.5.5 Magnitude and Significance of Cumulative Effects ***103***
7.5.6 Preferred Action on all the VECs ***117***

8.0 APPLICABLE LAWS **119**

8.1 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (MSA) **119**
8.1.1 National Standards ***119***
8.2 NEPA FINDING OF NO SIGNIFICANT IMPACT (FONSI) **119**
8.3 ENDANGERED SPECIES ACT **124**
8.4 MARINE MAMMAL PROTECTION ACT **124**
8.5 COASTAL ZONE MANAGEMENT ACT **124**
8.6 ADMINISTRATIVE PROCEDURE ACT **124**
8.7 SECTION 515 (DATA QUALITY ACT) **125**
8.8 PAPERWORK REDUCTION ACT **126**
8.9 IMPACTS OF THE PLAN RELATIVE TO FEDERALISM/EXECUTIVE ORDER 13132 ..... **126**
8.10 ENVIRONMENTAL JUSTICE/ EXECUTIVE ORDER 12898 ..... **126**
8.11 REGULATORY FLEXIBILITY ANALYSIS **126**
8.11.1 Initial Regulatory Flexibility Analysis ***127***
8.11.2 Description of Quota and Non-Quota Alternatives ***131***
8.11.3 Description and Estimate of Economic Impact on Small Entities ***133***

10.0 LITERATURE CITED **160**

11.0 LIST OF AGENCIES AND PERSONS CONSULTED **172**

APPENDIX **173**

LIST OF FIGURES

Figure 1. The Council's risk policy on overfishing. 18
Figure 2. Summer flounder commercial and recreational landings, 1980-2014. 39
Figure 3. Scup commercial and recreational landings, 1981-2014. 40
Figure 4. Black sea bass commercial and recreational landings, 1981-2014. 40
Figure 5. NMFS Northeast statistical areas. 64

LIST OF TABLES

Table 1. 2016 summer flounder, scup, and black sea bass alternatives and associated catch and landings limits, in millions of pounds. 25
Table 2. 2017 summer flounder, scup, and black sea bass alternatives and associated catch and landings limits, in millions of pounds. 26
Table 3. 2018 summer flounder and scup alternatives and associated catch and landings limits, in millions of pounds 27
Table 4. OFL, ABC, and commercial quota and recreational discard calculations (in millions of pounds) for the preferred alternatives for summer flounder, scup, and black sea bass for 2016. 29
Table 5. 2016 commercial summer flounder quota allocations (in pounds), by state, under alternatives 1-4. 30
Table 6 OFL, ABC, and commercial quota and recreational discard calculations (in millions of pounds) for the preferred alternatives for summer flounder, scup, and black sea bass for 2017. 33
Table 7. 2017 commercial summer flounder quota allocations (in pounds), by state, under alternatives 1-4. 34
Table 8. OFL, ABC, and commercial quota and recreational discard calculations (in millions of pounds) for the preferred alternatives for summer flounder and scup for 2018. 35
Table 9. 2018 commercial summer flounder quota allocations (in pounds), by state, under alternatives 1-4. 36
Table 10. Summer flounder, scup, and black sea bass commercial and recreational landings, 1981-2014, in millions of pounds. 41
Table 11. Species Protected Under the ESA and/or MMPA that May Occur in the Affected Environment of the Summer Flounder, Scup, and Black Sea Bass Fisheries. 48
Table 12. Commercial Fisheries Classification based on 2014 List of Fisheries (LOF; 79 FR 50589). An (*) indicates those species driving the fisheries classification. 55
Table 13. Number of summer flounder recreational fishing trips, recreational harvest limits, and recreational landings from 1991 through 2018. 58
Table 14. Number of scup recreational fishing trips, recreational harvest limits, and recreational landings from 1991 through 2018. 61
Table 15. Number of black sea bass recreational fishing trips, recreational harvest limits, and recreational landings from 1991 through 2018. 62
Table 16. Statistical areas that accounted for at least 5% of the summer flounder, scup, or black sea bass catch in 2014, according to NMFS VTR data. 65
Table 17. Statistical areas that accounted for at least 5% of the summer flounder, scup, or black sea bass trips in 2014, according to NMFS VTR data. 65
Table 18. Ports, and associated landings, where at least 100,000 pounds of summer flounder, scup, or black seabass were landed in 2014, according to NMFS dealer data. 67
Table 19. MRIP estimates of total recreational catch and recreational harvest for summer flounder, scup, and black sea bass in 2014. 68
Table 20. Federally permitted summer flounder, scup, and/or black sea bass commercial vessels and commercial vessels that landed summer flounder, scup, and/or black sea bass, by state for 2014, Maine through North Carolina. 69

Table 21. Number of federally permitted summer flounder, scup, and/or black sea bass party/charter vessels and the number of party/charter vessels that landed summer flounder, scup, and/or black sea bass, by state for 2014, Maine through North Carolina. 69
Table 22. Number of dealers that purchased summer flounder, scup, and/or black sea bass, by state for 2014, Maine through North Carolina. 70
Table 23. Definition of impact and impact qualifiers. 74
Table 24. Commercial quotas and recreational harvest limits (RHLs), in millions of pounds, under each of the alternatives for 2016-2018. 75
Table 25. The percent difference between the commercial quotas under each alternative and 2014 commercial landings, and between the recreational harvest limits and the 2014 recreational landings. 76
Table 26. Changes in fishing effort as a result of adjustments to quota and/or fish availability. 77
Table 27. The percent difference between the proposed commercial quotas and recreational harvest limits under each 2016 alternative and the 2015 commercial quotas and recreational harvest limits (*status quo*). 79
Table 28. The percent difference between the proposed commercial quotas and recreational harvest limits under each 2017 alternative and the 2015 commercial quotas and recreational harvest limits (*status quo*). 84
Table 29. The percent difference between the proposed commercial quotas and recreational harvest limits under each 2018 alternative and the 2015 commercial quotas and recreational harvest limits (*status quo*). 86
Table 30. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document). 104
Table 31. Summary of the effects of past, present, and reasonably foreseeable future actions on the managed resources. 108
Table 32. Summary of the effects of past, present, and reasonably foreseeable future actions on non-target species. 110
Table 33. Summary of the effects of past, present, and reasonably foreseeable future actions on the habitat and EFH. 112
Table 34. Summary of the effects of past, present, and reasonably foreseeable future actions on protected species. 114
Table 35. Summary of the effects of past, present, and reasonably foreseeable future actions on human communities. 116
Table 36. Magnitude and significance of the cumulative, additive, and synergistic effects of the 2016-2018 preferred alternative, as well as past (P), present (PR), and reasonably foreseeable future (RFF) actions. 118
Table 37. Small entities average revenues and summer flounder (SF), scup (S), and black sea bass (BSB) revenues, 2012-2014. 129
Table 38. Threshold analysis of revenues for participating small entities under quota alternative 1 (preferred) for 2016. 136
Table 39. Threshold analysis of revenues for participating small entities under quota alternative 3 (most restrictive) for 2016. 141
Table 40. Threshold analysis of revenues for participating small entities under quota alternative 4 (least restrictive) for 2016. 144
Table 41. Threshold analysis of revenues for participating small entities under quota alternative 1 (preferred) for 2017. 147
Table 42. Threshold analysis of revenues for participating small entities under quota alternative 1 (preferred) for 2018. 152
Table 43. Threshold analysis of revenues for participating small entities under quota alternative 3 (most restrictive) for 2018. 156

Table 44. Threshold analysis of revenues for participating small entities under quota alternative 4 (least restrictive) for 2018..... 159

ENVIRONMENTAL ASSESSMENT

4.0 INTRODUCTION AND BACKGROUND

4.1 PURPOSE AND NEED OF THE ACTION

The purpose of this action is to implement commercial quotas and recreational harvest limits for summer flounder and scup for 2016-2018 and for black sea bass for 2016 and 2017. This action is needed to prevent overfishing and ensure annual catch limits (ACLs) are not exceeded. This specifications document was developed in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA)[2] and the National Environmental Policy Act (NEPA), the former being the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ). Failure to specify management measures that constrain catch to prevent overfishing for summer flounder, scup, and black sea bass would be inconsistent with the National Standards under the MSA. This document was also developed in accordance with the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP), which details the management regime for these fisheries. The FMP and subsequent amendments are available at: http://www.mafmc.org.

The Environmental Assessment (EA) contained in this document examines the impacts of the management alternatives on the human environment. Aspects of the human environment that are likely to be directly or indirectly affected by the actions proposed in this document are described as valued ecosystem components (VECs; Beanlands and Duinker 1984). VECs make up the affected environment and are specifically defined as the managed resources (summer flounder, scup, and black sea bass) and any non-target species; habitat, including essential fish habitat (EFH) for the managed resource and non-target species; Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) protected species; and human communities (social and economic aspects of the environment). The impacts of the alternatives are evaluated with respect to these VECs.

4.2 THE SPECIFICATIONS PROCESS

The MSA requires that the Council's Scientific and Statistical Committee (SSC) provide recommendations for acceptable biological catch (ABC), prevention of overfishing, and maximum sustainable yield (MSY). The Council's catch limit recommendations cannot exceed the ABCs recommended by the SSC. In addition, the Summer Flounder, Scup, and Black Sea Bass Monitoring Committee (MC) is responsible for developing recommendations to the Council on management measures, including annual catch targets (ACTs), necessary to achieve the recommended catch limits for each species. Each year the Council's Summer Flounder, Scup, and Black Sea Bass Advisory Panel also provides input on the management measures for these species.

Each year the Council's SSC meets to recommend new or review existing ABCs for summer flounder, scup, and black sea bass. The SSC derives ABCs using a combination of the Council's risk policy and specific methods based on the degree of uncertainty associated with information provided in the stock assessments for each species. The method used for summer flounder and scup in recent years is based on an SSC-modified overfishing limit (OFL) probability distribution. The OFL is the

[2] MSA portions retained plus revisions made by the MSA Reauthorization Act of 2006.

maximum amount of catch that can be removed from the stock without causing overfishing. For this approach, the SSC accepts the point estimate of the OFL from the stock assessment, but modifies the distribution of the point estimate based on meta-analyses and other considerations. This is typically done when the SSC believes that the stock assessment model did not fully capture the uncertainty associated with the OFL point estimate. In some cases, the SSC does not accept the OFL from the stock assessment and instead uses alternative methods such as a constant catch approach to set ABCs. This is the case for black sea bass (section 4.2.3).

The Council's risk policy describes the Council's tolerance for overfishing at a given level of biomass and depending on whether the stock's life history is considered typical or atypical.[3] The risk policy states that, for stocks with typical life histories, if SSB is greater than or equal to SSB_{MSY}, then the ABC should be associated with a 40% probability of overfishing. If SSB is less than SSB_{MSY}, then the probability of overfishing should decrease based on the linear relationship shown in Figure 1.

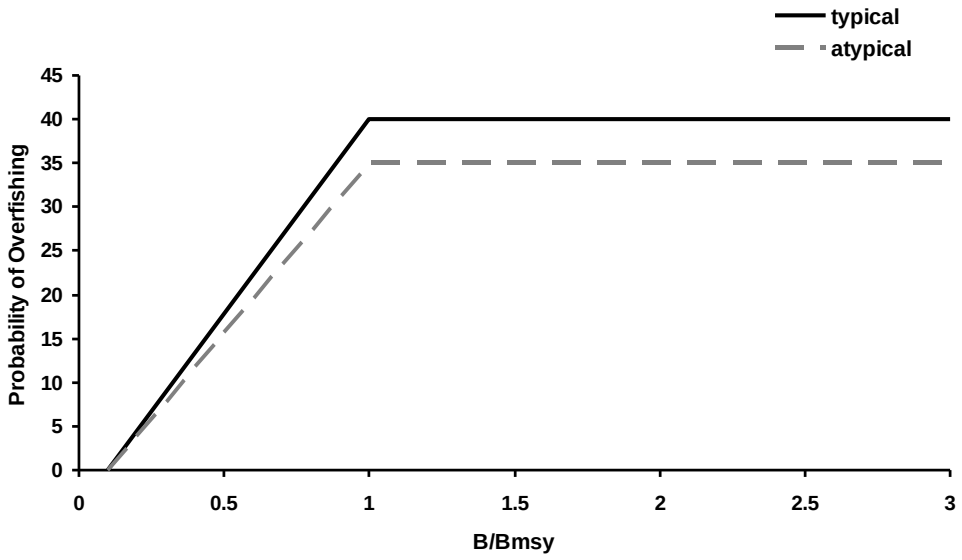

Figure 1. The Council's risk policy on overfishing.

The MC meets each year to recommend new or review existing ACTs and other management measures such as minimum fish size, gear restrictions, and possession limits. More details on the SSC, MC, and Advisory Panel recommendations can be found in the briefing materials for the August 2015 Council meeting, available at: http://www.mafmc.org/briefing/august-2015.

The Summer Flounder, Scup, and Black Sea Bass FMP is cooperatively managed by the Council and the Atlantic States Marine Fisheries Commission (ASMFC). The Council and ASMFC's Summer

[3] An atypical stock has a life history that: a) results in a relatively high vulnerability to exploitation, and b) has not been fully addressed through the stock assessment and biological reference point development process. The SSC determines whether a stock is considered typical or atypical based on the best available information.

Flounder, Scup, and Black Sea Bass Management Board (the Board) meet jointly each year to consider the recommendations of the SSC and the MC, as well as input from Advisory Panel members, and other information, before making recommendations for commercial quotas, recreational harvest limits, and other management measures for all three species. The Council submits these recommendations to the NMFS Greater Atlantic Regional Administrator to consider for implementation. The Regional Administrator reviews the recommendations in this document and may revise them, if necessary, to achieve FMP objectives and to meet statutory requirements.

The commercial quotas and recreational harvest limits recommended by the Council and Board at their August 2015 meeting are identified in this document as preferred alternatives. The Council and Board did not recommend changes to any of the other existing management measures for the three species at their August 2015 meeting. The *status quo* alternatives described in this document represent the 2015 implemented specifications for all three species. The preferred alternatives are compared to the *status quo* alternatives. The *status quo* alternatives are not the same as the true no action alternatives, which are not consistent with the MSA and are therefore not analyzed in this document (section 5.4). This document also includes non-preferred most restrictive and least restrictive alternative for each species, which are also compared to the *status quo* alterative (section 5.0).

4.2.1 Summer Flounder Specifications Process

The SSC recommended OFLs and ABCs for summer flounder for 2016-2018 at their July 2015 meeting in Baltimore, Maryland.[4] When making these recommendations, the SSC considered the results of a summer flounder stock assessment update (NEFSC 2015b), recommendations from Council staff, input from Advisory Panel members, and comments submitted by members of the public.

The 2016-2018 OFLs are based on projections provided with the 2015 stock assessment update (NEFSC 2015b) and are as follows: 18.06 million pounds for 2016; 19.82 million pounds for 2017; and 22.40 million pounds for 2018.

Based on the 2015 stock assessment update, summer flounder SSB was 65% of SSB_{MSY} in 2014 (NEFSC 2015b). When recommending 2016-2018 summer flounder ABCs, the SSC deviated from the Council's risk policy described above, at the request of the Council. Rather than applying the risk policy to each year (2016, 2017, and 2018) as is typically done to identify the amount of buffer to address scientific uncertainty for each year, the SSC instead used a 3-year phased in approach to address the amount of scientific uncertainty identified for the first year (2016) and "phased" that buffer in over the three years (2016, 2017, and 2018). The SSC developed the ABC recommendations using the point estimate of the 2016 OFL produced by the stock assessment (which assumed the ABC would be caught in the prior year) and modified the distribution of the OFL to have a 60% coefficient of variation (CV). This resulted in a 2016 ABC that is 30% lower than the 2016 OFL, and 29% less than the 2015 ABC.

The Council asked the SSC to use the phased in approach because of socioeconomic concerns over the magnitude of the reduction in catch that would otherwise have been required in 2016. The

[4] The July 2015 SSC meeting report is available at: http://www.mafmc.org/ssc

Council believed such a large reduction would be potentially destabilizing to fishing businesses and fishing economies. Without the phased in approach, the 2016 ABC would have represented a 45% decrease when compared to the 2015 ABC.

The SSC therefore recommended phasing in the full 30% buffer between OFL and ABC over three years, with one third of the reduction applied in 2016 (10% buffer), an additional third in 2017 (20% buffer), and with the full 30% buffer applied for the 2018 ABC. Using this phased in approach, the SSC recommended a 2016 ABC of 16.26 million pounds, which has a 42.5% probability of overfishing. They recommended a 2017 ABC of 15.86 million pounds, which has a 34.4% probability of overfishing, and a 2018 ABC of 15.68 million pounds, which has a 26.0% probability of overfishing. Using this approach, the probabilities of overfishing for 2016 and 2017 are higher than those calculated under the Council's risk policy (Figure 1). The Council's risk policy, if applied without the phased approach, would have required a probability of overfishing below 26% for 2016. However, because they are less than the OFLs in the respective years and they have a less than 50% probability of overfishing, as required by long-standing case law, these catch limits do not conflict with the requirements of the Magnuson-Stevens Act or the FMP. Additionally, projected SSB and the associated OFLs increase from 2015 to 2018 and the SSC noted that the projected SSB in 2018 is approximately equal to that expected if the Council's risk policy had been followed for all three years. This was important for the SSC in its deliberations because it demonstrates that, cumulatively over these three years, the overall risk to the stock of deviating from the risk policy in the first two years is the same as if the risk policy had been followed, but without the more drastic cut in catch limits in a single year.

The MC met shortly after the SSC meeting in July 2015 to discuss ACTs and other management measures for summer flounder for the upcoming fishing years. The MC recommended no reduction from the 2016-2018 ACLs to the ACTs to account for management uncertainty. The MC noted recent above-average overages of the commercial quota and agreed that if such overages continue in the future, they may need to address this through future ACT recommendations. The MC also noted that decreased recreational harvest limits resulting from the SSC-recommended ABCs will pose challenges for constraining landings, especially given the lack of in-season closure authority for the recreational fishery. The MC will consider this aspect of management uncertainty when recommending 2016-2018 recreational management measures such as minimum fish size, bag limits, and fishing seasons, in the fall of 2015.

The MC recommended commercial ACTs of 9.43, 9.20, and 9.10 million pounds for 2016, 2017, and 2018, respectively. They recommended recreational ACTs of 6.83, 6.66, and 6.57 million pounds for 2016, 2017, and 2018 respectively. These ACTs are equivalent to the commercial and recreational ACLs derived from the SSC's ABC recommendation. The ABC is divided into commercial and recreational ACLs based on the allocation system described in the FMP. The MC did not recommend changes to any of the other summer flounder management measures for 2016-2018.

The Council and the Board recommended 2016-2018 commercial quotas and recreational harvest limits based on the SSC's ABC recommendations and the MC's ACT recommendations. The commercial quotas and recreational harvest limits were derived by subtracting projected discards from the ACTs. Total discards for summer flounder are projected as part of the stock assessment

update, and are then attributed to each sector based on the average proportion of discards for the past three years.[5] The recommended 2016-2018 commercial quotas are 8.12, 7.91, and 7.89 million pounds, respectively. The recommended 2016-2018 recreational harvest limits are 5.42, 5.28, and 5.26 million pounds, respectively. The Council and Board recommended no changes to other management measures for summer flounder.

4.2.2 Scup Specifications Process

At their July 2015 meeting, the SSC recommended OFLs for scup for 2016-2018 based on the results of the 2015 scup benchmark stock assessment (NEFSC 2015a).[6]

The scup OFLs for 2016-2018 were derived using an assumption that 75% of the 2015 ABC will be caught and that fishing effort will be at F_{MSY} in 2016 and 2017. This was considered a reasonable assumption for 2015 based on recent trends in commercial and recreational landings.[7] The SSC recommended OFLs of 35.80 million pounds for 2016, 32.09 million pounds for 2017, and 29.68 million pounds for 2018.

To derive the ABCs, the SSC applied a 60% CV to the lognormal distribution of the OFL and applied the Council's risk policy for a species with a typical life history and a biomass greater than B_{MSY}. The Council's risk policy indicates that the 2016-2018 scup ABCs should achieve a 40% probability of overfishing (section 4.2; Figure 1). The SSC recommended scup ABCs of 31.11 million pounds for 2016, 28.40 million pounds for 2017, and 27.05 million pounds for 2018.

The MC met shortly after the SSC meeting in July 2015 to discuss ACTs and other management measures for scup for the upcoming fishing years. The MC agreed that the commercial landings monitoring and fishery closure system is timely and effective in managing landings. They also acknowledged that both the commercial and recreational sectors have substantially under-harvested their landings limits for the past four years. For these reasons, the MC concluded that no reductions from the 2016-2018 ACLs were necessary to account for management uncertainty. They recommended that the 2016-2018 ACTs be set equal to the ACLs. The process of dividing the ABC into commercial and recreational ACLs is described in the FMP. The MC recommended commercial ACTs of 24.26, 22.15, and 21.10 million pounds for 2016, 2017, and 2018, respectively. They recommended recreational ACTs of 6.84, 6.25, and 5.95 million pounds, for 2016, 2017, and 2018, respectively. The MC did not recommend changes to any of the other scup management measures for 2016-2018.

At their August 2015 meeting, the Council and Board accepted the recommendations of the SSC and the MC and recommended scup commercial quotas of 20.47, 18.38, and 17.34 million pounds for 2016, 2017, and 2018 respectively. The Council and Board recommended recreational harvest limits of 6.09, 5.50, and 5.21 million pounds for 2016, 2017, and 2018 respectively. These values are the result of dividing the stock assessment projected total discards between the commercial and recreational sectors using the most recent three year average proportion of total discards attributable

[5] For more information, see Table 1 in the August Council Meeting staff memo, available at: http://www.mafmc.org/briefing/august-2015

[6] The July 2015 SSC meeting report is available at: http://www.mafmc.org/ssc

[7] For more information, see the August Council Meeting staff memo, available at: http://www.mafmc.org/briefing/august-2015

to each sector, and subtracting those discard estimates from the ACTs. The Council and Board recommended no changes to other management measures for scup.

4.2.3 Black Sea Bass Specifications Process

At their July 2015 meeting, the SSC concluded that an OFL for black sea bass could not be determined given the current state of knowledge.[8]

The last peer reviewed and accepted benchmark stock assessment for black sea bass was completed in 2009 (DPSWG 2009). Given the significant uncertainties associated with that assessment, the SSC has not accepted OFLs based on that assessment. The SSC has instead used a constant catch approach to recommend black sea bass ABCs since 2010. The SSC has recommended an ABC of 5.50 million pounds since 2013. At their July 2015 meeting, the SSC recommended, on an interim basis, that the black sea bass ABC remain unchanged for 2016 and 2017. The SSC did not recommend an ABC for 2018 because a black sea bass benchmark stock assessment is scheduled for late 2016. This assessment may change the stock status and may result in changes to recommended catch and landings limits for black sea bass. The SSC plans to review the results of that assessment in 2017 and make a 2018 ABC recommendation, and possibly a revised 2017 ABC recommendation, at that time.

In advance of that assessment, the Council contracted a group of experts to develop data-poor methods for assessing black sea bass (McNamee et al. 2015) The SSC received a presentation on the results of this work at their July 2015 meeting and decided to review the work in detail in September 2015 to determine whether or not it was appropriate to modify their ABC recommendations in light of this new information. At this September 2015 meeting, the SSC determined that applying the new modeling techniques based on these data poor methods provided a more appropriate approach to setting catch advice for black sea bass.[9]

At their July 2015 meeting, the MC recommended no reduction from the black sea bass ACLs to the ACTs to account for management uncertainty. The MC noted that because black sea bass catch limits have not risen in response to the apparent increase in black sea bass abundance in recent years, it has been increasingly difficult to constrain harvest to the landings limits. The MC committed to revisiting their ACT recommendations if the SSC revises their ABC recommendations when new assessment information is available.

The black sea bass ABC is divided into a commercial and a recreational ACL based on the allocation scheme described in the FMP. The MC used this allocation scheme to recommend a commercial ACT of 2.60 million pounds and a recreational ACT of 2.90 million pounds for 2016 and 2017. The basis for estimating discards comes from 2011 data, which was the most recent full year available to derive these proportions when the ABC was last revised in 2013. For 2011, 83% of catch was landed and 17% was discarded. Based on the 2015 data update, these proportions were the same in 2014. Sector allocation of discards is based on the average proportion per sector from 2010-2011.

[8] The July 2015 SSC meeting report is available at: http://www.mafmc.org/ssc
[9] The September 2015 SSC meeting report is available at: http://www.mafmc.org/ssc

At their August 2015 meeting, the Council and Board accepted the recommendations of the SSC and the MC and recommended a black sea bass commercial quota of 2.33 million pounds for 2016 and 2017 and a recreational harvest limit of 2.24 million pounds for 2016 and 2017. The Council and Board recommended no changes to other management measures for black sea bass at their August 2015 meeting.

5.0 MANAGEMENT ALTERNATIVES

The alternatives described below propose specifications for the summer flounder and scup fisheries for 2016-2018 and for black sea bass fisheries for 2016 and 2017. In August 2015 the Council recommended commercial and recreational ACLs and ACTs, commercial quotas, and recreational harvest limits for these fisheries (see section 4.2). The Council did not recommend other changes to the existing regulations for these fisheries; therefore, any other fishery management measures in place will remain unchanged (section 5.4). Comprehensive descriptions of the regulations for these fisheries, as detailed in the Code of Federal Regulations (CFR), are available through the NMFS Greater Atlantic Regional Fisheries Office (GARFO) website: http://www.greateratlantic.fisheries.noaa.gov/.

The Council's system of catch limits and accountability measures (AMs) was first implemented in 2012 (section 6.1.4; MAFMC 2011), and has been applied in the 2016-2018 recommendations described in this document. This system considers both scientific and management uncertainty, and is designed to ensure that recreational and commercial catches do not exceed the recreational and commercial ACLs, the sum of which is equal to the ABC. The amount of total catch, including landings and discards, produced in these fisheries in 2016-2018 is contingent on how the combinations of fishery regulations (e.g. minimum fish size, gear requirements, possession limits, etc.) interact to achieve the implemented levels of commercial quotas and recreational harvest limits. For the purposes of impact analyses, changes in the commercial quotas and recreational harvest limits are expected to drive any anticipated changes in effort and impacts on the VECs considered in this EA.

The ABCs, ACLs, ACTs, commercial quotas, and recreational harvest limits associated with each of the alternatives are shown in Tables 1-3. In some cases, only commercial quotas and recreational harvest limits are provided for the non-preferred alternatives because the Council did not use its current system of ABCs, ACLs, and ACTs during the years associated with those alternatives. Changes in the commercial quotas and recreational harvest limits are the focus of the impacts analysis; therefore, a meaningful comparison can be done without providing ABCs, ACLs, and ACTs for all non-preferred alternatives.

Under the management programs detailed in the FMP, a no action alternative is not equivalent to a *status quo* alternative. There are currently no landings limits in place in the regulations for these species for 2016-2018. Commercial quotas and recreational harvest limits for these species do not roll over from one year to the next (section 5.4). For purposes of comparing impacts, the proposed alternatives are compared to the *status quo* alternative (baseline) for 2016-2018, as opposed to the true no action alternative.

For each of the proposed alternatives, commercial quotas (including state shares) and recreational harvest limits are provisional and may be adjusted by NMFS in the 2016-2018 specifications final rule. NMFS may adjust the commercial quotas to account for 2015 overages and/or transfers or to account for overages and/or transfers from the 2014 fishery that were not accounted for in the 2015 specifications final rule. Further adjustments may also be necessary for fishing years 2017 and 2018 and will be published separately in the *Federal Register*.

Accountability Measures

Accountability measures (AMs) are measures that are implemented if the commercial ACL or the recreational ACL for a particular species is exceeded. The regulations associated with the summer flounder, scup, and black sea bass AMs are complex. A brief summary is presented here. The Regional Administrator can close the EEZ to commercial fishing for the remainder of the fishing year if it is determined that the commercial landings from one or more states will cause the species-specific commercial quota to be exceeded. Overage repayments (in pounds) can be required if a species-specific commercial ACL has been exceeded. Commercial overage adjustments (deductions from a subsequent year's catch limit in pounds) are evaluated based on whether the landings and/or discards component is responsible for the overage, and use the most recent year's data for the overage evaluation and comparison. Recreational overages are evaluated using a 3-year moving average of the total catch (landings and dead discards). Recreational overage adjustments, adjustments to ACTs, and/or adjustments to the specific management measures that regulate retention of fish (i.e., size, season, and possession limits) are used alone or in combination as recreational AMs depending on relationship of the current biomass to the biomass threshold and target (i.e., ½ BMSY and BMSY) and whether the ACL or the ABC has been exceeded. There is no in-season closure authority for the recreational summer flounder, scup, and black sea bass fisheries. More details on these requirements can be found in the regulations at: http://www.greateratlantic.fisheries.noaa.gov/regs/fr.html

The Council has used its current system of ACLs and AMs since 2012 (MAFMC 2011). The commercial summer flounder fishery uses state-by-state quotas to manage the fishery. Individual state overage repayments predate the AM requirements and have been used for many years. Since the AMs have been in place, a commercial black sea bass AM was implemented in fishing year 2015 because of a non-landings overage of the commercial ACL. The recreational black sea bass AM was triggered for fishing years 2014 and 2015 because of overages in 2012 and 2013. The recreational AM resulted in measures for Federal waters being more restrictive than if the overage had not occurred (79 FR 78311).

Table 1. 2016 summer flounder, scup, and black sea bass alternatives and associated catch and landings limits, in millions of pounds.

	Summer Flounder				Scup				Black Sea Bass			
	Alt. 1 (Preferred)	**Alt. 2** (*Status Quo*)	**Alt. 3** (Most Restrictive)	**Alt. 4**[a, b] (Least Restrictive)	**Alt. 1** (Preferred)	**Alt. 2** (*Status Quo*)	**Alt. 3**[a] (Most Restrictive)	**Alt. 4**[b] (Least Restrictive)	**Alt. 1** (Preferred)	**Alt. 2** (*Status Quo*)	**Alt. 3**[a, b] (Most Restrictive)	**Alt. 4**[a, b] (Least Restrictive)
OFL	18.06	27.06	18.06	NA[c]	35.80	NA[c]	NA[c]	65.88	NA[c]	NA[c]	NA[c]	NA[c]
ABC	16.26	22.77	12.6	--	31.07	33.77	--	40.88	5.50	5.50	--	--
Commercial ACL	9.43	13.34	7.30	--	24.26	26.34	--	31.89	2.60	2.60	--	--
Recreational ACL	6.83	9.44	5.29	--	6.84	7.43	--	8.99	2.90	2.90	--	--
Commercial discards at ACL	1.31	2.27	1.00	--	3.79	5.11	--	3.53	0.36	0.37	--	--
Recreational discards at ACL	1.41	2.06	1.09	--	0.75	0.63	--	0.42	0.57	0.57	--	--
Commercial ACT	9.43	13.34	7.30	--	24.26	26.34	--	31.88	2.60	2.58	--	--
Recreational ACT	6.83	9.44	5.29	--	6.84	7.43	--	8.99	2.90	2.90	--	--
Commercial quota	**8.12**	**11.07**	**6.30**	**18.18**	**20.47**	**21.23**	**2.53**	**28.35**	**2.24**	**2.21**	**1.13**	**4.02**
Recreational harvest limit	**5.42**	**7.38**	**4.20**	**12.12**	**6.09**	**6.80**	**1.24**	**8.57**	**2.33**	**2.33**	**1.17**	**4.18**

[a] This alternative is based on measures implemented at a time when the Council did not use its current system of ABCs, ACLs, and AMs.

[b] This alternative is based on previously implemented measures which included up to a 3% deduction in the commercial quota and/or recreational harvest limit under the Research Set Aside (RSA) program. Commercial quotas and recreational harvest limits for these alternatives are shown without the RSA deduction for ease of comparison with the preferred and *status quo* alternatives. The RSA program was suspended in 2014; therefore, the preferred and *status quo* alternatives do not include RSA deductions.

[c] The SSC did not identify OFLs in these cases. Summary reports of SSC meetings can be found at: http://www.mafmc.org/ssc.

Table 2. 2017 summer flounder, scup, and black sea bass alternatives and associated catch and landings limits, in millions of pounds.

	Summer Flounder				Scup				Black Sea Bass			
	Alt. 1 (Preferred)	**Alt. 2** (*Status quo*)	**Alt. 3** (Most restrictive)	**Alt. 4**[a, b] (Least restrictive)	**Alt. 1** (Preferred)	**Alt. 2** (*Status quo*)	**Alt. 3**[a] (Most restrictive)	**Alt. 4**[b] (Least restrictive)	**Alt. 1** (Preferred)	**Alt. 2** (*Status quo*)	**Alt. 3**[a, b] (Most restrictive)	**Alt. 4**[a, b] (Least restrictive)
OFL	19.82	27.06	19.82	NA[c]	32.09	NA[c]	NA[c]	65.88	NA[c]	NA[c]	NA[c]	NA[c]
ABC	15.86	22.77	12.6	--	28.40	33.77	--	40.88	5.50	5.50	--	--
Commercial ACL	9.20	13.34	7.30	--	22.15	26.34	--	31.89	2.60	2.60	--	--
Recreational ACL	6.66	9.44	5.29	--	6.25	7.43	--	8.99	2.90	2.90	--	--
Commercial discards at ACL	1.28	2.27	1.00	--	3.77	5.11	--	3.53	0.36	0.37	--	--
Recreational discards at ACL	1.39	2.06	1.09	--	0.75	0.63	--	0.42	0.57	0.57	--	--
Commercial ACT	9.20	13.34	7.30	--	22.15	26.34	--	31.88	2.60	2.58	--	--
Recreational ACT	6.66	9.44	5.29	--	6.25	7.42	--	8.99	2.90	2.90	--	--
Commercial quota	**7.91**	**11.07**	**6.30**	**18.18**	**18.38**	**21.23**	**2.53**	**28.35**	**2.24**	**2.21**	**1.13**	**4.02**
Recreational harvest limit	**5.28**	**7.38**	**4.20**	**12.12**	**5.50**	**6.80**	**1.24**	**8.57**	**2.33**	**2.33**	**1.17**	**4.18**

[a] This alternative is based on measures implemented at a time when the Council did not use its current system of ABCs, ACLs, and AMs.

[b] This alternative is based on previously implemented measures which included up to a 3% deduction in the commercial quota and/or recreational harvest limit under the Research Set Aside (RSA) program. Commercial quotas and recreational harvest limits for these alternatives are shown without the RSA deduction for ease of comparison with the preferred and *status quo* alternatives. The RSA program was suspended in 2014; therefore, the preferred and *status quo* alternatives do not include RSA deductions.

[c] The SSC did not identify OFLs in these cases. Summary reports of SSC meetings can be found at: http://www.mafmc.org/ssc.

Table 3. 2018 summer flounder and scup alternatives and associated catch and landings limits, in millions of pounds.

	Summer Flounder				Scup			
	Alt. 1 (Preferred)	**Alt. 2** (*Status quo*)	**Alt. 3** (Most restrictive)	**Alt. 4**[a, b] (Least restrictive)	**Alt. 1** (Preferred)	**Alt. 2** (*Status quo*)	**Alt. 3**[a] (Most restrictive)	**Alt. 4**[b] (Least restrictive)
OFL	22.40	27.06	22.40	NA[c]	29.68	NA[c]	NA[c]	65.88
ABC	15.68	22.77	12.6	--	27.05	33.77	--	40.88
Commercial ACL	9.10	13.34	7.30	--	21.10	26.34	--	31.89
Recreational ACL	6.57	9.44	5.29	--	5.95	7.43	--	8.99
Commercial discards at ACL	1.21	2.27	1.00	--	3.76	5.11	--	3.53
Recreational discards at ACL	1.31	2.06	1.09	--	0.75	0.63	--	0.42
Commercial ACT	9.10	13.34	7.30	--	21.10	26.34	--	31.88
Recreational ACT	6.57	9.44	5.29	--	5.95	7.43	--	8.99
Commercial quota	**7.89**	**11.07**	**6.30**	**18.18**	**17.34**	**21.23**	**2.53**	**28.35**
Recreational harvest limit	**5.26**	**7.38**	**4.20**	**12.12**	**5.21**	**6.80**	**1.24**	**8.57**

[a] This alternative is based on measures implemented at a time when the Council did not use its current system of ABCs, ACLs, and AMs.

[b] This alternative is based on previously implemented measures which included up to a 3% deduction in the commercial quota and/or recreational harvest limit under the Research Set Aside (RSA) program. Commercial quotas and recreational harvest limits for these alternatives are shown without the RSA deduction for ease of comparison with the preferred and *status quo* alternatives. The RSA program was suspended in 2014; therefore, the preferred and *status quo* alternatives do not include RSA deductions.

[c] The SSC did not identify OFLs in these cases. Summary reports of SSC meetings can be found at: http://www.mafmc.org/ssc.

5.1 Quota Alternatives for 2016 (Summer Flounder, Scup, and Black Sea Bass)

5.1.1 Alternative 1 (Preferred: Consistent with SSC Recommended ABCs)

Alternative 1 is the preferred alternative for all three species. It is based on the recommendations of the SSC, the MC, the Council, and the Board.

Alternative 1 for summer flounder in 2016 includes an ABC of 16.26 million pounds, which is 90% of the 2016 OFL. This ABC is associated with a 42.5% probability of overfishing (section 4.2). The 2016 commercial summer flounder ACL is 9.43 million pounds and the 2016 recreational ACL is 6.83 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards as described in section 4.2.1, the 2016 summer flounder commercial quota is 8.12 million pounds and the recreational harvest limit is 5.42 million pounds (Table 4). Under this alternative, state commercial shares range from 37 pounds to 2.23 million pounds in 2016 (Table 5).

Alternative 1 for scup in 2016 includes an ABC of 31.11 million pounds, which is 87% of the 2016 OFL. This ABC is associated with a 40% probability of overfishing and is consistent with the Council's risk policy (section 4.2). The 2016 commercial scup ACL is 24.26 million pounds and the recreational ACL is 6.84 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards as described in section 4.2.2, the 2016 scup commercial quota is 20.47 million pounds and the recreational harvest limit is 6.09 million pounds (Table 4).

Alternative 1 for black sea bass in 2016 includes an ABC of 5.50 million pounds. This ABC is based on a constant catch approach and is not associated with an OFL (section 4.2.3). The 2016 commercial black sea bass ACL is 2.60 million pounds and the recreational ACL is 2.90 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards as described in 4.2.3, the 2016 black sea bass commercial quota is 2.24 million pounds and the recreational harvest limit is 2.33 million pounds (Table 4).

Table 4. OFL, ABC, and commercial quota and recreational discard calculations (in millions of pounds) for the preferred alternatives for summer flounder, scup, and black sea bass for 2016.

	Summer Flounder	Scup	Black Sea Bass
OFL	18.06	35.80	NA
ABC	16.26	31.07	5.50
ABC landings portion[a]	13.54	26.56	4.56
ABC discards portion[a]	2.72	4.55	0.93
Projected commercial discards[b]	1.31	3.79	0.36
Projected recreational discards[b]	1.41	0.75	0.57
Commercial ACL[c]	9.43	24.26	2.60
Recreational ACL[c]	6.83	6.84	2.90
Commercial ACT[d]	9.43	24.26	2.60
Recreational ACT[d]	6.83	6.84	2.90
Commercial quota[e]	**8.12**	**20.47**	**2.24**
Recreational harvest limit[e]	**5.42**	**6.09**	**2.33**

[a] The ABC landings and discard portions are provided with benchmark stock assessments and assessment updates.
[b] Projected discards are calculated by multiplying the ABC discards portion by the average percent of total dead discards attributable to each sector (commercial or recreational) over the past three years for summer flounder and scup and over the past two years for black sea bass.
[c] The ABC is divided into a commercial ACL and a recreational ACL based on the allocation percentages outlined in the FMP (i.e., 60% commercial and 40% recreational for summer flounder; 78% commercial and 22% recreational for scup, and 49% commercial and 51% recreational for black sea bass).
[d] The ACT is set equal to or less than the ACL based on the recommendations of the Monitoring Committee.
[e] The commercial quota is equal to the commercial ACT minus projected commercial discards. The recreational harvest limit is equal to the recreational ACT minus projected recreational discards.

Table 5. 2016 commercial summer flounder quota allocations (in pounds), by state, under alternatives 1-4.

State	Percent [a]	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Maine	**0.04756**	3,862	5,265	2,996	8,646
New Hampshire	**0.00046**	37	51	29	84
Massachusetts	**6.82046**	553,821	755,025	429,689	1,239,960
Rhode Island	**15.68298**	1,273,458	1,736,106	988,028	2,851,166
Connecticut	**2.25708**	183,275	249,859	142,196	410,337
New York	**7.64699**	620,936	846,522	481,760	1,390,223
New Jersey	**16.72499**	1,358,069	1,851,456	1,053,674	3,040,603
Delaware[b]	**0.01779**	0	0	0	0
Maryland	**2.0391**	165,575	225,728	128,463	370,708
Virginia	**21.31676**	1,730,921	2,359,765	1,342,956	3,875,387
North Carolina	**27.44584**	2,228,602	3,038,254	1,729,088	4,989,654
Total [b]	**100**	8,118,556	11,068,032	6,298,880	18,176,768

[a] Refers to the percent of the coastwide commercial quota that is allocated to each state, as outlined in the FMP.
[b] Total quota is the sum of the state quotas allocated in 2016. Delaware is allocated no quota in 2016 due to an ongoing accountability measure for a large prior-year overage

5.1.2 Alternative 2 (Non-Preferred: *Status Quo*)

The 2016 *status quo* alternative includes measures that were implemented for summer flounder, scup, and black sea bass for the 2015 fishing year.

Alternative 2 for summer flounder includes an ABC of 22.77 million pounds. The commercial ACL is 13.34 million pounds and the recreational ACL is 9.44 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs. After subtracting projected discards, the commercial quota is 11.07 million pounds and the recreational harvest limit is 7.38 million pounds. Under this alternative, state commercial shares would range from 51 pounds to 3.04 million pounds in 2016 (Table 5).

Alternative 2 for scup includes an ABC of 33.77 million pounds. The commercial ACL is 26.34 million pounds and the recreational ACL is 7.43 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs. After subtracting projected discards, the commercial quota is 21.23 million pounds and the recreational harvest limit is 6.80 million pounds.

Alternative 2 for black sea bass includes an ABC of 5.50 million pounds. The commercial ACL is 2.60 million pounds and the recreational ACL is 2.90 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs. After subtracting projected discards, and adjusting for an Accountability Measure due to a commercial overage in 2013, the commercial quota

is 2.21 million pounds and the recreational harvest limit is 2.33 million pounds (section 6.1.4; 79 FR 78311; December 30, 2014).

The calculations for determining the probabilities of overfishing are not available for Alternatives 2, 3, or 4. However, a comparison of the commercial quotas and recreational harvest limits proposed under these alternatives to Alternative 1 can provide a relative understanding of risk. Total catch limits that are higher than the preferred alternatives would be considered likely to have a higher risk of overfishing than the recommended limits. Total catch limits that are lower than the preferred alternatives would likely to have a lower risk of overfishing than the recommended limits.

5.1.3 Alternative 3 (Non-Preferred: Most Restrictive)

The most restrictive alternative (alternative 3) for summer flounder for 2016-2018 is based on the initial staff recommendation for 2016 (Dancy 2015). This recommendation follows the Council's typical risk policy for setting ABCs (section 4.2). It includes an ABC of 12.60 million pounds, which results in a commercial ACL and ACT of 7.30 million pounds, a recreational ACL and ACT of 5.29 million pounds, a commercial quota of 6.30 million pounds, and a recreational harvest limit of 4.20 million pounds. Under this alternative, state commercial shares would range from 29 pounds to 1.73 million pounds in 2016 (Table 5). If these recommendations were implemented, they would represent the lowest commercial quotas and recreational harvest limits ever put in place for summer flounder. The SSC ultimately deviated from the Council's risk policy when making summer flounder ABC recommendations for 2016-2018 (section 4.2.1), thus these measures are not the preferred summer flounder alternatives for 2016-2018. Because these measures are based on the Council's risk policy, they are considered a reasonable most restrictive alternative for comparison with the preferred alternatives.

The most restrictive alternatives (alternative 3) for scup and black sea bass correspond to the FMP time series lows for commercial quotas and recreational harvest limits for both species. The lowest landings limits in the FMP time series for scup were implemented in 2000 and included a commercial quota of 2.53 million pounds and a recreational harvest limit of 1.24 million pounds. The Council did not use ACLs and ACTs in 2000. The lowest landings limits in the FMP time series for black sea bass were implemented in 2009 and included a commercial quota of 1.13 million pounds and a recreational harvest limit of 1.17 million pounds. The Council did not use ACLs and ACTs in 2009.

5.1.4 Alternative 4 (Non-Preferred: Least Restrictive)

The least restrictive alternatives (alternative 4) for all three species correspond to the FMP time series highs for commercial quotas and recreational harvest limits.

The highest landings limits in the FMP time series for summer flounder were implemented in 2005 and included a commercial quota of 18.18 million pounds and a recreational harvest limit of 12.12 million pounds. Under this alternative, state commercial shares would range from 84 pounds to 4.99 million pounds in 2016 (Table 5). The Council did not use ACLs and ACTs in 2005.

The highest landings limits in the FMP time series for scup were implemented in 2012 and included a commercial quota of 28.35 million pounds and a recreational harvest limit of 8.57 million pounds. These landings limits were based on an ABC of 40.88 million pounds, a commercial ACL and ACT of 31.89 million pounds, and a recreational ACL and ACT of 8.99 million pounds.

The highest landings limits in the FMP time series for black sea bass were implemented in 2005 and included a commercial quota of 4.02 million pounds and a recreational harvest limit of 4.18 million pounds. The Council did not use ACLs, and ACTs in 2005.

5.2 Quota Alternatives for 2017 (Summer Flounder, Scup, and Black Sea Bass)

5.2.1 Alternative 1 (Preferred: Consistent with SSC Recommended ABCs)

Alternative 1 is the preferred alternative for all three species for 2017. It is based on the recommendations of the SSC, the MC, the Council, and Board.

Alternative 1 for summer flounder in 2017 includes an ABC of 15.86 million pounds, which is 80% of the 2017 OFL. This ABC is associated with a 34% probability of overfishing. Though this probability of overfishing is not consistent with the Council's risk policy, it is nonetheless expected to ensure that overfishing does not occur in 2017 (section 4.2 and 4.2.1). Under alternative 1, the 2017 commercial summer flounder ACL is 9.20 million pounds and the recreational ACL is 6.66 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards, the 2017 summer flounder commercial quota is 7.91 million pounds and the recreational harvest limit is 5.28 million pounds (Table 6). Under this alternative, state commercial shares would range from 36 pounds to 2.17 million pounds in 2017 (Table 7).

Alternative 1 for scup in 2017 includes an ABC of 28.40 million pounds, which is 89% of the 2017 OFL. This ABC is associated with a 40% probability of overfishing and is consistent with the Council's risk policy (section 4.2). The 2017 commercial scup ACL is 22.15 million pounds and the 2017 recreational scup ACL is 6.25 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards, the 2017 scup commercial quota is 18.38 million pounds and the recreational harvest limit is 5.50 million pounds (Table 6).

Alternative 1 for black sea bass in 2017 includes an ABC of 5.50 million pounds. This ABC is based on a constant catch approach and is not associated with an OFL (section 4.2.3). The 2017 commercial black sea bass ACL is 2.60 million pounds and the 2017 recreational black sea bass ACL is 2.90 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards, the 2017 black sea bass commercial quota is 2.24 million pounds and the recreational harvest limit is 2.33 million pounds (Table 6).

Table 6. OFL, ABC, and commercial quota and recreational discard calculations (in millions of pounds) for the preferred alternatives for summer flounder, scup, and black sea bass for 2017.

	Summer Flounder	Scup	Black Sea Bass
OFL	19.82	32.09	NA
ABC	15.86	28.40	5.50
ABC landings portion[a]	13.19	23.88	4.56
ABC discards portion[a]	2.67	4.52	0.93
Projected commercial discards[b]	1.28	3.77	0.36
Projected recreational discards[b]	1.39	0.75	0.57
Commercial ACL[c]	9.20	22.15	2.60
Recreational ACL[c]	6.66	6.25	2.90
Commercial ACT[d]	9.20	22.15	2.60
Recreational ACT[d]	6.66	6.25	2.90
Commercial quota[e]	**7.91**	**18.38**	**2.24**
Recreational harvest limit[e]	**5.28**	**5.50**	**2.33**

[a] The ABC landings and discard portions are provided with benchmark stock assessments and assessment updates.
[b] Projected discards are calculated by multiplying the ABC discards portion by the average percent of total dead discards attributable to each sector (commercial or recreational) over the past three years for summer flounder and scup and over the past two years for black sea bass.
[c] The ABC is divided into a commercial ACL and a recreational ACL based on the allocation percentages outlined in the FMP (i.e., 60% commercial and 40% recreational for summer flounder; 78% commercial and 22% recreational for scup, and 49% commercial and 51% recreational for black sea bass).
[d] The ACT is set equal to or less than the ACL based on the recommendations of the Monitoring Committee.
[e] The commercial quota is equal to the commercial ACT minus projected commercial discards. The recreational harvest limit is equal to the recreational ACT minus projected recreational discards.

Table 7. 2017 commercial summer flounder quota allocations (in pounds), by state, under alternatives 1-4.

State	Percent[a]	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Maine	**0.04756**	3,762	5,265	2,996	8,646
New Hampshire	**0.00046**	36	51	29	84
Massachusetts	**6.82046**	539,498	755,025	429,689	1,239,960
Rhode Island	**15.68298**	1,240,524	1,736,106	988,028	2,851,166
Connecticut	**2.25708**	178,535	249,859	142,196	410,337
New York	**7.64699**	604,877	846,522	481,760	1,390,223
New Jersey	**16.72499**	1,322,947	1,851,456	1,053,674	3,040,603
Delaware[b]	**0.01779**	0	0	0	0
Maryland	**2.0391**	161,293	225,728	128,463	370,708
Virginia	**21.31676**	1,686,156	2,359,765	1,342,956	3,875,387
North Carolina	**27.44584**	2,170,966	3,038,254	1,729,088	4,989,654
Total[b]	**100**	7,908,594	11,068,032	6,298,880	18,176,768

[a] Refers to the percent of the coastwide commercial quota that is allocated to each state, as outlined in the FMP.
[b] Total quota is the sum of the state quotas allocated in 2017. Delaware is allocated no quota in 2017 due to an ongoing accountability measure for a large prior-year overage

5.2.2 Alternative 2 (Non-Preferred: *Status Quo*)

The 2017 *status quo* alternative includes measures that were implemented for summer flounder, scup, and black sea bass for the 2015 fishing year. These alternatives are described in section 5.1.2.

5.2.3 Alternative 3 (Non-Preferred: Most Restrictive)

The most restrictive alternative for summer flounder, scup, and black sea bass in 2017 are identical to those described in section 5.1.3.

5.2.4 Alternative 4 (Non-Preferred: Least Restrictive)

The least restrictive alternatives for all three species in 2017 correspond to the FMP time series highs for commercial quotas and recreational harvest limits. These alternatives are described in section 5.1.4.

5.3 Quota Alternatives for 2018 (Summer Flounder and Scup)

5.3.1 Alternative 1 (Preferred: Consistent with SSC Recommended ABCs)

Alternative 1 is the preferred alternative for summer flounder and scup for 2018. The Council did not recommend specifications for black sea bass for 2018. Alternative 1 is based on the recommendations of the SSC, the MC, the Council, and the Board.

Alternative 1 for summer flounder in 2018 includes an ABC of 15.68 million pounds, which is 70% of the 2018 OFL. This ABC is associated with a 26% probability of overfishing. The 2018 commercial ACL is 9.10 million pounds and the recreational ACL is 6.57 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards, the 2018 summer flounder commercial quota is 7.89 million pounds and the recreational harvest limit is 5.26 million pounds (Table 8). Under this alternative, state commercial shares would range from 36 pounds to 2.16 million pounds in 2018 (Table 9).

Table 8. OFL, ABC, and commercial quota and recreational discard calculations (in millions of pounds) for the preferred alternatives for summer flounder and scup for 2018.

	Summer Flounder	Scup
OFL	22.40	29.68
ABC	15.58	27.05
ABC landings portion[a]	13.16	22.55
ABC discards portion[a]	2.52	4.50
Projected commercial discards[b]	1.21	3.76
Projected recreational discards[b]	1.31	0.75
Commercial ACL[c]	9.10	21.10
Recreational ACL[c]	6.57	5.95
Commercial ACT[d]	9.10	21.10
Recreational ACT[d]	6.57	5.95
Commercial quota[e]	**7.89**	**17.34**
Recreational harvest limit[e]	**5.26**	**5.21**

[a] The ABC landings and discard portions are provided with benchmark stock assessments and assessment updates.
[b] Projected discards are calculated by multiplying the ABC discards portion by the average percent of total dead discards attributable to each sector (commercial or recreational) over the past three years.
[c] The ABC is divided into a commercial ACL and a recreational ACL based on the allocation percentages outlined in the FMP (i.e., 60% commercial and 40% recreational for summer flounder; 78% commercial and 22% recreational for scup).
[d] The ACT is set equal to or less than the ACL based on the recommendations of the Monitoring Committee.

[e] The commercial quota is equal to the commercial ACT minus projected commercial discards. The recreational harvest limit is equal to the recreational ACT minus projected recreational discards.

Table 9. 2018 commercial summer flounder quota allocations (in pounds), by state, under alternatives 1-4.

State	Percent[a]	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Maine	**0.04756**	3,752	5,265	2,996	8,646
New Hampshire	**0.00046**	36	51	29	84
Massachusetts	**6.82046**	538,134	755,025	429,689	1,239,960
Rhode Island	**15.68298**	1,237,387	1,736,106	988,028	2,851,166
Connecticut	**2.25708**	178,084	249,859	142,196	410,337
New York	**7.64699**	603,348	846,522	481,760	1,390,223
New Jersey	**16.72499**	1,319,602	1,851,456	1,053,674	3,040,603
Delaware[b]	**0.01779**	0	0	0	0
Maryland	**2.0391**	160,885	225,728	128,463	370,708
Virginia	**21.31676**	1,681,892	2,359,765	1,342,956	3,875,387
North Carolina	**27.44584**	2,165,477	3,038,254	1,729,088	4,989,654
Total[b]	**100**	7,888,597	11,068,032	6,298,880	18,176,768

[a] Refers to the percent of the coastwide commercial quota that is allocated to each state, as outlined in the FMP.
[b] Total quota is the sum of the state quotas allocated in 2018. Delaware is allocated no quota in 2018 due to an ongoing accountability measure for a large prior-year overage.

Alternative 1 for scup in 2018 includes an ABC of 27.05 million pounds, which is 91% of the 2018 OFL. This ABC is associated with a 40% probability of overfishing and is consistent with the Council's risk policy (section 4.2). The 2018 commercial scup ACL is 21.10 million pounds and the 2018 recreational scup ACL is 5.95 million pounds. The commercial and recreational ACTs are set equal to their respective ACLs, consistent with the recommendations of the MC. After subtracting projected discards, the 2018 scup commercial quota is 17.34 million pounds and the recreational harvest limit is 5.21 million pounds (Table 8).

5.3.2 Alternative 2 (Non-Preferred: *Status Quo*)

The 2018 *status quo* alternative includes measures that were implemented for summer flounder and scup for the 2015 fishing year. These alternatives are described in section 5.1.2.

5.3.3 Alternative 3 (Non-Preferred: Most Restrictive)

The most restrictive alternative for summer flounder and scup in 2018 are identical to those described in section 5.1.3.

5.3.4 Alternative 4 (Non-Preferred: Least Restrictive)

The least restrictive alternatives for summer flounder and scup in 2018 correspond to the FMP time series highs for commercial quotas and recreational harvest limits. These alternatives are described in section 5.1.4.

5.4 True No-Action Alternatives (Summer Flounder, Scup, and Black Sea Bass)

Section 5.03(b) of National Oceanic and Atmospheric Administration (NOAA) Administrative Order (AO) 216-6, "Environmental review procedures for implementing the National Environmental Policy Act," states that "an Environmental Assessment (EA) must consider all reasonable alternatives, including the preferred action and the no action alternative." Consideration of the no action alternative is important because it shows what would happen if the proposed action is not taken; however, defining exactly what is meant by the no action alternative is often difficult. The President's Council on Environmental Quality (CEQ) has explained that there are two distinct interpretations of "no action." One interpretation is essentially the *status quo*, meaning no change from the current management. The other interpretation is when a proposed action simply does not take place. Determining the no action alternative for the 2016-2018 summer flounder, scup, and black sea bass specifications is more complicated than either of these interpretations suggest.

Status quo management for the summer flounder, scup, and black sea bass fisheries includes a set of indefinite (i.e., in force until otherwise changed) management measures, including minimum fish sizes, bag limits, and reporting requirements. These measures will remain in place even if the proposed specifications are not implemented. Catch and landings limits for these fisheries are specific to each fishing year; the FMP does not allow for roll-over provisions if catch and landings limits are not implemented for a given year. For example, if the proposed 2016 summer flounder, scup, or black sea bass specifications are not implemented for one or all of these fisheries by January 1, 2016, that fishery (or fisheries) will operate without an identified cap on allowable catch and landings, starting on January 1, 2016. For this reason, the no action alternatives in 2016, 2017, and 2018 are not equivalent to *status quo*. If specifications for any or all of these fisheries are not implemented, some current measures will remain in place, but the overall management program for those fisheries will not be identical to that of 2015.

For the purposes of this EA, the 2016, 2017, and 2018 no action alternative is defined as follows: (1) no proposed specifications for the 2016, 2017, and 2018 summer flounder, scup, or black sea bass fisheries will be published; (2) the indefinite management measures (minimum fish sizes, bag limits, possession limits, permit and reporting requirements, etc.) for each of these species remain unchanged; and (3) there will be no cap on the allowable annual catch (i.e., no ACLs) and landings in each of these fisheries (i.e., no commercial quotas or recreational harvest limits). Under the 2016, 2017, and 2018 no action alternatives, the only regulatory controls on fishing effort and harvests would be the indefinite measures.[10]

The no action alternatives have substantial implications for summer flounder, scup, and black sea bass fisheries. The no action alternatives do not allow NMFS to specify and implement ACLs, commercial quotas, and recreational harvest limits for these fisheries for the upcoming fishing year, as required by Federal regulations (50 CFR part 648) and the MSA. The no action alternative is inconsistent with the goals and objectives of the FMP, as well as its implementing regulations. The no action alternative may result in overfishing of one or more of the three species or cause one or more of the ACLs to be exceeded. This would make the no action alternative inconsistent with the

[10] Descriptions of the regulations as detailed in the CFR are available at: http://www.greateratlantic.fisheries.noaa.gov/.

MSA. For these reasons, the no action alternatives are not considered reasonable and are thus not analyzed further in this EA. The proposed 2016-2018 alternatives are thus compared to alternative 2 for each of the years, which is equivalent to the *status quo*, or baseline, alternative as opposed to the true no action alternative. The *status quo* alternatives described in this document are equivalent to the previously implemented 2015 measures.

6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES

6.1 Description of the Managed Resource

6.1.1 Description of the Fisheries

The management unit for summer flounder (*Paralichthys dentatus*) consists of the U.S. waters in the western Atlantic Ocean from the southern border of North Carolina northward to the U.S.-Canadian border. The management unit for both scup (*Stenotomus chrysops*) and black sea bass (*Centropristis striata*) is U.S. waters in the western Atlantic Ocean from Cape Hatteras, North Carolina northward to the U.S.-Canadian border.

The commercial and recreational fisheries for summer flounder, scup, and black sea bass are described in detail in section 3.3 of Amendment 13 to the FMP (MAFMC 2002) and are also outlined by principal port in section 3.4 of that document. Updated information, including landings trends and stock status, is provided below.

Otter trawls are the predominant gear type used in the commercial fisheries for all three species. Pots/traps are also used to catch black sea bass in the commercial fishery. Floating traps are used to a relatively small extent to capture scup.

Commercial and recreational landings of each species from 1981 through 2014 are shown in Figures 2-4 and Table 10.

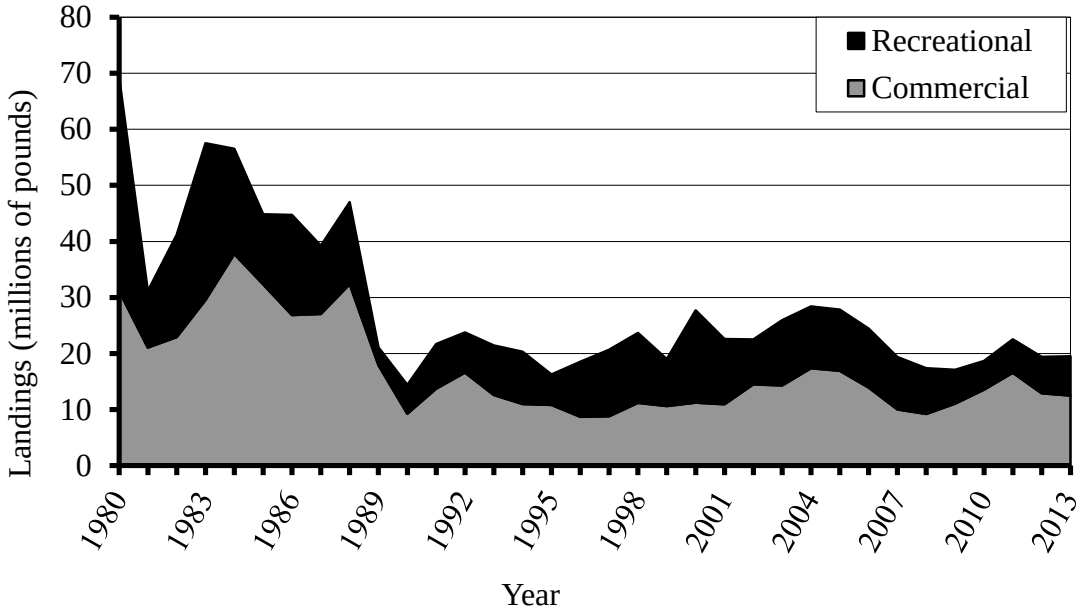

Figure 2. Summer flounder commercial and recreational landings, 1980-2014.

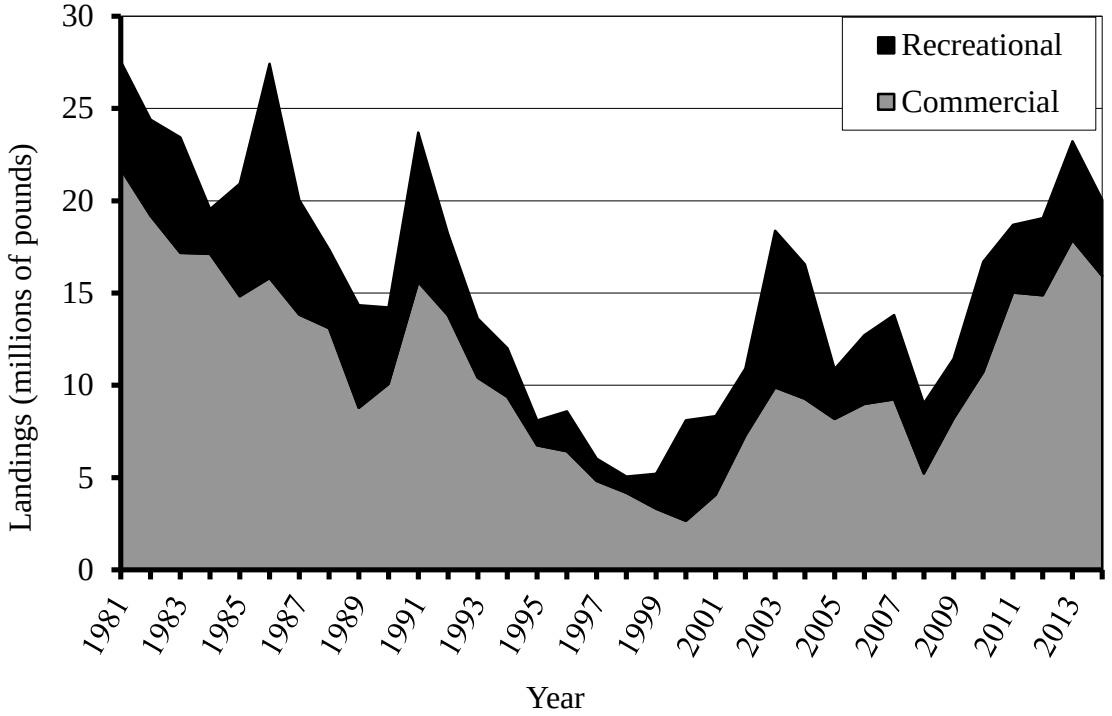

Figure 3. Scup commercial and recreational landings, 1981-2014.

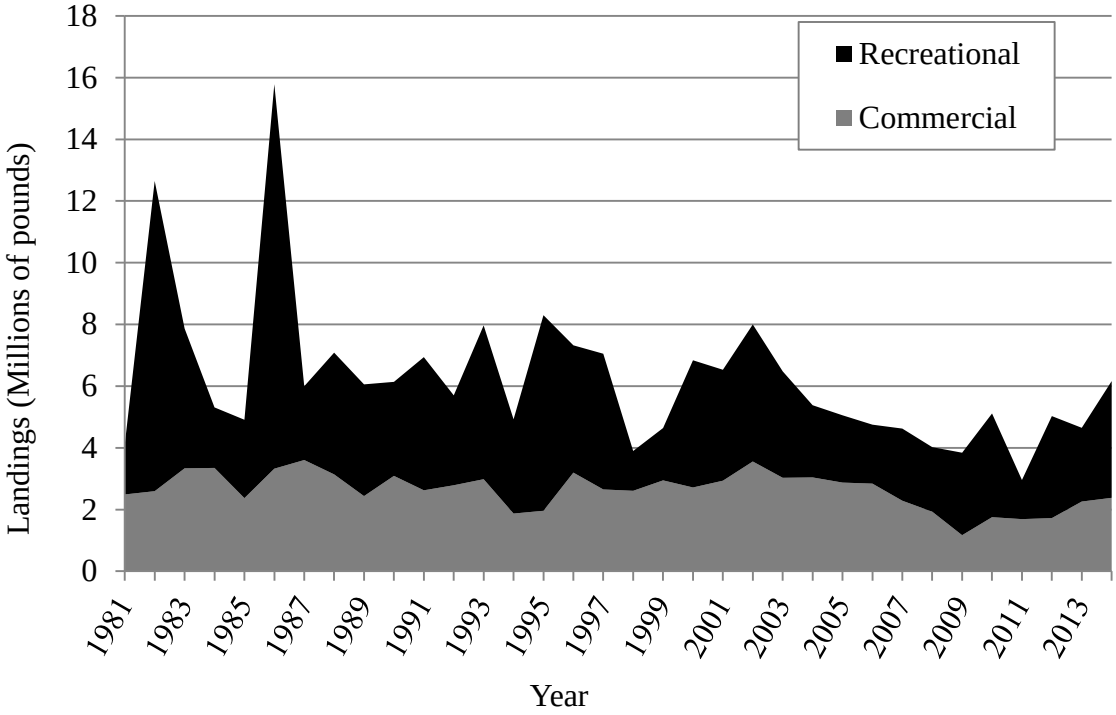

Figure 4. Black sea bass commercial and recreational landings, 1981-2014.

Table 10. Summer flounder, scup, and black sea bass commercial and recreational landings, 1981-2014, in millions of pounds.

	Summer Flounder		Scup		Black Sea Bass	
Year	**Commercial**	**Recreational**	**Commercial**	**Recreational**	**Commercial**	**Recreational**
1981	21.06	10.08	21.73	5.81	2.49	1.63
1982	22.93	18.23	19.19	5.21	2.59	10.05
1983	29.55	27.97	17.18	6.25	3.34	4.53
1984	37.77	18.77	17.13	2.42	3.35	1.96
1985	32.35	12.49	14.83	6.09	2.37	2.54
1986	26.87	17.86	15.82	11.61	3.32	12.46
1987	27.05	12.17	13.84	6.20	3.60	2.39
1988	32.38	14.62	13.10	4.27	3.14	3.95
1989	17.91	3.16	8.78	5.56	2.44	3.62
1990	9.26	5.13	10.08	4.14	3.09	3.05
1991	13.72	7.96	15.61	8.09	2.62	4.32
1992	16.60	7.15	13.80	4.41	2.79	2.91
1993	12.60	8.83	10.42	3.20	2.98	4.99
1994	10.98	9.33	9.38	2.63	1.87	3.05
1995	10.83	5.42	6.75	1.34	1.96	6.34
1996	8.70	9.82	6.43	2.16	3.20	4.13
1997	8.80	11.87	4.82	1.20	2.65	4.40
1998	11.19	12.48	4.18	0.88	2.61	1.29
1999	10.62	8.37	3.32	1.89	2.95	1.70
2000	11.23	16.47	2.66	5.44	2.71	4.12
2001	10.94	11.64	4.07	4.26	2.93	3.60
2002	14.49	8.01	7.28	3.62	3.56	4.44
2003	14.30	11.64	9.89	8.48	3.03	3.45
2004	17.37	11.02	9.28	7.28	3.04	2.34
2005	16.91	10.92	8.18	2.69	2.87	2.18
2006	13.92	10.51	9.00	3.72	2.84	1.91
2007	10.02	9.34	9.24	4.56	2.29	2.34
2008	9.21	8.15	5.22	3.79	1.93	2.09
2009	11.05	6.03	8.20	3.23	1.17	2.67
2010	13.55	5.11	10.73	5.97	1.75	3.36
2011	16.57	5.96	15.03	3.67	1.69	1.27
2012	12.91	6.49	14.88	4.17	1.72	3.31
2013	12.49	7.01	17.88	5.34	2.26	2.39
2014	10.91	7.39	15.93	4.12	2.38	3.78

Commercial landings are based on Dealer Weighout Data. Recreational landings are based on Marine Recreational Fisheries Statistical Survey (MRFSS; for years prior to 2004) and Marine Recreational Information Program (MRIP; for years 2004 to present) data. Additional information on these fisheries can be found in Council meeting materials available at: http://www.mafmc.org/.

6.1.2 Description of the Stock (Including Status, Stock Characteristics, and Ecological Relationships)

Reports on stock status, including annual assessment and reference point update reports, Stock Assessment Workshop (SAW) reports, Stock Assessment Review Committee (SARC) reports, are available online at the Northeast Fisheries Science Center (NEFSC) website: http://www.nefsc.noaa.gov/.

EFH Source Documents, which include details on stock characteristics and ecological relationships, are available at: http://www.nefsc.noaa.gov/nefsc/habitat/efh/

6.1.2.1 Summer Flounder

Summer flounder was under a rebuilding plan from 1993 through the fall of 2011. The most recent summer flounder benchmark stock assessment took place in 2013 as part of 57th Stock Assessment Workshop (SAW 57). This assessment indicated that the summer flounder stock was not overfished and overfishing was not occurring in 2012 (NEFSC 2013). In June 2015, the NEFSC updated this assessment with commercial and recreational fishery data and research survey indices of abundance through 2014. This assessment update indicated that the stock was not overfished, but that overfishing was occurring in 2014, compared to the SSB and fishing mortality (F) biological reference points from the 2013 benchmark assessment. SSB in 2014 was estimated to be about 88.90 million pounds, about 65% of the SSB_{MSY} proxy (i.e., $SSB_{35\%}$) of 137.55 million pounds and about 29% higher than the overfished threshold of 68.78 million pounds (i.e., ½ $SSB_{35\%}$). F in 2014 was estimated to be 0.359, about 16% higher than the F_{MSY} proxy (i.e., $F_{35\%}$) of 0.309. This change in the status of the summer flounder stock may be partly due to lower than expected recruitment. The assessment update showed that five of the last seven year classes were initially over-estimated by 22% to 49% in the stock assessment. The assessment update showed that recruitment (i.e., the number of age 0 fish) was below average from 2010 through 2013. The assessment update also showed past under-estimations of F and over-estimation of SSB (NEFSC 2015b). There is also evidence of substantial illegal harvest in recent years, especially under the Research Set-Aside program, in the form of unreported, underreported, or misreported landings, which is likely to have contributed to these patterns.

6.1.2.2 Scup

Scup was under a formal rebuilding plan from 2005 through 2009. NMFS declared the scup stock rebuilt in 2009 based on the findings of the Data Poor Stocks Working Group (DPSWG), which completed a benchmark stock assessment for scup in 2008 (DPSWG 2009).

The most recent benchmark stock assessment for scup took place in 2015 as part of the 60th Stock Assessment Work Group and Stock Assessment Review Committee (SAW/SARC 60). This assessment found that the scup stock was not overfished and overfishing was not occurring in 2014 relative to the new biomass reference points. SSB was estimated to be 403 million pounds in 2014, about 210% of the SSB_{MSY} proxy (i.e., $SSB_{40\%}$) of 192 million pounds. F in 2014 was estimated to be 0.127, about 57% of the F_{MSY} proxy (i.e., $F_{40\%}$) of 0.220.

6.1.2.3 Black Sea Bass

The protogynous life history (i.e., transitioning from female to male) and structure-orienting behavior of black sea bass pose challenges for analytical assessments of this species. Most stock assessments of mid-Atlantic species rely heavily on data collected during the NEFSC's biannual bottom trawl survey. This survey does not sample areas with physical structure that are used extensively by black sea bass for habitat (section 6.2.2).

The northern stock of black sea bass (i.e., black sea bass north of Cape Hatteras, North Carolina) was under a rebuilding plan from 2000 until 2009. Black sea bass were declared rebuilt based on the findings of the Data Poor Stocks Working Group, which performed a benchmark stock assessment for black sea bass in 2008 (DPSWG 2009). This remains the most recent benchmark stock assessment for black sea bass that has passed peer review and been accepted for use in management.

The most recent assessment update for black sea bass took place in 2012. This update indicated that the stock was not overfished and overfishing was not occurring in 2011 relative to the biological reference points from the last benchmark stock assessment. F was estimated to be 0.21 in 2011, about 48% of the F_{MSY} reference point of 0.44. SSB was estimated to be 24.6 million pounds in 2011, slightly above SSB_{MSY} reference point of 24.0 million pounds (NEFSC 2012).

A 2015 data update indicates that commercial and recreational landings of black sea bass have been relatively stable over the past several years. Fisheries-independent survey data indicate that a very large year class entered the population in 2011. That cohort continues to be the most dominant year class in the population (NEFSC 2015c).

6.1.3 Non-Target Species

The MSA defines bycatch as fish that are harvested but are not sold or kept for personal use. Bycatch includes discards of whole fish at sea or elsewhere, including economic and regulatory discards, and also includes fishing mortality due to an encounter with fishing gear that does not result in capture of fish. Bycatch does not include fish released alive under a recreational catch-and-release fishery management program.

Section 5.1.9 of Amendment 13 to the FMP (MAFMC 2002) includes a description of bycatch and non-target species in the summer flounder, scup, and black sea bass fisheries. These fisheries are mixed fisheries. Squid, Atlantic mackerel, silver hake, Atlantic croaker, skates, spiny dogfish, and other species are harvested with summer flounder, scup, and black sea bass (MAFMC 2001; personal communication with Dr. Mark Terceiro, NEFSC, October 22, 2015). More recent information on bycatch and non-target species associated with the Mid-Atlantic large and small mesh trawl fisheries (the dominant gears used to land summer flounder, scup, and black sea bass) can be found in the Standardized Bycatch Reporting Methodology Amendment (NMFS 2015).

To address the impact of these fisheries on other managed species, AMs for some species managed by the New England Fishery Management Council also affect the summer flounder, scup, and black sea bass fisheries. The Northeast Multispecies FMP uses a system of ACLs and sub-ACLs allocated to different portions of the fishing industry. Sub-ACLs are allocated to the fisheries that catch groundfish incidentally. The sub-ACLs are typically gear-based and are not fishery specific. The Southern New England/Mid-Atlantic windowpane flounder sub-ACL could impact the summer flounder, scup, and black sea bass fisheries if incidental bycatch of windowpane results in the sub-ACL or the overall ACL being exceeded. NMFS determines the appropriate AM and implements it when applicable. More information on this AM can be found in section 648.90(a)(5)(D) of the regulations.

6.2 Habitat (Including Essential Fish Habitat)

A description of the habitat associated with the summer flounder, scup, and black sea bass fisheries is presented in section 3.2 of Amendment 13 to the FMP (MAFMC 2002). This description remains largely unchanged. A brief summary of that information is given here. The impact of summer flounder, scup, and black sea bass fisheries on habitat of target and non-target species can be found in Amendment 13 to the FMP (section 3.2; MAFMC 2002). Potential habitat impacts associated with the measures proposed in this document are discussed in section 7.2.

6.2.1 Physical Environment

Detailed information on the affected physical and biological environments inhabited by the managed resources is available in Stevenson et al. (2004). Summer flounder, scup, and black sea bass inhabit the Northeast U.S. Shelf Ecosystem, which includes the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. The continental slope includes the area east of the shelf out to a depth of 2000 meters. The NOAA Fisheries Northeast Region contains four distinct sub-regions: the Gulf of Maine, Georges Bank, the Mid-Atlantic Bight, and the continental slope. The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with a patchwork of various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and strong currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, North Carolina. The continental slope begins at the continental shelf break and continues eastward with increasing depth until it becomes the continental rise. It is fairly homogenous, with exceptions at the shelf break, some of the canyons, the Hudson Shelf Valley, and in areas of glacially rafted hard bottom.

The environment that could be affected by the actions described in this document overlaps with EFH for the managed resources. The following sections describe where to find detailed information on EFH.

6.2.2 Essential Fish Habitat (EFH)

Information on summer flounder, scup, and black sea bass habitat requirements can be found in the documents titled, "Essential Fish Habitat Source Document: Summer Flounder, *Paralichthys dentatus*, Life History and Habitat Characteristics" (Packer et al. 1999), "Essential Fish Habitat Source Document: Scup, *Stenotomus chrysops*, Life History and Habitat Characteristics" (Steimle et al. 1999a), "Essential Fish Habitat Source Document: Black Sea Bass, *Centropristis striata*, Life History and Habitat Characteristics" (Steimle et al. 1999b) and an update of that document titled, "Essential Fish Habitat Source Document: Black Sea Bass, *Centropristis striata*, Life History and Habitat Characteristics" (Drohan et al. 2007). Electronic versions of these documents are available at: http://www.greateratlantic.fisheries.noaa.gov/hcd/list.htm. The current designations of EFH by life history stage for summer flounder, scup, and black sea bass are provided in the appendix to this document. A summary description of EFH for summer flounder, scup, and black sea bass is provided here.

Summer flounder spawn during the fall and winter over the open ocean areas of the continental shelf. Their planktonic larvae are often found in the northern part of the Mid-Atlantic Bight from September to February and in the southern part from November to May. Larvae and post-larvae migrate inshore, entering coastal and estuarine nursery areas from October to May. Juveniles are distributed inshore and in many estuaries throughout the species' range during the spring, summer, and fall. Summer flounder exhibit strong seasonal inshore-offshore movements. Adult summer flounder normally inhabit shallow coastal and estuarine waters during the warmer months and remain offshore during the colder months. EFH includes pelagic and demersal waters, saltmarsh creeks, seagrass beds, mudflats, and open bay areas, from the Gulf of Maine through North Carolina.

Scup spawn once annually over weedy or sand-covered areas in the spring. Scup eggs and newly hatched larvae are found in open water in bays and sounds of Southern New England during the spring and summer. Juvenile and adult scup are demersal, using inshore waters in the spring and moving offshore in the winter. Scup EFH includes demersal waters, sands, mud, and mussel and seagrass beds, from the Gulf of Maine through Cape Hatteras, North Carolina.

The northern population of black sea bass (i.e., black sea bass north of Cape Hatteras, North Carolina) spawns in the Mid-Atlantic Bight continental shelf, primarily between Cape Hatteras, North Carolina, and Cape Cod, Massachusetts, during the spring through the fall. Spawning begins in the spring off North Carolina and Virginia, and progresses north into southern New England waters in the summer through the fall. The duration of larval stage and habitat-related settlement cues are unknown. Distribution and habitat use of this pelagic stage may only partially overlap with that of the egg stage. Adult black sea bass are very structure-oriented, especially during their summer coastal residency. Unlike juveniles, they tend to enter only larger estuaries and are most abundant along the coast. Larger fish tend to be found in deeper water than smaller fish. A variety of coastal structures are known to attract black sea bass, including shipwrecks, rocky and artificial reefs, mussel beds and other objects or source of shelter on the bottom. In the warmer months, inshore, resident adult black sea bass are usually found associated with structured habitats. EFH for black sea bass includes pelagic waters, structured habitat (e.g., sponge beds), rough bottom shellfish, sand and shell, from the Gulf of Maine through Cape Hatteras, North Carolina.

6.2.3 Fishery Impact Considerations

The bottom otter trawl is the predominant gear type in the commercial fisheries for all three species. Pots and traps are also used in the black sea bass commercial fishery, and to a small extent in the scup commercial fishery. In recent years, offshore lobster traps have accounted for a relatively small amount of the black sea bass commercial catch. Other gear types, including handlines, gillnets, beam trawls, and scallop trawls, have accounted for minor amounts of the commercial catches of all three species in recent years, as shown in unpublished NMFS Vessel Trip Report data.

Any actions implemented in the FMP that affect species with overlapping EFH were considered in the EFH assessment for Amendment 13 to the FMP (MAFMC 2002). Amendment 13 included alternatives to minimize the adverse impacts of fishing gear on EFH (as required by section 303(a)(7) of the MSA). As stated in section 3.2 of Amendment 13, the Council determined that both mobile bottom tending and stationary gear can adversely impact EFH. The analysis in that document also indicated that no management measures were needed, because in Federal waters the fisheries are conducted primarily in high energy mobile sand habitats, where gear impacts are minimal and/or temporary in nature. On that basis, the Council selected the no action alternative from among the suite of alternatives to minimize fishing gear impacts on EFH in Amendment 13. There have been no significant changes to the manner in which the summer flounder, scup, and black sea bass fisheries are prosecuted since Amendment 13. None of the alternatives considered in this document would adversely affect EFH, when considered in comparison to the *status quo* alternative (section 7.0); therefore, the effects of fishing on EFH have not been re-evaluated since Amendment 13, and no alternatives to minimize adverse effects on EFH are presented in this document.

The principal gears used in the recreational fishery for all three species are rod and reel and handline. The potential adverse impacts of these gears on EFH for any of the federally-managed species in the region are minimal (Stevenson et al. 2004).

6.3 ESA and MMPA Protected Species

Numerous protected species inhabit the affected environment of the Summer Flounder, Scup, and Black Sea Bass FMP (Table 11). These species are under NMFS jurisdiction and are afforded protection under the Endangered Species Act (ESA) of 1973 and/or the Marine Mammal Protection Act (MMPA) of 1972.

Cusk, a NMFS "species of concern," as well as a "candidate species" under the ESA, occurs in the affected environment of the summer flounder, scup, and black sea bass fisheries. Candidate species are those petitioned species that NMFS is actively considering for listing as endangered or threatened under the ESA and also include those species for which NMFS has initiated an ESA status review through an announcement in the *Federal Register*. The conference provisions of the ESA apply once a species is proposed for listing (see 50 CFR 402.10); however, candidate species receive no substantive or procedural protection under the ESA. As a result, this species will not be discussed further in this section. For additional information on cusk and proactive conservation efforts being initiated for the species:

http://www.nero.noaa.gov/prot_res/CandidateSpeciesProgram/CuskSOC.html.

6.3.1 Species and Critical Habitat Not Likely to be Affected by the Proposed Action

Based on available information, it has been determined that this action is not likely to affect blue whales, sperm whales, shortnose sturgeon, Atlantic spotted dolphins, striped dolphins, pygmy sperm whales, dwarf sperm whales, or hawksbill sea turtles. Further, this action is not likely to adversely affect any critical habitat for the species listed in Table 11. This determination was made because either the occurrence of the species is not known to overlap with the summer flounder, scup, and black sea bass fisheries and/or there have never been documented interactions between the species and these fisheries (Waring et al. 2014a, 2015a; NMFS 2013; NMFS NEFSC FSB 2015; see http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). In the case of critical habitat, this determination has been made because the summer flounder, scup, and black sea bass fisheries will not affect the primary constituent elements of the critical habitat, and therefore, will not result in the destruction or adverse modification of critical habitat. Additional information is available at: http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm.

Table 11. Species Protected Under the ESA and/or MMPA that May Occur in the Affected Environment of the Summer Flounder, Scup, and Black Sea Bass Fisheries.

Species	Status	Potentially affected by this action?
Cetaceans		
North Atlantic right whale (*Eubalaena glacialis*)	Endangered	Yes
Humpback whale (*Megaptera novaeangliae*)	Endangered	Yes
Fin whale (*Balaenoptera physalus*)	Endangered	Yes
Sei whale (*Balaenoptera borealis*)	Endangered	Yes
Blue whale (*Balaenoptera musculus*)	Endangered	No
Sperm whale (*Physeter macrocephalus*	Endangered	No
Minke whale (*Balaenoptera acutorostrata*)	Protected	Yes
Pilot whale (*Globicephala spp*.)[1]	Protected	Yes
Pygmy sperm whale (*Kogia breviceps*)	Protected	No
Dwarf sperm whale (*Kogia sima*)	Protected	No
Risso's dolphin (*Grampus griseus*)	Protected	Yes
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected	Yes
Short Beaked Common dolphin (*Delphinus delphis*)[2]	Protected	Yes
Atlantic Spotted dolphin (*Stenella frontalis*)	Protected	No
Striped dolphin (*Stenella coeruleoalba*)	Protected	No
Bottlenose dolphin (*Tursiops truncatus*)[3]	Protected	Yes
Harbor porpoise (*Phocoena phocoena*)	Protected	Yes
Sea Turtles		
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	Yes
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered	Yes
Green sea turtle (*Chelonia mydas*)	Endangered[4]	Yes
Loggerhead sea turtle (*Caretta caretta*), Northwest Atlantic DPS	Threatened	Yes
Hawksbill sea turtle (*Eretmochelys imbricate*)	Endangered	No
Fish		
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No
Atlantic salmon (*Salmo salar*)	Endangered	Yes
Atlantic sturgeon *(Acipenser oxyrinchus)*		
Gulf of Maine DPS	Threatened	Yes
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS	Endangered	Yes
Cusk (*Brosme brosme)*	Candidate	Yes
Pinnipeds		
Harbor seal (*Phoca vitulina*)	Protected	Yes
Gray seal (*Halichoerus grypus*)	Protected	Yes
Harp seal (*Phoca groenlandicus*)	Protected	Yes
Hooded seal (*Cystophora cristata*)	Protected	Yes
Critical Habitat		
North Atlantic Right Whale[5]		No
Northwest Atlantic DPS of Loggerhead Sea Turtle		No

[1] There are 2 species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp*.

[2] Prior to 2008, this species was called "common dolphin."

[3] This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins. See Waring *et al*. (2014a) for further details.

[4] Green turtles are currently listed in U.S. waters as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green turtles are considered endangered wherever they occur in U.S. waters. On March 23, 2015, a proposed rule was issued to remove the current range-wide listing and, in its place, list eight DPSs as threatened and three as endangered (80 FR 15272).

[5]Originally designated June 3, 1994 (59 FR 28805); Newly proposed February 20, 2015 (80 FR 9314).

6.3.2 Species Potentially Affected by the Proposed Action

6.3.2.1 Sea Turtles

This section contains a brief summary of the occurrence and distribution of sea turtles in the affected environment of the summer flounder, scup, and black sea bass fisheries. Additional background information on the range-wide status of affected sea turtles species, as well as a description and life history of each of these species, can be found in a number of published documents, including sea turtle status reviews and biological reports (NMFS and USFWS 1995; Hirth 1997; TEWG 1998, 2000, 2007, 2009; NMFS and USFWS 2007a, 2007b; Conant et al. 2009; NMFS and USFWS 2013), and recovery plans for the loggerhead sea turtle (Northwest Atlantic DPS; NMFS and USFWS 2008), leatherback sea turtle (NMFS and USFWS 1992, 1998a), Kemp's ridley sea turtle (NMFS et al. 2011), and green sea turtle (NMFS and USFWS 1991, 1998b).

Hard-shelled sea turtles: In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida to Cape Cod, MA, although their presence varies with the seasons due to changes in water temperature (Braun-McNeill et al. 2008; Braun & Epperly 1996; Epperly et al. 1995a,b; Mitchell et al. 2003; Shoop & Kenney 1992; TEWG 2009; Blumenthal et al. 2006; Braun-McNeill & Epperly 2004; Griffin et al. 2013; Hawkes et al. 2006; Hawkes et al. 2011; Mansfield et al. 2009; McClellan & Read 2007; Mitchell et al. 2003; Morreale & Standora 2005). As coastal water temperatures warm in the spring, loggerheads begin to migrate to inshore waters of the southeast United States and also move up the Atlantic Coast (Braun-McNeill & Epperly 2004; Epperly et al. 1995a,b,c; Griffin et al. 2013; Morreale & Standora 2005), occurring in Virginia foraging areas as early as late April and on the most northern foraging grounds in the Gulf of Maine (GOM) in June (Shoop & Kenney 1992). The trend is reversed in the fall as water temperatures cool. The majority leave the Gulf of Maine by September, but some remain in Mid-Atlantic and Northeast areas until November. By December, sea turtles have migrated south to waters offshore of North Carolina, particularly south of Cape Hatteras, and further south, although hard-shelled sea turtles can occur year-round in waters off Cape Hatteras and south (Epperly et al. 1995b; Griffin et al. 2013; Hawkes et al. 2011; Shoop & Kenney 1992).

Leatherback sea turtles: Leatherback sea turtles also engage in routine migrations between northern temperate and tropical waters (Dodge et al. 2014; James et al. 2005; James et al. 2006; NMFS & USFWS 1992). Leatherbacks, a pelagic species, are also known to use coastal waters of the U.S. continental shelf (Dodge et al. 2014; Eckert et al. 2006; James et al. 2005; Murphy et al. 2006). Leatherbacks have a greater tolerance for colder water in comparison to hard-shelled sea turtles. They are also found in more northern waters later in the year, with most leaving the Northwest Atlantic shelves by mid-November (Dodge et al. 2014; James et al. 2005; James et al. 2006).

6.3.2.2 Large Whales

Humpback, North Atlantic right, fin, sei, and minke whales are found throughout the waters of the Northwest Atlantic Ocean. In general, these species follow an annual pattern of migration

between low latitude (south of 35°N) wintering/calving grounds and high latitude spring/summer foraging grounds (primarily north of 41°N; Waring et al. 2015a; NMFS 1991, 2005, 2010, 2011, 2012). This is a simplification of whale movements, particularly as it relates to winter movements. It is unknown if all individuals of a population migrate to low latitudes in the winter, although increasing evidence suggests that for some species (e.g., right and humpback whales), some portion of the population remains in higher latitudes throughout the winter (Brown et al. 2002; Clapham et al. 1993; Cole et al. 2013; Khan et al. 2010, 2011, 2012; Khan et al. 2009; NOAA 2008; Swingle et al. 1993; Vu et al. 2012; Waring et al. 2014a, 2015a). Although further research is needed to provide a clearer understanding of large whale movements and distribution in the winter, the distribution and movements of large whales to foraging grounds in the spring/summer is well understood. Large whales consistently return to these foraging areas each year, therefore these areas can be considered important, high use areas for whales (Baumgartner et al. 2003; Baumgartner & Mate 2003; Brown et al. 2002; Kenney 2001; Kenney et al. 1986; Kenney et al. 1995; Mayo & Marx 1990; Payne et al. 1986; Payne et al. 1990; Schilling et al. 1992). For additional information on the biology, status, and range wide distribution of each whale species please refer to: Waring et al. 2014a, 2015a; NMFS 1991, 2005, 2010, 2011, 2012.

6.3.2.3 Small Cetaceans and Pinnipeds

Small cetaceans can be found throughout the year in the Northwest Atlantic Ocean; however, within this range, there are seasonal shifts in species distribution and abundance. Pinnipeds are primarily found throughout the year or seasonally from New Jersey to Maine; however, increasing evidence indicates that some species (e.g., harbor seals) may be extending their range seasonally into waters as far south as Cape Hatteras, North Carolina (35°N) (Waring et al. 2014a, 2015a). For additional information on the biology and range wide distribution of each species of small cetacean and pinniped provided in Table 11, please refer to Waring et al. (2014a, 2015a).

6.3.2.4 Atlantic sturgeon

The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. All five DPSs of Atlantic sturgeon have the potential to be located anywhere in this marine range (ASSRT 2007; Dovel and Berggren 1983; Dadswell et al. 1984; Kynard et al. 2000; Stein et al. 2004a; Dadswell 2006; Laney et al. 2007; Dunton et al. 2010; Erickson et al. 2011; Wirgin et al. 2012; Waldman et al. 2013; O'Leary et al. 2014; Wirgin et al. 2015). Based on fishery-independent and dependent data, as well as data collected from tracking and tagging studies, in the marine environment, Atlantic sturgeon appear to primarily occur inshore of the 50 meter depth contour (Stein et al. 2004 a,b; Erickson et al. 2011; Dunton et al. 2010); however, Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Timoshkin 1968; Collins and Smith 1997; Stein et al. 2004a,b; Dunton et al. 2010; Erickson et al. 2011). Data from fishery-independent surveys and tagging and tracking studies also indicate that Atlantic sturgeon may undertake seasonal movements along the coast (Dunton et al. 2010; Erickson et al. 2011); however, there is no evidence to date that all Atlantic sturgeon make these seasonal movements and therefore, may be present throughout the marine environment throughout the year. For additional information on the biology, status, and range wide distribution of each distinct population segment (DPS) of

Atlantic sturgeon please refer to 77 FR 5880 and 77 FR 5914, as well as the Atlantic Sturgeon Status Review Team's (ASSRT) 2007 status review of Atlantic sturgeon (ASSRT 2007).

6.3.2.5 Atlantic salmon

The wild populations of Atlantic salmon are listed as endangered under the ESA. Their freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, while the marine range of the GOM DPS extends from the GOM (primarily northern portion of the GOM), to the coast of Greenland (NMFS and USFWS 2005; Fay et al. 2006). In general, smolts, post-smolts, and adult Atlantic salmon may be present in the GOM and coastal waters of Maine in the spring (beginning in April), and adults may be present throughout the summer and fall months (Baum 1997; Fay et al. 2006; USASAC 2004; Hyvarinen et al. 2006; Lacroix and McCurdy 1996; Lacroix et al. 2004, 2005; Reddin 1985; Reddin and Short 1991; Reddin and Friedland 1993; Sheehan et al. 2012; NMFS and USFWS 2005; Fay et al. 2006). For additional information on the on the biology, status, and range wide distribution of the GOM DPS of Atlantic salmon please refer to NMFS and USFWS 2005; Fay et al. 2006.

6.3.3 Gear Interactions and Protected Species

6.3.3.1 Recreational Fisheries Interactions

The recreational components of the summer flounder, scup, and black sea bass fisheries are primarily prosecuted with rod and reel and handline (i.e., hook and line gear). In the absence of an observer program for recreational fisheries, records of recreational hook and line interactions with protected resources are limited. However, as a dedicated observer program exists for all commercial fisheries, there is a wealth of information on observed protected species interactions with all fishing gear types and years of data assessing resultant population level effects of these interactions. Other sources of information, such as state fishing records, stranding databases, and marine mammal stock assessment reports, provide additional information that can assist in better understanding hook and line interaction risks to protected species. It is believed that hook and line interactions are rare to non-existent for ESA listed or non-listed species of marine mammals and fish (Waring et. al. 2014a; Waring et al. 2015a; NMFS 2013; NMFS 2011; Kocik et. al. 2014; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). ESA listed species of sea turtles are known to interact with hook and line gear, particularly in nearshore southern waters (e.g., Virginia, south; Sea Turtle Disentanglement Network (STDN); NMFS 2013). Serious injury and mortality to sea turtles can be incurred by hook and line gear interactions, and can pose a risk to these species. The impacts of these interactions on sea turtle populations is still under investigation, thus no conclusions can currently be made on the impact of hook and line gear on the continued survival of sea turtle populations. Although recreational fishing affects marine species, nothing in this document would modify the manner in which the recreational summer flounder, scup, and black sea bass fisheries are prosecuted.

6.3.3.2 Commercial Fisheries Interactions

The commercial summer flounder, scup, and black sea bass fisheries are prosecuted primarily with bottom otter trawl and trap/pot gear. Protected species listed in Table 11 are known to

interact with one or more of these gear types. Available information on gear interactions with a given species (or species group) is provided in the sections below. These sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on the primary gear types used in the summer flounder, scup, and black sea bass fisheries and their associated interaction risk to the species under consideration.

6.3.3.2.1 Sea Turtles

Bottom Trawl Gear: Sea turtles are known to interact with bottom trawl gear. Most of the observed sea turtle interactions with bottom trawl gear have occurred in the Mid-Atlantic, although there have been some sea turtle interactions with trawl gear observed on Georges Bank. As few sea turtle interactions have been observed outside the Mid-Atlantic. There is insufficient data available to conduct a robust model-based analysis of sea turtle interactions with trawl gear to produce a bycatch estimate for these regions. As a result, the following bycatch estimates are based on observed sea turtle interactions in trawl gear in the Mid-Atlantic.

Green, Kemp's ridley, leatherback, loggerhead, and unidentified sea turtles have been documented interacting with bottom trawl gear. However, estimates are available only for loggerhead sea turtles. Warden (2011a) estimated that from 2005-2008, the average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic (i.e., south of Cape Cod, Massachusetts, to approximately the North Carolina/South Carolina border) was 292 (CV=0.13, 95% CI=221-369), with an additional 61 loggerheads (CV=0.17, 95% CI=41-83) interacting with trawls, but released through a Turtle Excluder Device (TED). Of the 292 average annual observable loggerhead interactions, approximately 44 of those were adult equivalents (Warden 2011a).[11] Most recently, Murray (2015) estimated that from 2009-2013, the total average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic (i.e., defined by the boundaries of the Mid-Atlantic Ecological Production; roughly waters west of 71^{o}W to the North Carolina/South Carolina border) was 231 (CV=0.13, 95% CI=182-298). Of the 231 average annual observable loggerhead interactions, approximately 33 of those were adult equivalents (Murray 2015). Bycatch estimates provided in Warden (2011a) and Murray (2015) represent a decrease from the average annual loggerhead bycatch in bottom otter trawls during 1996-2004, which Murray (2008) estimated at 616 sea turtles (CV=0.23, 95% CI over the nine-year period: 367-890). This decrease is likely due to decreased fishing effort in high-interaction areas (Warden 2011a). Warden (2011b), also estimated total loggerhead interactions (with bottom otter trawl gear) attributable to managed species from 2005-2008. Using Northeast Fisheries Observer Program (NEFOP) data, Warden (2011b) developed a generalized additive model of loggerhead interaction rates, which were then applied to Vessel Trip Reports (VTRs) to estimate total interactions on each VTR trip. The total loggerhead interactions on each trip were then assigned to the individual managed species that were landed on the trip (as reported in VTR data; Warden 2011b). For instance, an estimated average annual take of 108 loggerheads (95% CI=81-136; estimated observable, and unobservable but quantifiable) were attributed to the summer flounder fishery, 1 loggerhead (95% CI=1-3) to the scup fishery, and 1 loggerhead (95% CI=0-1) to the black sea bass fishery. Murray (2015) provided similar estimates of loggerhead interactions by managed fished species from 2009-2013. Specifically, estimated average annual take of 50

[11] Adult equivalence considers the reproductive value (i.e., expected reproductive output) of the animal (Warden 2011, Murray 2013, Wallace et al. 2008).

loggerheads (95% CI=26-84) were attributed to the summer flounder fishery, 4 loggerheads (95% CI=2-7) to the scup fishery, and 1 loggerhead (95% CI=1-2) to the black sea bass fishery (Murray 2015).

As described above, the summer flounder fishery has a high incidence of sea turtle takes in bottom trawl gear, particularly in waters off Virginia and North Carolina. To address this issue, Turtle Excluder Devices (TEDs) have been required in the summer flounder fishery since 1992, specifically in the summer flounder fishery sea turtle protection area.[12] This area is bounded on the north by a line extending along 37°05'N (Cape Charles, VA) and on the south by a line extending out from the North Carolina-South Carolina border. Vessels north of Oregon Inlet, NC, are exempt from the TED requirement from January 15 through March 15 each year (50 CFR 223.206); while vessels operating south of Oregon Inlet, NC, are required to have TEDs year round.[13] In 2003, NMFS issued a final rule to amend the TED regulations to enhance their effectiveness in the Atlantic and Gulf Areas of the southeastern United States by requiring an escape opening designed to exclude leatherbacks as well as large loggerhead and green turtles (68 FR 8456).

Pot/Trap Gear: Leatherback, loggerhead, green and kemp's ridley sea turtles are known to interact with trap/pot gear. Interactions are primarily associated with entanglement in buoy lines, although sea turtles can also become entangled in groundline or surface systems. Records of stranded or entangled sea turtles indicate that fishing gear can wrap around the neck, flipper, or body of the sea turtle and severely restrict swimming or feeding (Balazs 1985, STDN and Sea Turtle Stranding and Salvage Network (STSSN) unpublished data). As a result, sea turtles can incur serious injuries and in some cases, mortality immediately or at a later time.

NMFS Northeast Region STDN database, a component of the STSSN, provides the most complete dataset on sea entanglements. Based on information provided in this database, between 2003 and 2014, a total of 18 confirmed sea turtle entanglements in vertical line gear associated fish trap/pots were reported to the STDN and NMFS GARFO. Of the 18 reports, 17 were leatherback sea turtles, while one was a Kemp's ridley sea turtle. The majority (61.1%) of these confirmed interactions where associated with fish trap/pot gear targeting/catching sea bass.

6.3.3.2.2 Atlantic Sturgeon

Bottom Trawl Gear: Atlantic sturgeon are known to interact with bottom trawl gear and have been observed over the last 10 years (NEFOP and At-Sea Monitoring Program (ASM)) in bottom otter trawl gear where the primary species being targeted was summer flounder, scup, or black sea bass (NMFS NEFSC FSB 2015). To understand the interaction risk between bottom otter trawls and Atlantic sturgeon, there are three documents that use data collected by the NEFOP to describe bycatch of Atlantic sturgeon: Stein et al. (2004b); ASMFC (2007); and Miller and Shepard (2011). None of these provide estimates of Atlantic sturgeon bycatch by DPS.

[12] TEDs allow sea turtles to escape the trawl net, reducing injury and mortality resulting from capture in the net.
[13] For a map delineating the summer flounder fishery-sea turtle protection area, please see: http://www.greateratlantic.fisheries.noaa.gov/educational_resources/gis/data/shapefiles/Summer_Flounder_Fishery-Sea_Turtle_Protection_Area/Summer_Flounder_Fishery-Sea_Turtle_Protection_Area_MAP.pdf.

Information provided in all three documents indicate that sturgeon bycatch occurs in bottom otter trawl gear, with the most recent document estimating, based on fishery observer data and VTR data from 2006-2010, that annual bycatch of Atlantic sturgeon was 1,239 animals (Miller and Shepard 2011). Specifically, Miller and Shepard (2011) observed Atlantic sturgeon interactions in trawl gear with small (< 5.5 inches) and large (≥ 5.5 inches) mesh sizes.[14] Although Atlantic sturgeon were observed to interact with trawl gear with various mesh sizes, based on observer data, Miller and Shepard (2011) concluded that of the possible fishing gear types, in general, trawl gear posed less of a mortality risk to Atlantic sturgeon than gillnet gear. Estimated mortality rates in gillnet gear were 20.0%, while those in otter trawl gear were 5.0%. Similar conclusions were reached in Stein et al. 2004b and ASMFC 2007. Although Atlantic sturgeon deaths have rarely been reported in otter trawl gear (ASMFC 2007), effects of an interaction may occur long after the interaction; therefore, until additional studies are conducted, it is remains uncertain what the overall impacts to Atlantic sturgeon survival are from trawl interactions (Beardsall et al. (2013). As a result, trawls should not be completely discounted as a form of gear that poses a mortality risk to Atlantic sturgeon. Further, even if an animal is released alive, pursuant to the ESA, any Atlantic sturgeon interaction with fishing gear is considered take.

Pot/Trap Gear: To date, there have been no documented pot/trap interactions with Atlantic sturgeon (NMFS NEFSC FSB 2015; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html).

6.3.3.2.3 Atlantic Salmon

Bottom Trawl Gear: The NEFOP and ASM Program documented a total of 15 individual salmon incidentally caught on over 60,000 observed commercial fishing trips from 1989 through August 2013 (NMFS 2013; Kocik et al. 2014). Four out of the 15 individual salmon were observed bycaught in bottom otter trawl gear, the remainder were observed in gillnet gear (Kocik, personal communication; NMFS 2013). This suggests that interactions with Atlantic salmon are rare events (NMFS 2013; Kocik et al. 2014).

Pot/Trap Gear: To date, there have been documented pot/trap interactions with Atlantic salmon (NMFS NEFSC FSB 2015; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html).

6.3.3.2.4 Marine Mammals

Some species of marine mammals have also been observed seriously injured or killed in trap/pot or bottom trawl gear. Pursuant to the MMPA, NMFS publishes a List of Fisheries (LOF) annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injuries and/or mortalities of marine mammals in each fishery. The summer flounder, scup, and black sea bass fisheries are categorized within the LOF based on gear type. Category I and II fisheries can be found in the summer flounder, scup, and black sea bass fisheries (Table 12).

[14] The minimum mesh size bottom otter trawls targeting summer flounder, scup and black sea bass are 5.5", 5.0", and 4.5" respectively.

Table 12. Commercial Fisheries Classification based on 2014 List of Fisheries (LOF; 79 FR 50589). An (*) indicates those species driving the fisheries classification.

Resource	Gears	LOF	Species Observed Seriously Injured/Killed
Summer flounder, scup, and black sea bass	Mid-Atlantic bottom trawl fishery	Cat. II	Bottlenose (offshore stock), common*, Risso's*, and white-sided dolphins; short- and long-finned pilot whales*; gray seal and harbor seals
	Northeast bottom trawl	Cat. II	Bottlenose (offshore stock), common, and white-sided dolphins*; harbor porpoise; harbor, gray, and harp seals; short and long-finned pilot whales; minke whale.
Scup and black sea bass	Atlantic mixed species trap/pot fishery	Cat. II	Fin whale and humpback whale (classified by analogy due to lobster pot entanglements).

6.3.3.2.5 Large Whales

Bottom Trawl Gear: Aside from minke whales, large whale interactions with bottom trawl gear have never been observed, therefore, this gear type is not expected to pose a serious injury or mortality risk to these species. Minke whale interactions with bottom trawl gear have been observed (strictly northeast bottom trawl fishery to date); however, the frequency of bottom trawl interactions has declined since 2008 (estimated annual mortality=7.8 whales), with an estimated annual mortality of zero minke whales from 2009-2012 and no serious injuries reported during this time (Henry et al. 2015; Waring et al. 2014a; Waring et al. 2015a; Lyssikatos 2015). Although minke whales have the potential to interact with this gear type, the likelihood of interactions in the summer flounder, scup, and black sea bass fisheries is likely to be low.

Pot/Trap Gear: The greatest entanglement risk to large whales is posed by fixed fishing gear with vertical or ground lines that rise into the water column (e.g., trap/pot gear, sink gillnet gear). Interactions resulting in serious injury to and mortality of large whales have been observed in this gear type (Waring et al. 2014a, Waring et al. 2015a; NMFS 2014; Henry et al. 2015). Due to the incidences of interactions with vertical lines associated with fixed fishing gear, such as trap/pot gear, in addition to the endangered status of the species being affected most by these

gear types (North Atlantic right whale, fin, and humpback), pursuant to the MMPA, these large whale species were designated as strategic stocks.[15]

Section 118(f)(1) of the MMPA requires the preparation and implementation of a Take Reduction Plan (TRP) for any strategic marine mammal stock that interacts with Category I or II fisheries. As a result, to address and mitigate the risk of large whale entanglement in fixed fishing gear comprised of vertical line, including gillnet gear and trap/pot gear, the Atlantic Large Whale Take Reduction Plan (ALWTRP) was implemented.[16]

The ALWTRP identifies gear modification requirements and restrictions for Category I and II trap/pot fisheries in the Northeast, Mid-Atlantic, and Southeast regions of the U.S. (designated management areas); these fisheries must comply with all regulations of the ALWTRP.[17] For further details on the gear modification requirements, restrictions, and management areas under the ALWTRP please see: http://www.greateratlantic.fisheries.noaa.gov/Protected/whaletrp/.

6.3.3.2.6 Small Cetaceans and Pinnipeds

Bottom Trawl Gear: Small cetacean and pinniped species have been observed seriously injured and killed in bottom trawl gear and have been observed taken in this gear type on trips targeting summer flounder, scup, or black sea bass (Lyssikatos 2015, Waring et al. 2014a,b; Waring et al. 2015a,b; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). Total annual bycatch mortality in Northeast and Mid-Atlantic commercial bottom trawl trips (considers all FMPs) from 2008-2013 is provided in Lyssikatos (2015). The highest annual bycatch mortality in bottom trawl gear (Northeast and Mid-Atlantic combined) was observed for short beaked common dolphins, followed by Atlantic white-sided dolphins, gray seals, risso's dolphins, long-finned pilot whales, bottlenose dolphins, harbor seals, harbor porpoise, and harp seals (Lyssikatos 2015).

In 2006, based on observed mid-water trawl interactions with long-finned pilot whales, short - finned pilot whales, common dolphins, and white sided dolphins, the Atlantic Trawl Gear Take Reduction Team (ATGTRT) was convened to address the incidental mortality and serious injury of these species incidental to bottom and mid-water trawl fisheries operating in both the Northeast and Mid-Atlantic regions. Because none of the marine mammal stocks of concern to the ATGTRT are classified as a "strategic stock", nor do they currently interact with a Category I fishery, it was determined at the time that development of a take reduction plan was not

[15] A strategic stock is defined under the MMPA as a marine mammal stock: for which the level of direct human-caused mortality exceeds the potential biological removal level; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.

[16] The ALWTRP was implemented in 1997. Since 1997, the ALWTRP has been modified several times, including the Sinking Groundline Rule and Vertical Line Rules (72 FR 57104, October 5, 2007; 79 FR 36586, June 27, 2014; 79 FR 73848, December 12, 2014; 80 FR 14345, March 19, 2015; 80 FR 30367, May 28, 2015).

[17] The fisheries currently regulated under the ALWTRP include: Northeast/Mid-Atlantic American lobster trap/pot; Atlantic blue crab trap/pot; Atlantic mixed species trap/pot; Northeast sink gillnet; Northeast anchored float gillnet; Northeast drift gillnet; Mid-Atlantic gillnet; Southeastern U.S. Atlantic shark gillnet; and Southeast Atlantic gillnet (NMFS 2014).

necessary. In lieu of a take reduction plan, the ATGTRT agreed to develop an Atlantic Trawl Gear Take Reduction Strategy (ATGTRS). The ATGTRS identifies informational and research tasks, as well as education and outreach needs, to provide the basis for decreasing mortalities and serious injuries of marine mammals to insignificant levels approaching zero mortality and serious injury rates. The ATGTRS also identifies several voluntary measures that can be adopted by certain trawl fishing sectors to potentially reduce the incidental capture of marine mammals. For additional details, visit: http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/atgtrp/

Pot/Trap Gear: Over the past several years, observer coverage has been limited for trap/pot fisheries. In the absence of extensive observer data for these fisheries, stranding data provides the next best source of information on species interactions with trap/pot gear. Stranding data underestimates the extent of human-related mortality and serious injury because not all of the marine mammals that die or are seriously injured in human interactions are discovered, reported, or show signs of entanglement. Additionally, if gear is present, it is often difficult to definitively attribute the animal's death or serious injury to the gear interaction, or to a specific fishery. Therefore, the conclusions below should be taken with these considerations in mind.

Table 11 provides the list of small cetacean and pinniped species that may occur and be affected by the summer flounder, scup, and black sea bass fisheries. Of these species, only several bottlenose dolphin stocks have been identified as species at risk of becoming seriously injured or killed by trap/pot gear. Stranding data provides the best source of information on species interaction history with these gear types. Based on stranding data from 2007-2011, estimated mean annual mortality for each stock was less than one animal (Waring et al. 2014a).[18] Interactions with hook and line or trap/pot gear, resulting in the serious injury or mortality to small cetaceans or pinnipeds are believed to be infrequent (for bottlenose dolphin stocks) to non-existent (for all other small cetacean and pinniped species).

6.4 Human Communities and Economic Environment

6.4.1 Fishery Descriptions

A detailed description of the economic aspects of the commercial and recreational fisheries for summer flounder, scup, and black sea bass was presented in section 3.3.1, 3.3.2, and 3.3.3, of Amendment 13 to the FMP (MAFMC 2002). Updates to this information and recent trends in landings and ex-vessel values are presented below.

6.4.1.1 Summer Flounder

In 2014, commercial fishermen from Maine through North Carolina landed about 10.91 million pounds of summer flounder, valued at about $30.0 million (an average of $2.75/pound).

[18] Mean annual mortality estimates from stranding data are not provided by Waring et al.2014a for each bottlenose dolphin stock affected by hook and line or trap/pot gear. Estimates were calculated based on the total number of animals stranded between 2007-2011 and were determined to have incurred serious injuries or mortality as a result of animals interacting with hook and line or trap/pot gear. For bottlenose dolphin stocks, Waring et al. (2014a) provides two categories for trap/pot gear: (Atlantic Blue) Crab Pot, and Other Pot gear. The two were combined to get an overall number of interactions associated with trap/pot gear in general. Any animals released alive with no serious injuries were not included in the estimate. If maximum or minimum number of animals stranded were provided, to be conservative, the maximum estimated number was used when calculating the mean annual estimate of mortality.

Commercial landings of summer flounder in 2014 were lower than the 2009-2013 average of 13.31 million pounds; however, the ex-vessel value and average price per pound in 2014 were higher than the 2009-2013 averages of $27.55 million and $2.08/pound.

Recent summer flounder, scup, and black sea bass landing patterns among ports are presented in section 6.4.3.

According to Marine Recreational Information Program (MRIP) data for Maine through North Carolina from 1992 through 2014, the number of recreational fishing trips for which summer flounder was the primary target ranged from a low of 3.6 million trips in 1992 to a high of 6.0 million trips in 2001. Recreational landings of summer flounder ranged from a low of 5.1 million pounds in 2010 to a high of 16.5 million pounds in 2000. Recreational anglers caught an estimated 7.40 million pounds of summer flounder in 2014 and took an estimated 4.1 million trips for which summer flounder was the primary target (Table 13).

6.4.1.2 Scup

In 2014, commercial fishermen from Maine through North Carolina landed 15.93 million pounds of scup, valued at $9.54 million (an average of $0.60/pound). Commercial landings in 2014 were higher than the 2009-2013 average of 13.35 million pounds. Scup ex-vessel value in 2014 was higher than the 2009-2013 average of $8.37 million. The average price per pound was slightly lower than the 2009-2013 average of $0.64/pound.

Recent summer flounder, scup, and black sea bass landing patterns among ports are presented in section 6.4.3.

According to MRIP data for Maine through North Carolina from 1992 through 2014, the number of recreational fishing trips for which scup was the primary target ranged from a low of 0.19 million trips in 1997 to a high of 9.3 million trips in 2003. Recreational scup landings ranged from a low of 0.87 million pounds in 1998 to a high of 8.5 million pounds in 2003. Recreational anglers caught an estimated 4.7 million pounds of scup in 2014 and took an estimated 0.42 million trips for which scup was the primary target (Table 14).

6.4.1.3 Black Sea Bass

In 2014, commercial fishermen from Maine through North Carolina landed about 2.38 million pounds of black sea bass, valued at $7.70 million (an average of $3.24/pound). Commercial landings were substantially higher in 2014 than the 2009-2013 average of 1.72 million pounds. Ex-vessel value was also much higher than the 2009-2013 average of $5.47 and the average price per pound was slightly higher than the 2009-2013 average of $3.17/pound.

Recent summer flounder, scup, and black sea bass landing patterns among ports are presented in section 6.4.3.

According to MRIP data for Maine through North Carolina from 1992 through 2014, the number of recreational fishing trips for which black sea bass was the primary target ranged from a low of

0.12 million trips in 1998 to a high of 0.42 million trips in 2010. Recreational landings of black sea bass ranged from a low of 1.3 million pounds in 2011 to a high of 6.3 million pounds in 1995. Recreational anglers caught an estimated 3.7 million pounds of black sea bass in 2014 and took an estimated 0.40 million trips for which black sea bass was the primary target (Table 15).

Table 13. Number of summer flounder recreational fishing trips, recreational harvest limits, and recreational landings from 1991 through 2018.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (millions of pounds)	Recreational Summer Flounder Landings (pounds)[b]
1991	4,355,239	None	7,959,821
1992	3,649,595	None	7,147,691
1993	4,476,940	8.38	8,830,915
1994	5,504,416	10.67	9,327,502
1995	4,593,556	7.76	5,421,093
1996	4,655,669	7.04	9,820,339
1997	5,435,014	7.41	11,865,861
1998	5,088,114	7.41	12,476,563
1999	4,125,008	7.41	8,366,204
2000	5,604,279	7.41	16,467,529
2001	5,990,459	7.16	11,636,795
2002	4,456,367	9.72	8,008,112
2003	5,638,520	9.28[c]	11,638,494
2004	5,008,444	11.21[c]	11,021,884
2005	5,895,285	11.98[c]	10,915,335
2006	5,039,891	9.29[c]	10,504,638
2007	5,491,077	6.68[c]	9,336,710
2008	4,932,811	6.21[c]	8,150,664
2009	4,596,613	7.16[c]	6,030,378
2010	4,452,955	8.59[c]	5,108,357
2011	4,500,039	11.58[c]	5,955,716
2012	4,240,461	8.49[c]	6,489,804
2013	3,728,279	7.63[c]	7,386,644
2014	4,060,100	7.01[c]	7,398,558
2015	---	7.38	---
2016	---	5.42[d]	---
2017	---	5.28[d]	---
2018	---	5.26[d]	---

[a]Numbers of fishing trips are the MRIP estimated number of trips from Maine through North Carolina where the primary target species was summer flounder.
[b]Landings are MRIP estimated landings from Maine through North Carolina.
[c]Adjusted for Research Set-Aside.
[d]Recreational harvest limit under preferred alternative 1.

Table 14. Number of scup recreational fishing trips, recreational harvest limits, and recreational landings from 1991 through 2018.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (millions of pounds)	Recreational Scup Landings (pounds)[b]
1991	748,527	None	8,087,390
1992	485,072	None	4,412,057
1993	482,641	None	3,197,200
1994	418,818	None	2,627,768
1995	234,984	None	1,343,621
1996	230,941	None	2,156,337
1997	194,640	1.95	1,197,547
1998	204,703	1.55	874,824
1999	220,909	1.24	1,886,110
2000	452,099	1.24	5,443,130
2001	459,813	1.77	4,262,432
2002	471,340	2.71[c]	3,623,634
2003	934,956	4.01[c]	8,484,138
2004	710,221	4.01[c]	7,276,706
2005	550,964	3.96[c]	2,692,155
2006	554,594	4.15[c]	3,716,153
2007	516,752	2.74[c]	4,563,862
2008	536,307	1.83[c]	3,788,050
2009	538,084	2.59[c]	3,230,020
2010	699,504	3.01[c]	5,969,365
2011	477,275	5.74[c]	3,665,028
2012	603,126	8.45[c]	4,171,548
2013	532,439	7.55[c]	5,432,853
2014	418,687	7.03[c]	4,682,548
2015	---	6.80	---
2016	---	6.09[d]	---
2017	---	5.50[d]	---
2018	---	5.21[d]	---

[a]Numbers of fishing trips are the MRIP estimated number of trips from Maine through North Carolina where the primary target species was scup.
[b]Landings are MRIP estimated landings from Maine through North Carolina.
[c]Adjusted for Research Set-Aside.
[d]Recreational harvest limit under preferred alternative 1.

Table 15. Number of black sea bass recreational fishing trips, recreational harvest limits, and recreational landings from 1991 through 2018.

Year	Number of Fishing Trips[a]	Recreational Harvest Limit (millions of pounds)	Recreational Black Sea Bass Landings (pounds)[b]
1991	256,794	None	4,316,030
1992	217,939	None	2,914,114
1993	288,406	None	4,984,679
1994	242,845	None	3,053,637
1995	299,054	None	6,338,875
1996	214,218	None	4,125,260
1997	291,014	None	4,399,451
1998	124,338	3.15	1,289,735
1999	129,702	3.15	1,696,566
2000	243,763	3.15	4,121,842
2001	276,061	3.15	3,595,545
2002	260,757	3.43[c]	4,442,308
2003	276,939	3.43[c]	3,448,658
2004	157,020	4.01[c]	2,340,491
2005	204,142	4.13[c]	2,180,550
2006	260,852	3.99[c]	1,910,653
2007	368,042	2.47[c]	2,337,704
2008	256,341	2.11[c]	2,092,139
2009	393,389	1.14[c]	2,672,329
2010	417,663	1.83[c]	3,360,989
2011	193,655	1.78[c]	1,266,717
2012	267,934	1.32[c]	3,305,127
2013	261,578	2.26[c]	2,518,525
2014	403,622	2.26[c]	3,736,036
2015	---	2.33	---
2016	---	2.33[d]	---
2017	---	2.33[d]	---

[a]Numbers of fishing trips are the MRIP estimated number of trips from Maine through North Carolina where the primary target species was black sea bass.
[b]Landings are MRIP estimated landings from Maine through North Carolina.
[c]Adjusted for Research Set-Aside.
[d]Recreational harvest limit under preferred alternative 1.

6.4.2 Description of the Areas Fished

VTR data was used in this section to examine areas fished. VTR data does not represent every trip made in these three fisheries; therefore, estimates presented in this section do not fully describe effort in the summer flounder, scup, and black sea bass fisheries. Dealer data are presented in other sections of this document and are considered a more accurate representation of

fishing effort than VTR data. Effort of vessels with state, but not Federal permits, for these species may not be captured through VTRs.

The baseline impact of the summer flounder, scup, and black sea bass commercial fisheries on the environment is fully described in section 3.2.8 of Amendment 13 to the FMP (MAFMC 2002).

6.4.2.1 Summer Flounder

NMFS 2014 VTR data indicated that commercial fishermen took 14,660 trips that caught summer flounder by four major gear types. These trips resulting in 9.61 million pounds of summer flounder caught, with 9.42 million pounds landed and 0.19 million pounds discarded. The majority of the trips and catch were made by bottom otter trawls (71.08% of trips, 95.6% of catch), followed by handlines (10.83% of trips, 0.83% of catch), gillnets (10.78% of trips, 1.27% of catch), and scallop dredges (3.07% of trips, 0.53% of catch). All other gears accounted for less than 1% of the trips and less than 1% of the catch in 2014.

Five NMFS statistical areas (Figure 5) individually accounted for greater than 5% of the summer flounder catch in 2014 (Table 16). Collectively, these five areas accounted for 73% of the summer flounder catch in 2014. Five statistical areas individually accounted for greater than 5% of the trips which caught summer flounder in 2014 (Table 17). Collectively, these five areas accounted for 59% of the trips that caught summer flounder and 45% of the 2014 summer flounder catch.

6.4.2.2 Scup

NMFS VTR data indicate that commercial fishermen took 8,214 trips that caught scup in 2014. These trips caught 11.93 million pounds of scup, of which 11.73 million pounds were landed and 0.20 million pounds were discarded. According to NMFS VTR data, the majority of scup trips and catches in 2014 were made by bottom otter trawls (70.85% of trips, 95.90% of catch, in weight). Pots and traps accounted for 7.68% of trips and 1.34% of the total catch. Sink gill nets accounted for 6.59% of trips and about 1.03% of the catch. Handlines accounted for 11.55% of the trips, and 0.63% of the catch. Offshore lobster traps accounted for about 1.39% of the trips and 0.03% of the catch. All other gear types accounted for less than 1% of the catch and landings in 2014.

Six NMFS statistical areas individually accounted for greater than 5% of the scup catch in 2014 (Table 16). Collectively, these six areas accounted for 87% of the 2014 scup catch. Five statistical areas individually accounted for greater than 5% of the trips which caught scup in 2014 (Table 17). Collectively, these five areas accounted for 63.9% of the trips that caught scup and 58.16% of the 2014 scup catch.

6.4.2.3 Black Sea Bass

NMFS VTR data indicate that commercial fishermen took 7,278 trips that caught black sea bass in 2014. These trips caught 1.87 million pounds of black sea bass, of which 1.71 million pounds

were landed and 0.159 million pounds were discarded. The majority of the black sea bass trips and catches in 2014 were made by bottom otter trawls (52.18% of trips, 64.37% of catch in weight), followed by pots and traps (16.53% of trips, 20.97% of catch), offshore lobster traps (6.43% of trips, 8.05% of catch), handlines (17.97% of trips, 4.60% of catch), and sink gill nets (4.15% of trips, 0.63% of catch). All other gear types accounted for less than 1% of the trips and catch in 2014.

Five NMFS statistical areas individually accounted for greater than 5% of the black sea bass catch in 2014 (Table 16). Collectively, these four areas accounted for 66.12% of the black sea bass catch, in weight, in 2014. Six statistical areas individually accounted for greater than 5% of the trips which caught black sea bass in 2014 (Table 17). Collectively, these seven areas accounted for 61.62% of the trips that caught black sea bass and 49.59% of the 2014 black sea bass catch.

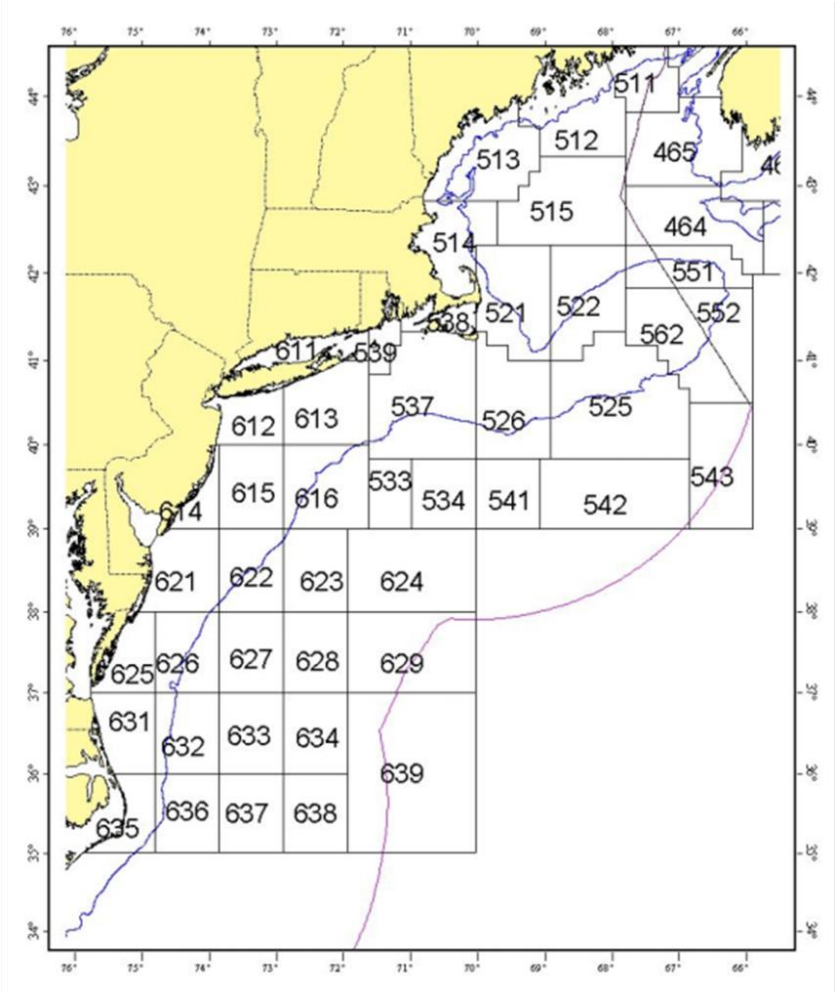

Figure 5. NMFS Northeast statistical areas.

Table 16. Statistical areas that accounted for at least 5% of the summer flounder, scup, or black sea bass catch in 2014, according to NMFS VTR data.

Statistical Area	Summer Flounder (%)	Scup (%)	Black Sea Bass (%)
537	23.96	22.45	6.22
538	1.15	1.98	2.63
539	3.41	13.34	4.22
611	2.30	11.43	2.79
612	6.64	0.97	2.38
613	8.30	8.96	2.55
615	2.73	6.05	13.24
616	23.3	24.73	31.43
621	2.73	0.40	9.75
622	10.72	2.87	4.88
631	0.25	0.25	5.48

Table 17. Statistical areas that accounted for at least 5% of the summer flounder, scup, or black sea bass trips in 2014, according to NMFS VTR data.

Statistical Area	Summer Flounder (%)	Scup (%)	Black Sea Bass (%)
537	11.52	11.74	9.37
538	3.09	6.71	3.39
539	14.45	18.98	13.04
611	10.95	16.69	12.04
612	10.97	3.59	10.66
613	11.58	9.75	10.35
616	3.85	4.88	6.16

6.4.3 Port and Community Descriptions

The ports and communities that are dependent on summer flounder, scup, and black sea bass are described in section 3.4 of Amendment 13 to the FMP (MAFMC 2002). Updated information about the relative importance of these ports is presented below. Additional information on ports and communities can be found at: www.nefsc.noaa.gov/read/socialsci/communityProfiles.html.

Table 18 shows all ports where at least 100,000 pounds of summer flounder, scup, or black sea bass were landed by commercial fishermen in 2014. Related data for the recreational fisheries are shown in Table 19. Due to the nature of the recreational database, it is inappropriate to desegregate to lower than state levels. The level of precision of annual harvest estimates from recreational data depends on the survey sample sizes, the frequency of sampled angler trips that caught the species in question, and the variability of numbers caught among those trips. Harvest estimates are progressively less precise at lower levels of stratification, thus port-level recreational data are not shown.

Table 18. Ports, and associated landings, where at least 100,000 pounds of summer flounder, scup, or black seabass were landed in 2014, according to NMFS dealer data.

Port name	Summer flounder		Scup		Black sea bass	
	Landings (pounds)	Number of vessels	Landings (pounds)	Number of vessels	Landings (pounds)	Number of vessels
Ammagansett, NY			C	C		
Beaufort, NC	806,150	29				
Belford, NJ	323,379	17	175,671	16		
Bristol, RI			113,599	4		
Cape May, NJ	483,879	56	1,021,392	28	227,536	39
Chincoteague, VA	567,127	36	370,087	21	131,678	19
Engelhard, NC	508,370	12				
Hampton Bays, NY	128,076	26	313,103	30		
Hampton, VA	843,060	40	218,108	28		
Hobucken, NC	272,200	10				
Hyannis, MA	104,711	12				
Indian River, DE					102,722	3
Little Compton, CT			361,070	13		
Long Beach/ Barnegat Light, NJ	146,970	24				
Mattituck, NY			259,046	4		
Montauk, NY	492,440	77	2,160,084	85	127,041	94
New Bedford, MA	292,116	59	826,025	59		
New London, CT			344,898	8		
Newport News, VA	744,103	37	166,023	14		
Newport, RI			199,349	11		
Ocean City, MD	164,380	19	530,761	5	230,099	15
Oriental, NC	273,929	7				
Other Currituck, NC	102,118	7				
Point Judith, RI	1,824,045	129	5,872,354	131	195,168	139
Point Lookout, NY			122,825	5		
Point Pleasant, NJ	821,659	46	1,144,608	32	215,705	46
Providence, RI			C	C		
Stonington, CT	169,898	20	342,791	20		
Wanchese, NC	848,648	28				

Note: Landings associated with less than three vessels are labeled "C" for confidential.

Table 19. MRIP estimates of total recreational catch and recreational harvest for summer flounder, scup, and black sea bass in 2014.

	Summer Flounder		Scup		Black Sea Bass	
State	**Catch** (# fish caught)	**Harvest** (# fish kept)	**Catch** (# fish caught)	**Harvest** (# fish kept)	**Catch** (# fish caught)	**Harvest** (# fish kept)
Maine	0	0	0	0	0	0
New Hampshire	1,359	0	0	0	1,346	0
Massachusetts	449,391	112,840	2,917,259	1,634,104	1,924,973	457,099
Rhode Island	601,986	184,668	1,554,486	975,812	1,073,183	214,463
Connecticut	757,270	119,502	1,963,302	561,182	1,807,603	406,784
New York	5,033,970	509,131	2,829,822	1,132,448	1,721,029	423,405
New Jersey	10,688,470	1,175,383	65,820	45,847	2,711,020	468,402
Delaware	385,462	93,029	302	35	253,166	23,879
Maryland	710,356	79,513	7	0	569,026	68,469
Virginia	781,730	139,431	14,590	0	577,543	14,367
North Carolina	47,026	45,708	769	769	1,408,455	74,648

6.4.4 Analysis of Permit Data

Federal permit data indicate that 1,144 commercial vessels were permitted to land summer flounder, scup, and/or black sea bass in 2014 from Maine through North Carolina (Table 20). A subset of those federally-permitted vessels were active in 2014. Dealer reports indicate that 1,002 commercial vessels with summer flounder, scup, and/or black sea bass permits actually landed those species in 2014. In addition, in 2014, there were 814 party/charter vessels that held federal permits for summer flounder, scup, and/or black sea bass (Table 21). VTR data indicates that in 2014, 365 party/charter vessels landed summer flounder, scup, and/or black sea bass.

In 2014, 265 Federally-permitted dealers purchased approximately $30.0 million of summer flounder; $9.5 million of scup; and $7.7 million of black sea bass. These dealers were distributed by state as indicated in Table 22. Employment data for these specific firms are not available.

Table 20. Federally permitted summer flounder, scup, and/or black sea bass commercial vessels and commercial vessels that landed summer flounder, scup, and/or black sea bass, by state for 2014, Maine through North Carolina.

State	Permitted Vessels	Vessels that Landed Summer Flounder, Scup, and/or Black Sea Bass
Maine	49	-
New Hampshire	24	C
Massachusetts	344	197
Rhode Island	128	198
Connecticut	29	30
New York	134	170
New Jersey	213	155
Pennsylvania	C	-
Delaware	11	3
Maryland	16	22
Virginia	90	129
North Carolina	99	97
Other	7	1
Total	1,144	1,002

Note: States with less than 3 reporting entities are not reported due to confidentiality issues (C).
Source: Permit data and Dealer data.

Table 21. Number of federally permitted summer flounder, scup, and/or black sea bass party/charter vessels and the number of party/charter vessels that landed summer flounder, scup, and/or black sea bass, by state for 2014, Maine through North Carolina.

State	Permitted Vessels	Vessels that landed Summer Flounder, Scup, and/or Black Sea Bass
Maine	36	3
New Hampshire	35	3
Massachusetts	194	28
Rhode Island	59	49
Connecticut	27	15
New York	162	106
New Jersey	167	117
Pennsylvania	16	-
Delaware	37	20
Maryland	24	10
Virginia	30	13
North Carolina	17	-
Other	10	1
Total	814	365

Note: States with less than 3 reporting entities are not reported due to confidentiality issues (C).
Source: Permit data and VTR data.

Table 22. Number of dealers that purchased summer flounder, scup, and/or black sea bass, by state for 2014, Maine through North Carolina.

State	Number of dealers that purchased summer flounder, scup, and/or black sea bass in 2014
Maine	-
New Hampshire	C
Massachusetts	42
Rhode Island	42
Connecticut	21
New York	62
New Jersey	41
Pennsylvania	-
Delaware	C
Maryland	4
Virginia	19
North Carolina	30
Other	4
Total	265

Note: States with less than 3 reporting entities are not reported due to confidentiality issues (C).
Note: Other, includes confidential values. Includes 1 dealer from an area south of NC.
Source: Permit data and Dealer data.

7.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This EA analyzes the impacts of the alternatives described in section 5.0. These alternatives specify commercial quotas and recreational harvest limits for summer flounder and scup fisheries for 2016-2018 and for the black sea bass fisheries for 2016 and 2017. The Council and the Board will meet in December 2015 to adopt 2016-2018 recreational management measures after reviewing more complete data on 2015 recreational landings. Therefore, while the impacts of recreational harvest limits are addressed in this EA, the impacts of the specific recreational management measures to implement the harvest limits will be analyzed separately in early 2016.

The nature and extent of the management programs for the summer flounder, scup, and black sea bass fisheries have been examined in detail in Environmental Assessments (EAs) and Environmental Impact Statements (EISs) prepared for previously implemented management actions under the FMP. The aspects of the VECs that could be affected by the proposed actions in this EA are detailed in section 6.0. The analysis in this section focuses on impacts of the alternatives described in section 5.0 relative to each VEC.

In the following sections, the direction of the impacts on each of the VECs are described as negative, neutral, or positive. If the magnitude of the impact is expected to be moderate, the impact is described with only a directional indicator (i.e., "positive" and "negative" should be read as "moderate positive" and "moderate negative"). If the magnitude of the impact is expected to be minor, the impact is described as "slight", as in slight negative or slight positive. If the magnitude of the impact is expected to be substantial, the impact is described as "high", as in high positive or high negative. If there is some degree of uncertainty associated with the impact, it is described as "likely". More information on how impacts to the VECs are described in shown in Table 23.

Throughout section 7.0, the preferred and non-preferred alternatives are compared to the *status quo* alternatives and the current environmental baseline conditions (baseline conditions). As described in section 4.2, the *status quo* alternatives described in this document represent the 2015 implemented specifications for all three species. The baseline conditions are the conditions of the summer flounder, scup, and black sea bass fisheries and its interactions with the VECs over the most recent 3-5 years. For the economic environment, the most recent complete economic data (2012-2014) are used as a quantitative baseline condition. More information on the baseline conditions for the VECS (i.e., affected environment) can be found in section 6.0.

The baseline condition does not describe "what if" the summer flounder, scup, and black sea bass fisheries did not exist and those interactions between the fisheries and the specific VEC were not occurring. That would be an unrealistic baseline because these fisheries do occur, have occurred for many decades, and are expected to continue to occur into the foreseeable future. This document was developed to evaluate the consequences of implementing a reasonable range of alternatives for these fisheries (i.e., proposed 2016-2018 measures), which necessitates comparison to a realistic and reasonable baseline condition.

The alternatives are compared to the baseline conditions in recent years to determine if the extent of those interactions, and the effect of the fisheries on them, are expected to be different as a

result of implementing these alternatives in 2016-2018. More specifically, the comparison to the baseline condition is used as a metric to determine if there are additional negative or positive impacts associated with the proposed measures (i.e., preferred, non-preferred, and *status quo* measures) being implemented in 2016-2018.

Throughout section 7.0, to facilitate the comparison of the alternatives with the *status quo* and baseline conditions, the changes in the proposed 2016-2018 commercial quotas under each alternative are compared to the previously implemented 2015 commercial quota and the 2014 commercial landings. Similarly, the recreational harvest limit under each alternative is compared to the previously implemented 2015 harvest limit and recreational landings in 2014 (Tables 24 and 25).

Changes in quota can result in changes in fishing effort. The direction and magnitude of the change is dependent on factors such as fish abundance and availability and how the fishery responds to changes in regulations. The extent of interactions between fishing gear and habitat and other non-target species, including protected species, is related to fishing effort. The magnitude of the change in effort that results from changes in quota and availability is difficult to quantify; however, it is not expected to be highly significant for the alternatives presented here. The following section describes the general direction of impacts in response to these two factors in order to better describe the expected impacts from the alternatives (Table 26).

A decrease in effort may result in positive impacts as a result of fewer encounters with non-target, ESA and MMPA-protected species, and fewer gear impacts on habitat. Conversely, an increase in effort may result in negative impacts on these VECs. A neutral impact could result from negligible changes in effort. Implementing *status quo* measures in a future year may result in a neutral impact; however, it is possible that the impacts could be different (positive or negative) if the future environmental conditions have changed. Some negative effects on non-target species resulting from increases in fishing effort in the recreational fishery could be offset by the use of ethical angler practices such as using proper catch and release techniques and use of gear which minimizes mortality on non-target species. Some negative impacts could be minimized if commercial fishermen avoid non-target species.

A general evaluation of changes in fishing effort in response to quota levels and fish availability is shown in Table 26. It is important to note that fishing effort is influenced by many factors besides quota levels and fish availability, thus future fishing effort may not respond as predicted in Table 26.

Fishing demand models are used to forecast the demand for trips as well as to determine the value that commercial fishermen or recreational anglers place on the factors that affect their behavior. Models can attempt to predict how changes in fishing site characteristics (travel costs, catch rates, available species, etc.), fishery management policies, and other characteristics affect the demand for fishing trips. Limited data are available to address many of these factors. This makes evaluation of changes in fishing behavior difficult and complex, and makes it difficult to predict how fishing effort will change each year.

Table 23. Definition of impact and impact qualifiers.

Impact Definition			
	Directional Impact		
VEC	Positive (+)	Negative (-)	Neutral (0)
Allocated Target Species, Other Landed Species, and Protected Resources	Actions that increase stock / populations size	Actions that decrease stock / populations size	Actions that have no positive or negative impacts on stock / populations size
Physical Environment / Habitat / EFH	Actions that improve the quality or reduce disturbance of habitat	Actions that degrade the quality or increase disturbance of habitat	Actions that have no positive or negative impacts on habitat quality
Human Communities (Socioeconomic)	Actions that increase revenue and social well-being of fishermen and/or associated business	Actions that decrease revenue and social well-being of fishermen and/or associated business	Actions that have no positive or negative impacts on revenue and social well-being of fishermen and/or associated business

Impact Qualifiers	
Slight (sl), as in slight positive or slight negative)	To a lesser degree / minor
No qualifier, as in positive or negative	To an average degree (i.e., more than "slight", but not "high")
High (H), as in high positive or high negative	To a substantial degree
Likely	Some degree of uncertainty associated with the impact

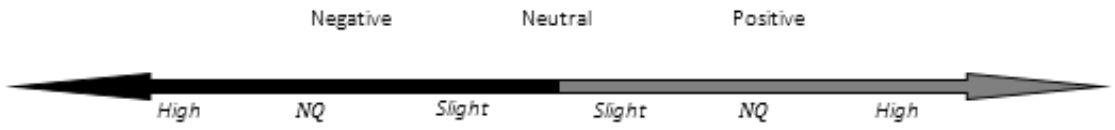

Table 24. Commercial quotas and recreational harvest limits (RHLs), in millions of pounds, under each of the alternatives for 2016-2018.

		2016				2017				2018			
Species		**Alt. 1** Preferred	**Alt. 2** *Status Quo*	**Alt. 3** Most Restrictive	**Alt. 4** Least Restrictive	**Alt. 1** Preferred	**Alt. 2** *Status Quo*	**Alt. 3** Most Restrictive	**Alt. 4** Least Restrictive	**Alt. 1** Preferred	**Alt. 2** *Status Quo*	**Alt. 3** Most Restrictive	**Alt. 4** Least Restrictive
Summer flounder	**Commercial Quotas**	8.12	11.07	6.30	18.18	7.91	11.07	6.30	18.18	7.89	11.07	6.30	18.18
	RHL	5.42	7.38	4.20	12.12	5.28	7.38	4.20	12.12	5.26	7.38	4.20	12.12
Scup	**Commercial Quotas**	20.47	21.23	2.53	28.35	18.38	21.23	2.53	28.35	17.34	21.23	2.53	28.35
	RHL	6.09	6.80	1.24	8.57	5.50	6.80	1.24	8.57	5.21	6.80	1.24	8.57
Black sea bass	**Commercial Quotas**	2.24	2.21	1.13	4.02	2.24	2.21	1.13	4.02	--	--	--	--
	RHL	2.33	2.33	1.17	4.18	2.33	2.33	1.17	4.18	--	--	--	--

Table 25. The percent difference between the commercial quotas under each alternative and 2014 commercial landings, and between the recreational harvest limits and the 2014 recreational landings.

		2016				2017				2018			
Species		**Alt. 1** Preferred	**Alt. 2** *Status Quo*	**Alt. 3** Most Restrictive	**Alt. 4** Least Restrictive	**Alt. 1** Preferred	**Alt. 2** *Status Quo*	**Alt. 3** Most Restrictive	**Alt. 4** Least Restrictive	**Alt. 1** Preferred	**Alt. 2** *Status Quo*	**Alt. 3** Most Restrictive	**Alt. 4** Least Restrictive
Summer flounder	**Commercial landings**	-25.6%	+1.5%	-42.3%	+66.6%	-27.5%	+1.5%	-42.3%	+66.6%	-27.7%	+1.5%	-42.3%	+66.6%
	Recreational landings	-26.7%	-0.1%	-43.2%	+64.0%	-28.6%	-0.1%	-43.2%	+64.0%	-28.8%	-0.1%	-43.2%	+64.0%
Scup	**Commercial landings**	+28.5%	+33.3%	-84.1%	+78.0%	+15.4%	+33.3%	-84.1%	+78.0%	+8.9%	+33.3%	-84.1%	+78.0%
	Recreational landings	+47.8%	+65.0%	-69.9%	+108.0%	+33.5%	+65.0%	-69.9%	+108.0%	+26.5%	+65.0%	-69.9%	+108.0%
Black sea bass	**Commercial landings**	-5.9%	-7.1%	-52.5%	+68.9%	-5.9%	+68.9%	-52.5%	81.8%	--	--	--	--
	Recreational landings	-38.4%	-38.4%	-69.0%	+10.6%	-38.4%	+10.6%	-69.0%	79.4%	--	--	--	--

Table 26. Changes in fishing effort as a result of adjustments to quota and/or fish availability.

Change in quota	Change in fish abundance/availability		
	Decrease in availability	**No change in availability**	**Increase in availability**
Decrease in quota	**A)** Fishing effort (number of trips) may decrease as a result of a decrease in quota; however, because of the decrease in availability (trips catching fewer fish), fishermen may need to take additional trips to offset the lower catch per unit effort (CPUE); managers may reduce trip limits or adjust regulations that extend the fishing season and affect effort; therefore fishing effort may be the same or increase.	**B)** Fishing effort may decrease as a result of a decrease in quota under similar availability (trips catching similar amounts of fish); however, managers may reduce trip limits or adjust regulations that extend the fishing season and affect effort; therefore fishing effort may be the same or decrease.	**C)** Fishing effort may decrease as a result of a decrease in quota; likewise under increased availability (trips catching more fish), effort may decrease; however, managers may reduce trip limits or adjust regulations that extend the fishing season and affect effort; therefore fishing effort may be the same or decrease.
No change in quota	**D)** Fishing effort may remain the same as the quota has not changed; however, because of the decrease in availability (trips catching fewer fish), fishermen may need to take more trips to catch the same amount of fish; therefore fishing effort may be the same or increase.	**E)** Fishing effort may remain the same given the quota has not changed and availability is expected to be similar.	**F)** Fishing effort may remain the same as the quota has not changed; however, because of the increase in availability (trips catching more fish), fishermen may be able to catch the same amount of fish with fewer trips thus decreasing effort; therefore fishing effort may be the same or decrease.
Increase in quota	**G)** Fishing effort may increase in response to the increase in quota; because of the decrease in availability (trips catching fewer fish), fishermen may need to take more trips to catch the same amount of fish; however, managers may increase trip limits or adjust regulations in response to the higher quota allowing fewer trips to catch more fish; therefore, fishing effort may be the same or increase.	**H)** Fishing effort may increase in response to the increase in quota under similar fish availability due to fishermen taking more trips to catch the quota; however, managers may increase trip limits or adjust regulations in response to the higher quota allowing fewer trips to catch more fish; therefore, fishing effort may be the same or increase.	**I)** Fishing effort may increase in response to the increase in quota; because of the increase in availability (trips catching more fish), fishermen may be able to catch the same amount of fish with fewer trips thus decreasing effort; managers may increase trip limits or adjust regulations, but this may be offset by higher CPUE; therefore, fishing effort may be the same or decrease, depending on the combination of factors.

7.1 Biological Impacts

7.1.1 Quota Alternatives for 2016

The four alternatives for 2016 have potential biological impacts that range from negative to positive. The greatest potential for overall positive biological impacts are associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly alternative 4 (least restrictive). Alternative 4 (least restrictive) has the highest probability of overfishing the managed resources, followed by alternative 2 (*status quo*). Alternative 3 (most restrictive) has the lowest probability of overfishing.

7.1.1.1 Alternative 1 (Preferred 2016)

Summer flounder SSB decreased in 2014 (NEFSC 2015b), but, according to projections provided by the NEFSC, is expected to increase slightly in 2016 if preferred landings limits are implemented. Assuming that fishing behavior does not change substantially between 2015 and 2016, fish abundance and availability are not expected to change substantially and are expected to remain relatively stable under alternative 1. The 26.6% decrease in the summer flounder commercial quota and the 26.6% decrease in the recreational harvest limit under alternative 1 (relative to the *status quo*; Table 27) are consistent with the ABC recommendations of the SSC and are therefore based on the best scientific information available. The commercial quota and recreational harvest limit under alternative 1 are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall relative to the current condition of the stock because these catch limits are based on a peer-reviewed stock assessment and its update and are designed to restrict catch to scientifically acceptable levels. However, overfishing did occur in 2014 because recruitment was overestimated (i.e., fewer fish entered the fishable population than projected) and fishing mortality was slightly underestimated (i.e., more fish were caught than previously estimated). As such, given the reduced buffer and higher probability of overfishing, the summer flounder catch limits could result in a slight negative impact on the stock, if those trends continue. However, this alternative is intended to prevent overfishing and is expected to have a lower likelihood of overfishing when compared to the *status quo* and to baseline conditions. As such, there may be some positive biological impacts relative to the *status quo* and to baseline conditions due to the magnitude of the decrease in the commercial quota and recreational harvest limit.

These decreases in the commercial quota and recreational harvest limit may have a range of potential outcomes on fishing effort and interactions with non-target species. However, it is expected that if fishing effort decreases in response to lower landings limits, interactions with non-target species will also decrease. If fishing effort remains the same (relative to the *status quo*), interactions with non-target species will likely remain the same (Table 26; cell B). Assuming that fish availability does not change, effects on the incidental catch rates of non-target species are expected to be neutral to positive, when compared to the *status quo*, and when compared to the baseline conditions.

Overall, alternative 1 for summer flounder is expected to result in biological impacts that are neutral to positive when compared to the *status quo* alternative because the catch limits are not expected to drastically change fishing behavior.

Table 27. The percent difference between the proposed commercial quotas and recreational harvest limits under each 2016 alternative and the 2015 commercial quotas and recreational harvest limits (*status quo*).

Species		2015 *Status Quo*	2016			
			Alternative 1 Preferred	**Alternative 2** *Status Quo*	**Alternative 3** Most Restrictive	**Alternative 4** Least Restrictive
Summer flounder	**Commercial Quotas**	-26.6%	0.0%	-43.1%	+64.2%	
	Recreational Harvest Limits	-26.6%	0.0%	-43.1%	+64.2%	
Scup	**Commercial Quotas**	-3.6%	0.0%	-88.1%	+33.5%	
	Recreational Harvest Limits	-10.4%	0.0%	-81.8%	+26.0%	
Black sea bass	**Commercial Quotas**	+1.4%	0.0%	-48.9%	+81.9%	
	Recreational Harvest Limits	0.0%	0.0%	-49.8%	+79.4%	

The most recent benchmark stock assessment for scup took place in 2015 and found that the scup stock was not overfished, overfishing was not occurring, and SSB was about 210% of SSB_{MSY} in 2014 (NEFSC 2015a). The 3.6% decrease in the scup commercial quota and the 10.4% decrease in the recreational harvest limit under alternative 1 (compared to the *status quo;* Table 27) are consistent with the ABC recommendations of the SSC and are therefore based on the best scientific information available. The commercial quota and recreational harvest limit under alternative 1 are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall because scup landings in recent years have been well below even higher landings limits. There may be slight positive impacts because scup landings in recent years have not kept pace with the large increase in the ABCs and ACLs which occurred in 2011 through 2013. In recent years, scup landings have been substantially lower than the quotas due to market conditions and other factors. Landings in 2016 are expected to be similar to those in 2014 because catch levels have remained relatively stable over the past few years. The 2016 commercial quota under alternative 1 is about 4% lower than that previously implemented for 2015 (*status quo*), but it is about 29% higher than the 2014 commercial landings. Similarly, the recreational harvest limit for 2016 under alternative 1 is about 10% lower than the 2015 recreational harvest limit, but it is about 48% higher than the 2014 recreational landings (Tables 25 and 27). Fishing effort is expected to be similar to the *status quo* given that the decreases in landings limits are relatively small (Table 27) and that no changes in fish availability are expected (Table 26; cell B). Thus, effects on non-target species are expected to be neutral when

compared to the baseline condition of the non-target species, and to be neutral when compared to the *status quo*, because catches have remained relatively stable over recent years, despite increases in scup biomass. Scup alternative 1 is expected to result in overall biological impacts that are neutral when compared to the *status quo* and the baseline conditions.

The black sea bass recreational harvest limit under alternative 1 is identical to the *status quo* alternative, and the commercial quota is nearly identical to the *status quo* (Table 27). The measures under this alternative are consistent with the ABC recommendations of the SSC and are therefore based on the best available scientific information. These measures are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall. Catches have remained relatively stable over the past several years and the stock assessment indicates that a substantial increase or decrease in abundance is not likely (NEFSC 2015c). For this reason, fish availability in 2016 is expected to be similar to that in 2015. Given that the commercial quota and recreational harvest limit under alternative 1 are nearly identical to the *status quo*, fishing effort and interactions with non-target species are expected to remain relatively stable (Table 26; cell E). Thus, these measures are expected to have neutral effects on the incidental catch rates of non-target species when compared to the *status quo* alternative and continue to have a neutral impact when compared to the current environmental baseline. Overall, alternative 1 for black sea bass is expected to result in neutral biological impacts.

7.1.1.2 Alternative 2 (*Status Quo* 2016)

The summer flounder commercial quota and recreational harvest limit under alternative 2 (*status quo*) are identical to those previously implemented for 2015. Given changing conditions of the summer flounder stock (NEFSC 2015b), these measures are inconsistent with the SSC's recommendation for ABC and the Council risk policy on overfishing (section 4.2). Alternative 2 has an ABC that is greater than the 2016 OFL (18.06 million pounds). The point estimate of the OFL that comes from the stock assessment (or update) represents the point on the OFL distribution curve that has a 50% probability of overfishing. Allowing an ABC to exceed this would represent a probability of overfishing that is greater than 50%, and is higher than the SSC's recommended ABC (Alternative 1). As such, negative impacts to summer flounder could be expected under the *status quo* alternative in 2016 given the increased risk of overfishing under this alternative compared to the preferred alternative. However, landings have been relatively stable and suggest availability of summer flounder would be similar to 2015. Therefore, under the *status quo* measures and stable fish abundance, impacts on the incidental catch rates of non-target species would be expected to be neutral, when compared to baseline conditions (Table 26; cell D). Overall, summer flounder alternative 2 is expected to result in biological impacts that range from neutral to negative.

The scup commercial quota and recreational harvest limit under alternative 2 are identical to those previously implemented for 2015. Because these measures are higher than the 2016 ABC under Alternative 1, they are expected to have a higher probability of overfishing than under Alternative 1 (section 4.2). If the commercial quota and recreational harvest limit under this alternative were fully harvested, slight negative impacts to the scup stock would be expected given the increased risk of overfishing under this alternative compared to the preferred alternative. However, given that the commercial quota and recreational harvest limits for scup have not been fully harvested since 2010, it is likely that the landings limits under alternative 2

would not be fully harvested in 2016, and thus neutral biological impacts would be expected. Fishing effort and interactions with other non-target species are expected to remain relatively stable in 2016 when compared to baseline conditions (Table 26; cell B). Thus, scup alternative 2 is expected to result in neutral to slight negative biological impacts when compared to baseline conditions.

The black sea bass commercial quota and recreational harvest limit under alternative 2 are nearly identical to those previously implemented for 2015. These measures are consistent with the ABC recommendations of the SSC and are based on the best available scientific information. These measures are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall. Given that fish availability in 2016 is expected to be similar to that in 2015, fishing effort and interactions with non-target species are expected to remain relatively stable (Table 26; cell E). Thus, these harvest limits are expected to have neutral effects on the incidental catch rates of non-target species when compared to baseline conditions. Overall, black sea bass alternative 1 for 2016 is expected to result in neutral biological impacts.

7.1.1.3 Alternative 3 (Most Restrictive 2016)

Alternative 3 includes substantial decreases in the summer flounder, scup, and black sea bass commercial quotas (decreases of 43.1%, 88.1%, and 48.9%, respectively) and recreational harvest limits (decreases of 43.1%, 81.8%, and 49.8%, respectively) compared to previously implemented specifications for 2015 (*status quo;* Table 27). Because the quotas and harvest limits under alternative 3 are lower than those under the other alternatives, they are expected to have the lowest risk of overfishing of all the 2016 alternatives. Positive impacts on the summer flounder, scup, and black sea bass resource would be expected under alternative 3 because of this much lower risk of overfishing. Assuming relatively stable abundance of summer flounder, scup, and black sea bass, impacts on the incidental catch rates of non-target species under alternative 3 would be expected to decrease and be positive, when compared to the *status quo* alternative, and when compared to the baseline condition (Table 26; cell B). Overall, alternative 3 is expected to result in biological impacts that are positive, when compared to the *status quo* alternative.

7.1.1.4 Alternative 4 (Least Restrictive 2016)

Alternative 4 includes substantial increases in the summer flounder, scup, and black sea bass commercial quotas (increases of 64.2%, 33.5%, and 81.9%, respectively) and recreational harvest limits (increases of 64.2%, 26.0%, and 79.4%, respectively) compared to previously implemented specifications for 2015 (*status quo*; Table 27). Because the quotas and harvest limits under this alternative are greater than those recommended by the SSC for 2016, alternative 4 is expected to have the highest risk of overfishing. Negative impacts on the summer flounder, scup, and black sea bass resources would be expected under alternative 4 because overfishing would be highly likely to occur. Assuming relatively stable abundances of summer flounder, scup, and black sea bass, impacts on the incidental catch rates of non-target species would be expected to increase and be negative, when compared to the *status quo* alternative and when compared to the current environmental baseline (Table 26; cell H). Overall, alternative 4 is expected to result in biological impacts that are negative, when compared to the *status quo* alternative.

7.1.2 Quota Alternatives for 2017

The four alternatives for 2017 have potential biological impacts that range from negative to positive. The greatest potential for overall positive biological impacts are associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly alternative 4 (least restrictive).

7.1.2.1 Alternative 1 (Preferred 2017)

Summer flounder SSB decreased in 2014, but, according to projections provided by the NEFSC, is expected to increase slightly in 2017 if preferred quotas are implemented and other assumptions in the model prove true. The 28.5% decrease in the summer flounder commercial quota and the 28.5% decrease in the recreational harvest limit under alternative 1, relative to the *status quo* (Table 28) are consistent with the ABC recommendations of the SSC and are based on the best available scientific information. The commercial quota and recreational harvest limit under alternative 1 are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall by restricting catch to within these limits. There may be some positive biological impacts due to the magnitude of the decreases in the commercial quota and recreational harvest limit compared to baseline conditions. Assuming that fish availability does not change, impacts on incidental catch rates of non-target species are expected to stay the same or decrease and be neutral to positive, when compared to the *status quo* alternative and baseline conditions (Table 26; cell B). Overall, alternative 1 for summer flounder is expected to result in biological impacts that are neutral to positive when compared to the *status quo* alternative, and when compared to the baseline conditions.

The most recent benchmark stock assessment for scup took place in 2015 and found that the scup stock was not overfished, overfishing was not occurring, and SSB was about 210% of SSB_{MSY} in 2014. The 13.4% decrease in the scup commercial quota and the 19.1% decrease in the recreational harvest limit under alternative 1 for 2017 relative to the *status quo* (Table 28) are consistent with the ABC recommendations of the SSC and are therefore based on the best available scientific information. The commercial quota and recreational harvest limit under alternative 1 are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall. There may be slight positive impacts due to the magnitude of the decreases in the commercial quotas and recreational harvest limits compared to the *status quo* and baseline conditions. However, scup landings in recent years have been substantially lower than the landings limits due to market conditions and other factors; thus, it is not likely that scup landings would change substantially in 2017 under alternative 1, compared to 2014. The 2017 commercial quota under alternative 1 is 13.4% lower than that previously implemented for 2015 (*status quo*); however, it is about 15.4% higher than the 2014 commercial landings (Table 28). Similarly, the recreational harvest limit for 2017 under alternative 1 is 19.1% lower than the 2015 recreational harvest limit, but is about 33.5% higher than the 2014 recreational landings (Table 28). Given the magnitude of the decrease in the commercial quota and recreational harvest limit, and assuming no changes in fish availability, and assuming that 2017 landings will be similar to those in 2014, the effects on non-target species are expected to be neutral, when compared to the *status quo* (Table 26; cell B). For scup, alternative 1 is expected to result in overall biological impacts that are neutral to slight positive when compared to the *status quo,* and when compared to the baseline conditions.

The black sea bass recreational harvest limit under alternative 1 is identical to the *status quo*, and the commercial quota is nearly identical to the *status quo* (Table 28). The measures contained under this alternative are consistent with the ABC recommendations of the SSC and are therefore based on the best scientific information available. These measures are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall. Given that the commercial quota and recreational harvest limit under alternative 1 are equivalent to the *status quo*, and that fish availability is expected to be similar, fishing effort and interactions with other non-target species are expected to remain relatively stable (Table 26; cell E). Between 2012 and 2014, there were substantial overages of the recreational harvest limit for black sea bass (up to 151%), while the commercial quota was exceeded by relatively small amounts (up to 10%). Despite overages in the fisheries, recent information on black sea bass abundance does not show evidence of a decline in biomass (NEFSC 2015c). Thus, alternative 1 is expected to have neutral effects on the incidental catch rates of non-target species when compared to the *status quo* alternative and the baseline conditions. Overall, black sea bass alternative 1 is expected to result in neutral biological impacts when compared to the *status quo* alternative, and when compare to the baseline conditions.

7.1.2.2 Alternative 2 (*Status Quo* 2017)

Alternative 2 (*status quo*) for all three species in 2017 is identical to 2016 alternative 2 (*status quo*). The biological impacts of the *status quo* alternative in 2017 are thus expected to range from neutral to negative for summer flounder, neutral to slight negative for scup, and are expected to be neutral for black sea bass, when compared to baseline conditions (section 7.1.1.2).

7.1.2.3 Alternative 3 (Most Restrictive 2017)

The 2017 alternative 3 (most restrictive) is identical to the 2016 alternative 3 (most restrictive) and is expected to result in similar impacts (section 7.1.1.3) when compared to the *status quo*. Therefore, the biological impacts of the most restrictive alternative in 2017 are expected to be positive for all three species, when compared to the 2017 *status quo* alternative, and when compared to the baseline conditions.

7.1.2.3 Alternative 4 (Least Restrictive 2017)

The 2017 alternative 4 (least restrictive) is identical to the 2016 alternative 4 (least restrictive) and is expected to result in similar impacts (section 7.1.1.4) when compared to the *status quo*. Therefore, the biological impacts of the least restrictive alternative in 2017 are expected to be negative for all three species, when compared to the 2017 *status quo* alternative, and when compared to the baseline conditions.

Table 28. The percent difference between the proposed commercial quotas and recreational harvest limits under each 2017 alternative and the 2015 commercial quotas and recreational harvest limits (*status quo*).

Species		2015 *Status Quo*	2017			
			Alternative 1 Preferred	**Alternative 2** *Status Quo*	**Alternative 3** Most Restrictive	**Alternative 4** Least Restrictive
Summer flounder	**Commercial Quotas**		-28.5%	0.0%	-43.1%	+64.2%
	Recreational Harvest Limits		-28.5%	0.0%	-43.1%	+64.2%
Scup	**Commercial Quotas**		-13.4%	0.0%	-88.1%	+33.5%
	Recreational Harvest Limits		-19.1%	0.0%	-81.8%	+26.0%
Black sea bass	**Commercial Quotas**		1.4%	0.0%	-48.9%	+81.9%
	Recreational Harvest Limits		0.0%	0.0%	-49.8%	+79.4%

7.1.3. Quota Alternatives for 2018

The four alternatives for 2018 for summer flounder and scup have potential biological impacts that range from negative to positive. The greatest potential for overall positive biological impacts are associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly alternative 4 (least restrictive).

7.1.3.1 Alternative 1 (Preferred 2018)

As discussed in prior sections, the 2015 stock assessment update indicates that the summer flounder stock is smaller than previous assessment updates indicated. Because summer flounder SSB decreased in 2014 but is projected to increase slightly in 2018 if preferred quotas are implemented, fish abundance and availability in 2018 are not expected to change substantially and are expected to remain relatively stable under alternative 1. The 28.7% decrease in the summer flounder commercial quota, and the 28.7% decrease in the recreational harvest limit under alternative 1 (relative to the *status quo*; Table 29) are consistent with the ABC recommendations of the SSC and are therefore based on the best scientific information available. The commercial quota and recreational harvest limit under alternative 1 are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall. There may be some positive biological impacts due to the magnitude of the decrease in the commercial quota and recreational harvest limit when compared to baseline conditions. Assuming that fish

availability does not change, effects on the incidental catch rates of non-target species are expected to stay the same or decrease and be neutral to positive, when compared to the *status quo* alternative and baseline conditions (Table 26; cell B). Overall, alternative 1 for summer flounder is expected to result in biological impacts that are neutral to positive when compared to the *status quo* alternative, and when compared to the baseline conditions.

The 18.3% decrease in the scup commercial quota and the 23.4% decrease in the recreational harvest limit under alternative 1 for 2018 (relative to the *status quo*; Table 29) are consistent with the ABC recommendations of the SSC and are therefore based on the best scientific information available. The commercial quota and recreational harvest limit under alternative 1 are intended to prevent overfishing and are expected to result in neutral impacts on the managed resource overall. There may be slight positive impacts due to decreases in the landings limits compared to the *status quo*. However, these decreases may not result in substantial changes in catch. Scup landings in recent years have been substantially lower than the landings limits due to market conditions and other factors. At this point in time, there is no reason to suspect that landings in 2018 will be significantly different than those in 2014. The 2018 commercial quota under alternative 1 is 18.3% lower than that previously implemented for 2015 (*status quo*); however, it is about 8.9% higher than the 2014 commercial landings (Table 29). Similarly, the recreational harvest limit for 2018 under alternative 1 is 23.4% lower than the 2015 recreational harvest limit, but it is 26.5% higher than the 2014 recreational landings (Table 29). Assuming no changes in fish availability, and assuming that 2018 landings will be similar to than those in 2014, the effects on non-target species are expected to be neutral, when compared to the *status quo,* and when compared to baseline conditions (Table 26; cell B). Overall, scup alternative 1 is expected to result in biological impacts that are neutral when compared to the *status quo*, and when compared to the baseline conditions.

7.1.3.2 Alternative 2 (*Status Quo* 2018)

The 2018 alternative 2 (*status quo*) for summer flounder and scup is identical to 2016 alternative 2 (*status quo*). The biological impacts of the *status quo* alternative in 2018 are thus expected to be neutral to negative, when compared to baseline conditions (section 7.1.1.2).

7.1.3.3 Alternative 3 (Most Restrictive 2018)

The 2018 alternative 3 (most restrictive) for summer flounder and scup is identical to the 2016 alternative 3 (most restrictive) and is expected to result in similar impacts (section 7.1.1.3) when compared to the *status quo*. The biological impacts of the most restrictive alternative in 2018 are expected to be positive, when compared to the 2018 *status quo* alternative, and when compared to the baselines conditions.

7.1.3.4. Alternative 4 (Least Restrictive 2018)

The 2018 alternative 4 (least restrictive) for summer flounder and scup is identical to the 2016 alternative 4 (least restrictive) and is expected to result in similar impacts (section 7.1.1.4) when compared to the *status quo*. The biological impacts of the most restrictive alternative in 2018 are expected to be negative, when compared to the 2018 *status quo* alternative, and when compared to the baseline conditions.

Table 29. The percent difference between the proposed commercial quotas and recreational harvest limits under each 2018 alternative and the 2015 commercial quotas and recreational harvest limits (*status quo*).

Species	2015 *Status Quo*	2018			
		Alternative 1 Preferred	**Alternative 2** *Status Quo*	**Alternative 3** Most Restrictive	**Alternative 4** Least Restrictive
Summer flounder	**Commercial Quotas**	-28.7%	0.0%	-43.1%	+64.2%
	Recreational Harvest Limits	-28.7%	0.0%	-43.1%	+64.2%
Scup	**Commercial Quotas**	-18.3%	0.0%	-88.1%	+33.5%
	Recreational Harvest Limits	-23.4%	0.0%	-81.8%	+26.0%

7.2 Habitat

7.2.1 Quota Alternatives for 2016

The four alternatives for 2016 have potential habitat impacts that range from negative to positive. The greatest potential for overall positive habitat impacts is associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly alternative 4 (least restrictive).

7.2.1.1 Alternative 1 (Preferred 2016)

As described in section 7.1.1.1, summer flounder abundance and availability are likely to remain relatively stable in 2016 if alternative 1 is implemented. Given the magnitude of the decrease in the commercial quota under this alternative (26.6% when compared to the *status quo*; Table 27), and assuming stable fish availability, this alternative is expected to have impacts on habitat and EFH that range from neutral to positive, when compared to the *status quo* alternative and baseline conditions (Table 26; cell B). Positive impacts could be expected if the lower commercial quota results in less fishing effort and less fishing time, during which gear (predominately bottom trawls) will contact the bottom and impact habitat, given abundance is expected to be similar. However, it is possible that fishing effort will not change.

As described in section 7.1.1.1, scup abundance and availability are likely to remain relatively stable in 2016 if alternative 1 is implemented. Given that the landings limits under this alternative are lower than the *status quo*, but substantially higher than 2014 landings (Table 27), they are not expected to result in substantial changes in fishing effort. Alternative 1 for scup is thus expected to have effects on habitat and EFH that are neutral when compared to the *status quo* alternative, and when compared to the baseline conditions (Table 26; cell B).

The black sea bass landings limits under 2016 alternative 1 (preferred) are nearly identical to those under 2016 alternative 2 (*status quo*). Thus, for black sea bass, the habitat impacts of the preferred alternative in 2016 are expected to be neutral when compared to the *status quo* alternative, and when compared to the baseline conditions.

7.2.1.2 Alternative 2 (*Status Quo* 2016)

The summer flounder commercial quota and recreational harvest limit under alternative 2 (*status quo*) are identical to those previously implemented for 2015 (Table 27). As described above in section 7.1.1.1, summer flounder abundance and availability in 2016 is expected to be similar to prior years (Table 26; cell E). Therefore, these measures are expected to result in neutral impacts on habitat and EFH, when compared to baseline conditions because fishing effort is not expected to change.

The scup commercial quota and recreational harvest limit under alternative 2 are identical to those previously implemented for 2015 (Table 27). As described above in section 7.1.1.2, scup abundance, availability, and fishing effort in 2016 are expected to be similar to prior years (Table 26; cell E). Therefore, these measures are expected to result in neutral impacts on habitat and EFH, when compared to the baseline conditions.

The black sea bass commercial quota and recreational harvest limit under alternative 2 are identical to those previously implemented for 2015 (Table 27). As described above in section 7.1.1.3, black sea bass abundance, availability, and fishing effort in 2016 are expected to be similar to prior years (Table 26; cell E). Therefore, these measures are expected to result in neutral impacts on habitat and EFH, when compared to the baseline conditions.

7.2.1.3 Alternative 3 (Most Restrictive 2016)

Alternative 3 includes a substantial decrease in the summer flounder, scup, and black sea bass commercial quotas (decreases of 43.1%, 88.1%, and 48.9%, respectively) and recreational harvest limits (decreases of 43.1%, 81.8%, and 48.8%, respectively) compared to previously implemented specifications for 2015 (the *status quo*; Table 27). This alternative would likely result in positive habitat impacts when compared to the *status quo* and baseline conditions because decreased quotas would likely result in reduced fishing time and thus fewer interactions between fishing gear and habitat (Table 26; cell B).

7.2.1.4 Alternative 4 (Least Restrictive 2016)

Alternative 4 includes a substantial increase in the summer flounder, scup, and black sea bass commercial quotas (increases of 64.2%, 33.5%, and 81.9%, respectively) and recreational harvest limits (64.2%, 26.0%, and 79.4%, respectively) compared to previously implemented specifications for 2015 (the *status quo* alternative; Table 27). Because these measures would likely result in increased fishing effort, and thus the potential for increased interactions between fishing gear and habitat, alternative 4 is expected to result in negative impacts to habitat and EFH when compared to the *status quo* and baseline conditions, assuming relatively stable abundances of summer flounder, scup, and black sea bass (Table 26; cell H).

7.2.2 Quota Alternatives for 2017

The four alternatives for 2017 have potential habitat impacts that range from negative to positive. The greatest potential for overall positive habitat impacts are associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly alternative 4 (least restrictive).

7.2.2.1 Alternative 1 (Preferred 2017)

As described in section 7.1.1.1, summer flounder abundance and availability are likely to remain relatively stable in 2017 if alternative 1 is implemented. Given the magnitude of the decrease in the commercial quota under this alternative (a 28.5% decrease compared to the *status quo*; Table 28), and assuming stable fish availability, this alternative is expected to have effects on habitat and EFH that are neutral to positive, when compared to the *status quo* alternative and baseline conditions (Table 26; cell B). More specifically, positive impacts can be expected because the lower commercial quota is likely to result in less fishing time, during which gear (predominately bottom trawls) will contact the bottom and impact habitat.

As described in section 7.1.1.1, scup abundance and availability are likely to remain relatively stable in 2017. Given that the commercial quota and recreational harvest limit under this alternative are lower than the 2015 implemented measures, but substantially higher than 2014 landings (Table 28), they are not expected to result in substantial changes in fishing effort. Alternative 1 for scup is thus expected to have effects on habitat and EFH that are neutral when compared to the *status quo* alternative and baseline conditions (Table 26; cell B).

The black sea bass measures under 2017 alternative 1 (preferred) are nearly identical to those under 2017 alternative 2 (*status quo*). Thus, for black sea bass, the habitat impacts of the preferred alternative in 2017 are expected to be neutral when compared to the *status quo* alternative and baseline conditions (section 7.2.1.2).

7.2.2.2 Alternative 2 (*Status Quo* 2017)

2017 alternative 2 (*status quo*) is identical to 2016 alternative 2 (*status quo*). The habitat impacts of this alternative in 2017 are expected to be neutral, when compared to the baseline conditions (section 7.2.1.2).

7.2.2.3 Alternative 3 (Most Restrictive 2017)

2017 alternative 3 (most restrictive) is identical to 2016 alternative 3 (most restrictive). The habitat impacts of this alternative are expected to be positive, when compared to the *status quo* alternative, and when compared to the baseline conditions (section 7.2.1.3).

7.2.2.4 Alternative 4 (Least Restrictive 2017)

2017 alternative 4 (most restrictive) is identical to 2016 alternative 3 (most restrictive). The habitat impacts of this alternative are expected to be negative, when compared to the *status quo* alternative, and when compared to the baseline conditions (section 7.2.1.4).

7.2.3 Quota Alternatives for 2018

The four alternatives for 2018 have habitat impacts that range from negative to positive. The greatest potential for overall positive habitat impacts are associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly alternative 4 (least restrictive).

7.2.3.1 Alternative 1 (Preferred 2018)

As described in section 7.1.1.1, summer flounder abundance and availability are likely to remain relatively stable in 2018 if alternative 1 is implemented. Given the large commercial quota under alternative 1 (28.7% when compared to the *status quo;* Table 29), and assuming stable fish availability, this alternative is expected to have impacts on habitat and EFH that are neutral to positive, when compared to the *status quo* alternative and baseline conditions (Table 26; cell B). More specifically, positive impacts can be expected because the lower quota is likely to result in less fishing time, during which gear (predominately bottom trawls) will contact the bottom and impact habitat.

As described in section 7.1.1.1, scup abundance and availability are likely to remain relatively stable in 2018. Given that the commercial quota and recreational harvest limit under this alternative are lower than the 2015 implemented measures, but substantially higher than 2014 landings (Table 29), they are not expected to result in substantial changes in fishing effort. Alternative 1 for scup is thus expected to have impacts on habitat and EFH that are neutral when compared to the *status quo* alternative, and when compared to the baseline conditions (Table 26; cell B).

7.2.3.2 Alternative 2 (*Status quo* 2018)

2018 alternative 2 (*status quo*) for summer flounder and scup is identical to 2016 alternative 2 (*status quo*). The habitat impacts of this alternative in 2018 are expected to be neutral when compared to baseline conditions (section 7.2.1.2).

7.2.3.3 Alternative 3 (Most Restrictive 2018)

2018 alternative 3 (most restrictive) for summer flounder and scup is identical to 2016 alternative 3 (most restrictive). The habitat impacts of this alternative are expected to be positive when compared to the *status quo* alternative, and when compared to baseline conditions (section 7.2.1.3).

7.2.3.4 Alternative 4 (Least Restrictive 2018)

2018 alternative 4 (most restrictive) for summer flounder and scup is identical to 2016 alternative 3 (most restrictive). The habitat impacts of this alternative are expected to be negative, when compared to the *status quo* alternative, and when compared to baseline conditions (section 7.2.1.4).

7.3 ESA and MMPA Protected Species

7.3.1 Quota Alternatives for 2016

The four alternatives for 2016 have potential impacts on ESA and MMPA protected species that range from positive to negative. The greatest potential for overall positive impacts are associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly, alternative 4 (least restrictive). Detailed information on interactions between the summer flounder, scup, and black sea bass fishery and protected species is included in section 6.3.

7.3.1.1 Alternative 1 (Preferred 2016)

As described above in section 7.1.1.1, summer flounder, scup, and sea bass abundance and availability are likely to remain relatively stable in 2016 if the preferred alternative is implemented. Alternative 1 would decrease the commercial quotas and recreational harvest limits for summer flounder and scup, and maintain a commercial quota and recreational harvest limit that are nearly identical to the *status quo* for black for sea bass.

Based on this information, fishing effort is likely to remain the same or potentially decrease for summer flounder because these measures are likely to require additional management measures to constrain landings to the lower quota and harvest limit (Table 26, Cell B).[19] This decrease may result in less fishing time and gear being present in the water for a shorter duration (Table 26). For scup, these proposed measures are lower than the *status quo* alternative, but substantially higher than 2014 landings (Table 27); therefore, they are not expected to result in substantial changes to landings levels or fishing effort when compared to baseline conditions (Table 26, Cell B). For black sea bass, the proposed measures are nearly identical to the *status quo* alternative and therefore no changes in fishing effort are expected (Table 26, Cell E).

Overall, under alternative 1, fishing behavior is expected to be similar to the *status quo* alternative and baseline conditions, with the potential for effort to decrease (given the summer flounder proposed measures). Therefore, impacts to protected species are not expected to be greater than those expected under alternative 2 (*status quo*). If fishing effort decreases, impacts will likely decrease.

MMPA Protected Species Impacts

Impacts of the summer flounder, scup, and black sea bass fishery, assuming the preferred measures under *status quo* fishing effort, on marine mammals are uncertain because quantitative analyses have not been performed and data are limited (section 6.3).

Aside from several large whale species (e.g., North Atlantic right, humpback, and fin whales), harbor porpoise, and several stocks of bottlenose dolphin (Waring et al. 2014, 2015), there has been no indication that takes of marine mammals in these commercial fisheries have exceeded the potential biological removal (PBR) or exceeded levels which would threaten the sustainability these species. Although several species of large whales, harbor porpoise, and

[19] These measures could include state implemented regulations associated with state-specific commercial quotas or state and/or federal recreational fishery management measures that will be considered for 2016 in subsequent actions.

several stocks of bottlenose dolphin have experienced levels of take that exceeded each species' PBR, take reduction plans have been implemented and are currently in place to reduce bycatch in the fisheries affecting these species. Effort in the summer flounder, scup, and black sea bass fishery, has not been demonstrated to result in a collective level of take that threatens the continued existence of marine mammals (Waring et al. 2014). Based on this information, it is not expected the summer flounder, scup, and black sea bass fisheries under *status quo* fishing effort will result in levels of take that will affect the continued existence of marine mammals.

In 2013, NMFS concluded that the operation of the summer flounder, scup, and black sea bass fishery may affect, but will not jeopardize the continued existence of any ESA-listed species of marine mammals (NMFS 2013). It is not expected that risks or impacts to ESA-listed species of marine mammals under *status quo* fishing effort will be different from those already considered by NMFS (NMFS 2013) and therefore, the continued operation of the summer flounder, scup, and black sea bass fisheries under *status quo* fishing effort are not expected to jeopardize the continued existence of any ESA-listed species of whales (NMFS 2013). For these reasons, and those stated above, *status quo* measures in the summer flounder, scup, and black sea bass fisheries are expected to have neutral impacts on marine mammals.

As previously noted, alternative 1 may result in a decrease in fishing effort. Because interactions with marine mammals are influenced by the amount of fishing gear, and the duration of time gear is in the water, decreases in fishing effort would be expected to reduce the potential for interactions, and reduce the potential for serious injury or mortality to these species. While interactions and takes may still occur under alternative 1, the amount of interactions with protected species is expected to be similar to or less than what is expected under alternative 2 (*status quo*). Thus, alternative 1 is expected to have impacts on marine mammals that range from neutral to positive when compared to the *status quo*, and neutral impacts when compared to the baseline condition of MMPA species.

ESA Listed Species Impacts

Similar to MMPA-protected species described above, the impacts of the summer flounder, scup, and black sea bass fisheries on ESA-listed species are uncertain because quantitative analyses have not been performed and data are limited. A 2013 NMFS Biological Opinion included an incidental take statement authorizing the take of specific numbers of ESA-listed species of sea turtles, Atlantic salmon, and Atlantic sturgeon.[20] The summer flounder, scup, and black sea bass fisheries are currently covered by the incidental take statement authorized in NMFS 2013 Opinion. The Opinion concluded that the summer flounder, scup, and black sea bass fisheries may affect, but would not jeopardize the continued existence of any ESA-listed species. Under the preferred alternative, impacts to protected species are not expected to be different from those already considered by NMFS (NMFS 2013). Specifications implemented for the summer flounder, scup, and black sea bass fisheries since 2013 have not resulted in the exceedance of NMFS authorized take of any ESA- listed species. Therefore, fishing behavior under the preferred measures is not expected to introduce any new risks or additional takes to ESA-listed species that

[20] The 2013 Opinion did not authorize take of ESA listed species of whales; however, it assessed interaction risks to these species and concluded that the summer flounder, scup, and black sea bass fisheries, in addition to the other six FMPs assessed, would not jeopardize the continued existence of any ESA listed species of whales (NMFS 2013).

have not already been considered and authorized by NMFS to date (NMFS 2013). For these reasons, and those stated above, the preferred measures in the summer flounder, scup, and black sea bass fisheries are expected to have neutral impacts on ESA-listed species when compared to the *status quo*, and when compared to the baseline conditions.

As previously noted, alternative 1 may result in a decrease in fishing effort. Because interactions with ESA-listed species of fish, sea turtles, and marine mammals are influenced by the amount of fishing gear, and the duration of time gear is in the water, decreases in fishing effort would be expected to reduce the potential for interactions, and reduce the potential for serious injury or mortality to these species. While interactions and takes may still occur under alternative 1, the amount of interactions with protected species is expected to be similar to or less than what is expected under alternative 2 (*status quo*). Therefore, alternative 1 is expected to result in overall impacts to on ESA-listed species that range from neutral to positive compared to the *status quo,* and when compared to the baseline conditions.

7.3.1.2 Alternative 2 (*Status Quo* 2016)

Impacts of the *status quo* alternative on protected species (ESA and MMPA-protected species) are described in section 7.3.1.1. Alternative 2 is likely to have neutral impacts on protected species, when compared to baseline conditions.

7.3.1.3 Alternative 3 (Most Restrictive 2016)

Alternative 3 includes a substantial decrease in the summer flounder, scup, and black sea bass commercial quotas (decreases of 43.1%, 88.1%, and 48.9%, respectively) and recreational harvest limits (decreases of 43.1%, 81.8%, and 49.9%, respectively) compared to the *status quo* alternative (Table 27). The impacts of alternative 3 on protected species are expected be positive when compared to the *status quo* and baseline conditions because a large decrease in fishing effort in all three fisheries would be expected under this alternative. Fishing effort and the duration of time fishing gear is in the water are expected to decrease the most under alternative 3, compared to the other alternatives.

7.3.1.4 Alternative 4 (Least Restrictive 2016)

Alternative 4 includes a substantial increase in the summer flounder, scup, and black sea bass commercial quotas (increases of 64.2%, 33.5%, and 81.9%, respectively) and recreational harvest limits (increases of 64.2%, 26.0%, and 79.4%, respectively) compared to the *status quo* alternative (Table 27). With an increase in quota, fishing effort, and the duration of time fishing gear is in the water, would be expected to increase, resulting in increased interactions with protected species and thus additional takes above and beyond baseline conditions (section 7.3.1.1). Based on this information and the information provided in section 7.3.1.1, alternative 4 is expected to result in negative impacts to protected species when compared to the *status quo,* and when compared to baseline conditions.

7.3.2 Quota Alternatives for 2017

The four alternatives for 2017 have potential impacts on protected species that range from positive to negative. The greatest potential for overall positive impacts are associated with

alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status quo*), and lastly, alternative 4 (least restrictive). Detailed information on interactions between the summer flounder, scup, and black sea bass fishery and protected species is included in section 6.3.

7.3.2.1 Alternative 1 (Preferred 2017)

As described above in section 7.1.1.1, summer flounder, scup, and sea bass abundance and availability are likely to remain relatively stable in 2017 if the preferred alternative is implemented. Alternative 1 would decrease the commercial quotas and recreational harvest limits for summer flounder and scup, and maintain a commercial quota and recreational harvest limit that are nearly identical to the *status quo* for black for sea bass.

Based on this information, fishing effort is likely to remain the same or potentially decrease for summer flounder because these measures are likely to require additional management measures to constrain landings to the lower quota and harvest limit (Table 26, Cell B).[21] This decrease may result in less fishing time and gear being present in the water for a shorter duration (Table 26). For scup, these proposed measures are lower than the *status quo* alternative, but substantially higher than 2014 landings (Table 27); therefore, they are not expected to result in substantial changes to landings levels or fishing effort (Table 26, Cell B). For black sea bass, the proposed measures are nearly identical to the *status quo* alternative and therefore no changes in fishing effort are expected when compared to baseline conditions (Table 26, Cell E).

Overall, under alternative 1, fishing behavior is expected to be similar to the *status quo* alternative and baseline conditions, with the potential for effort to decrease (given the summer flounder proposed measures). Therefore, impacts to protected species are not expected to be greater than those expected under alternative 2 (*status quo*). If fishing effort decreases, impacts will likely decrease. See section 7.3.1.1 for more details on impacts to protected species under 2017 alternative 1.

7.3.2.2 Alternative 2 (*Status Quo* 2017)

2017 alternative 2 (*status quo*) is identical to 2016 alternative 2 (*status quo*). The protected species impacts under this alternative are expected to be neutral, when compared to baseline conditions (section 7.3.1.2).

7.3.2.3 Alternative 3 (Most Restrictive 2017)

2017 alternative 3 (most restrictive) is identical to 2016 alternative 3 (most restrictive). The protected species impacts of this alternative are expected to be positive, when compared to the *status quo* alternative and when compared to baseline conditions (section 7.3.1.3).

[21] These measures could include state implemented regulations associated with state-specific commercial quotas or state and/or federal recreational fishery management measures that will be considered for 2016 in subsequent actions.

7.3.2.4 Alternative 4 (Least Restrictive 2017)

2017 alternative 4 (most restrictive) is identical to 2016 alternative 3 (most restrictive). The impacts of this alternative are expected to be negative, when compared to the *status quo* alternative (section 7.3.1.4), and when compared to baseline conditions.

7.3.3 Quota Alternatives for 2018

The four alternatives for 2018 have potential impacts on protected species that range from positive to negative. The greatest potential for overall positive impacts are associated with alternative 3 (most restrictive), followed by alternative 1 (preferred), then alternative 2 (*status* quo), and lastly, alternative 4 (least restrictive). Detailed information on interactions between the summer flounder, scup, and black sea bass fishery and protected species is included in section 6.3.

7.3.3.1 Alternative 1 (Preferred 2018)

As described in section 7.1.1.1, summer flounder and scup abundance and availability are likely to remain relatively stable in 2018 if the preferred alternative is implemented. Alternative 1 would decrease the commercial quotas and recreational harvest limits for summer flounder and scup, relative to the *status quo*.

Based on this information, fishing effort is likely to remain the same or potentially decrease for summer flounder because these measures are likely to require additional management measures to constrain landings to the lower quota and harvest limit (Table 26, Cell B).[22] This decrease may result in less fishing effort and gear being present in the water for a shorter duration (Table 26). For scup, these proposed measures are lower than the *status quo* alternative, but substantially higher than 2014 landings (Table 27); therefore, they are not expected to result in substantial changes to landings levels or fishing effort (Table 26, Cell B).

Overall, under alternative 1, fishing behavior is expected to be similar to the *status quo* alternative and baseline conditions, with the potential for effort to decrease (given the summer flounder proposed measures). Therefore, impacts to protected species are not expected to be greater than those expected under alternative 2 (*status quo*). If fishing effort decreases, impacts will likely decrease. See section 7.3.1.1 for more details on impacts to protected species under 2017 alternative 1.

7.3.3.2 Alternative 2 (*Status Quo* 2018)

2018 alternative 2 (*status quo*) for summer flounder and scup is identical to 2016 alternative 2 (*status quo*). The protected species impacts of this alternative in 2018 are expected to be neutral, when compared to the baseline conditions (section 7.3.1.2).

[22] These measures could include state implemented regulations associated with state-specific commercial quotas or state and/or federal recreational fishery management measures that will be considered for 2016 in subsequent actions.

7.3.3.3 Alternative 3 (Most Restrictive 2018)

2018 alternative 3 (most restrictive) for summer flounder and scup is identical to 2016 alternative 3 (most restrictive). The protected species impacts of this alternative are expected to be positive, when compared to the *status quo* alternative (section 7.3.1.3), and when compared to baseline conditions.

7.3.3.4 Alternative 4 (Least Restrictive 2018)

2018 alternative 4 (most restrictive) for summer flounder and scup is identical to 2016 alternative 3 (most restrictive). The protected species impacts of this alternative are expected to be negative, when compared to the *status quo* alternative, and when compared to baseline conditions (section 7.3.1.4).

7.4 Socioeconomic Impacts

A detailed quantitative and qualitative economic analysis of the alternatives is presented in section 8.11.

7.4.1 Quota Alternatives for 2016

When comparing across the four alternatives for 2016, alternative 4 (least restrictive) will result in the greatest potential for overall positive social and economic impacts, followed by alternative 2 (*status quo*), then by alternative 1 (preferred), and lastly by alternative 3 (most restrictive). It is possible that under alternatives 2 and 4 negative social and economic impacts could occur in the future if overfishing occurs and the sustainability of the stock is jeopardized.

7.4.1.1 Alternative 1 (Preferred 2016)

As a result of the potential decrease in commercial landings for summer flounder under alternative 1, negative economic impacts are likely to occur when compared to the *status quo* alternative and baseline conditions. For scup, no revenue change is expected when compared to the *status quo* alternative 2.[23] For black sea bass, a small increase in revenue is expected when compared to the *status quo* alternative.

The scup recreational harvest limit (6.09 million pounds) under 2016 alternative 1 is higher than the 2014 scup recreational landings (4.12 million pounds). The recreational harvest limits for summer flounder (5.42 million pounds) and black sea bass (2.33 million pounds) under this alternative are lower than recreational landings of these species in 2014 (7.39 million pounds for

[23] While the proposed scup commercial quota and recreational harvest limits under alternatives 1 and 3 in 2016-2018 are lower than the 2015 quota (*status quo*), they are considerably higher than the 2014 commercial and recreational landings. Unless market conditions change substantially in 2015 to 2018, commercial and recreational landings will likely be close to the 2014 landings. There is no indication that the market environment for commercially and recreationally caught scup will change considerably in 2016 to 2018. As such, for cases that show a future allocation that is higher than the 2014 landings, it is assumed that future landings (e.g., 2016, 2017, and 2018) would be equal to the 2014 landings. However, for cases that show a future allocation smaller than 2014 landings, the change due to the future allocation is considered for analysis purposes. In doing so, we avoid overestimating potential losses or gains in this fishery due to changes in the commercial quota levels.

summer flounder and 3.78 million pounds for black sea bass). Assuming that recreational landings in 2016 will be similar to those in 2014, it is expected that no additional measures will be necessary to ensure that scup recreational landings do not exceed the recreational harvest limit. However, additional management measures will likely be necessary to ensure that the summer flounder and black sea bass limits are not exceeded. These measures could include lower possession limits, greater minimum size limits, and/or shorter seasons, compared to those in place for 2015 (*status quo*). For this reason, the recreational harvest limits under this scenario will likely provide similar recreational satisfaction for scup, relative to 2015, but lower satisfaction for summer flounder and black sea bass. Specific recreational management measures for all three species will be determined in December 2015 and will be analyzed in a separate action.

The measures under alternative 1 are consistent with the ABC recommendations of the SSC and are therefore based on the best scientific information available. The measures under alterative 1 are intended to prevent overfishing, thus contributing to long-term positive social and economic impacts.

7.4.1.2 Alternative 2 (*Status Quo* 2016)

Alternative 2 (*status quo*) is expected to result in neutral to slight negative social and economic impacts when compared to baseline conditions. The commercial quotas and recreational harvest limits for the three species under this alternative are nearly identical to those implemented for 2015. Assuming that 2016 landings will be similar to those in 2014, neutral socio-economic impacts would be expected for summer flounder and scup because landings would be less than or very close to the commercial quotas and recreational harvest limits. However, slight negative socio-economic impacts may be possible for black sea bass. Commercial and recreational black sea bass landings in 2014 were greater than the landings limits under this alternative (Tables 10 and 24); therefore, this alternative may trigger AMs (section 6.1.4) and/or require more restrictive recreational measures such as lower possession limits, lower minimum fish sizes, and shorter seasons to ensure that the landings limits are not exceeded. The recreational harvest limits under this scenario will likely provide similar recreational satisfaction for summer flounder and scup, relative to 2015, but lower satisfaction for black sea bass.

The measures contained under the *status quo* alternative for summer flounder and scup are higher than those derived from the ABCs recommended by the SSC. As such, it is possible that negative social and economic impacts could occur in the future if overfishing occurs and the sustainability of the stocks is jeopardized. The black sea bass measures contained under this alternative are consistent with the SSC recommendations for ABC.

7.4.1.3 Alternative 3 (Most Restrictive 2016)

Alternative 3 contains the most restrictive measures for summer flounder, scup, and black sea bass. As a result of the lower summer flounder, scup, and black sea bass commercial quotas compared to the *status quo* (decreases of 43.1%, 88.1%, and 49.9%, respectively), negative economic impacts would likely occur, relative to the *status quo* and baseline conditions. However, it is possible that given the potential decrease in landings, price for these species may

increase if all other factors are held constant. An increase in price could mitigate some of the potential revenue reductions associated with lower quotas under alternative 3.

The recreational harvest limits for all three species under 2016 alternative 3 are much lower than the 2014 recreational landings. Assuming that recreational landings in 2016 are similar to those in 2014, additional measures such as lower possession limits, greater minimum fish sizes, and/or shorter seasons (compared to 2015), are expected to be necessary for all three species under this alternative to ensure that recreational landings do not exceed the recreational harvest limits. For this reason, the recreational harvest limits under this scenario are expected to substantially decrease recreational satisfaction for these fisheries, relative to the *status quo* alternative. It is anticipated that these measures will result in a decrease in the demand for party/charter boat trips and generally affect angler participation in a negative manner.

7.4.1.4 Alternative 4 (Least Restrictive 2016)

Alternative 4 (least restrictive) for each species in 2016 corresponds to the FMP time series highs for commercial quotas and recreational harvest limits.

As a result of the higher summer flounder, scup, and black sea bass commercial quotas of 64.2%, 33.5%, and 81.9%, respectively, under alternative 4 compared to the *status quo*, positive economic impacts are likely to occur. However, it is possible that given the potential increase in landings, price for these species may decrease if all other factors are held constant. A decrease in price could mitigate some of the revenue increases associated with higher quotas under alternative 4.

The recreational harvest limits for all three species under 2016 alternative 4 are much higher than the 2014 recreational landings. Assuming that recreational landings in 2016 are similar to those in 2014, no additional measures are expected to be necessary to ensure that recreational landings do not exceed the recreational harvest limits for any of the three species. The recreational harvest limits under this scenario are expected to increase recreational satisfaction for these fisheries, relative to the *status quo* alternative, by allowing more summer flounder, scup, and black sea bass to be harvested by recreational fishermen. However, they could result in long-term negative economic impacts by potentially jeopardizing the sustainability of the stocks. These measures could result in landings above the ABCs recommend by the SSC for 2016. Because these measures include the highest commercial quotas and recreational harvest limits of all the 2016 alternatives, they have the highest potential to result in overfishing.

7.4.2 Quota Alternatives for 2017

When comparing across the four alternatives for 2017, alternative 4 (least restrictive) has the greatest potential for overall positive social and economic impacts, followed by alternative 2 (*status quo*), then by alternative 1 (preferred), and lastly, alternative 3 (most restrictive). Negative social and economic impacts could occur in the future under alternatives 2 and 4 if overfishing occurs and the sustainability of the stock is jeopardized.

7.4.2.1 Alternative 1 (Preferred 2017)

As a result of the potential decrease in commercial landings for summer flounder under alternative 1, negative economic impacts on the summer flounder fishery are likely to occur when compared to the *status quo* alternative and baseline conditions. For scup, no revenue change is expected when compared to the *status quo* alternative 2. For black sea bass, a small increase in revenue is expected when compared to the *status quo* alternative 2.

The scup recreational harvest limit (5.50 million pounds) under 2017 alternative 1 is higher than scup recreational landings in 2014 (4.12 million pounds). The recreational harvest limits for summer flounder (5.28 million pounds) and black sea bass (2.33 million pounds) under this alternative are lower than recreational landings of these species in 2014 (7.39 million pounds for summer flounder and 3.78 million pounds for black sea bass). Assuming that recreational landings in 2017 are similar to those in 2014, it is expected that no additional measures will be necessary to ensure that scup recreational landings do not exceed the recreational harvest limit. However, additional management measures will likely be necessary to ensure that the summer flounder and black sea bass limits are not exceeded. These measures could include lower possession limits, greater minimum size limits, and/or shorter seasons, compared to those in place for 2015. For this reason, the recreational harvest limits under this scenario will likely provide similar recreational satisfaction for scup, relative to 2015, but lower satisfaction for summer flounder and black sea bass. Specific recreational management measures for all three species will be determined in December and will be analyzed in a separate action.

7.4.2.2 Alternative 2 (*Status Quo* 2017)

2017 alternative 2 (*status quo*) is identical to 2016 alternative 2 (*status quo*). When compared to baseline conditions, the socio-economic impacts under this alternative are expected to be neutral to slight negative in the short-term, with possible long-term negative impacts (section 7.4.1.2).

7.4.2.3 Alternative 3 (Most Restrictive 2017)

2017 alternative 3 (most restrictive) is identical to 2016 alternative 3 (most restrictive). The socio-economic impacts under this alternative are expected to be negative, when compared to the *status quo* alternative (section 7.4.1.3).

7.4.2.4 Alternative 4 (Least Restrictive 2017)

2017 alternative 4 (least restrictive) is identical to 2016 alternative 4 (least restrictive). The socio-economic impacts under this alternative are expected to be positive in the short-term, but negative in the long-term, compared to the *status quo* alternative (section 7.4.1.4).

7.4.3 Quota Alternatives for 2018

When comparing across the four alternatives for 2018, alternative 4 (least restrictive) has the greatest potential for overall positive social and economic impacts, followed by alternative 2 (*status quo*), then by alternative 1 (preferred), and lastly, alternative 3 (most restrictive).

Negative social and economic impacts could occur in the future under alternatives 2 and 4 if overfishing occurs and the sustainability of the stock is jeopardized.

7.4.3.1 Alternative 1 (Preferred 2018)

As a result of the potential decrease in commercial landings for summer flounder under preferred alternative 1, negative economic impacts on the summer flounder fishery are likely to occur when compared to the *status quo* alternative and baseline conditions. However, as stated in section 7.4.1.1 and 7.2.2.1, alternative 1 is expected to ensure the long-term sustainability of the summer flounder stock, thus resulting in long-term positive social and economic impacts. For scup, no revenue change is expected when compared to the *status quo* alternative 2.

Similar recreational impacts for summer flounder and scup as those described under the quota scenario 1 for 2016 in section 7.4.1.1 also apply here. Angler satisfaction under alternative 1 is expected to be similar to the *status quo* with regards to scup, but lower than the *status quo* with regards to summer flounder.

7.4.3.2 Alternative 2 (*Status Quo* 2018)

2018 alternative 2 (*status quo*) is identical to 2016 alternative 2 (*status quo*). When compared to baseline conditions, the socio-economic impacts under this alternative are expected to be neutral to slight negative in the short-term, with possible long-term negative impacts (section 7.4.1.2).

7.4.3.3 Alternative 3 (Most Restrictive 2018)

2018 alternative 3 (most restrictive) is identical to 2016 alternative 3 (most restrictive). The socio-economic impacts under this alternative are expected to be negative, when compared to the *status quo* alternative (section 7.4.1.3).

7.4.3.4 Alternative 4 (Least Restrictive 2018)

2018 alternative 4 (least restrictive) is identical to 2016 alternative 4 (least restrictive). The socio-economic impacts under this alternative are expected to be positive in the short-term, but negative in the long-term, compared to the *status quo* alternative (section 7.4.1.4).

7.5 Cumulative Effects Analysis

A cumulative effects analysis (CEA) is required by the Council on Environmental Quality (CEQ; 40 CFR part 1508.7). The purpose of CEA is to consider the combined effects of many actions on the human environment over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective, but rather, the intent is to focus on those effects that are truly meaningful. A formal cumulative impact assessment is not necessarily required under NEPA as part of an EA as long as the significance of cumulative impacts have been considered (U.S. EPA 1999). The following remarks address the significance of the expected

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

7.5.1 Consideration of the VECs

The VECs that exist within the summer flounder, scup, and black sea bass fishery environment are identified in section 6.0. The significance of the cumulative effects will be discussed in relation to the VECs listed below.

1. Managed resources (summer flounder, scup, and black sea bass)
2. Non-target species
3. Habitat including EFH for the managed resource and non-target species
4. ESA and MMPA protected species
5. Human communities

7.5.2 Geographic Boundaries

The analysis of impacts focuses on actions related to the harvest of summer flounder, scup, and black sea bass. The core geographic scope for each of the VECs is focused on the Western Atlantic Ocean (section 6.0). The core geographic scopes for the managed resources are the range of the management units (section 6.1). For non-target species, those ranges may be expanded and would depend on the biological range of each individual non-target species in the Western Atlantic Ocean. For habitat, the core geographic scope is focused on EFH within the EEZ but includes all habitat utilized by summer flounder, scup, black sea bass and other non-target species in the Western Atlantic Ocean. The core geographic scope for endangered and protected resources can be considered the overall range of these VECs in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities directly involved in the harvest or processing of the managed resources, which were found to occur in coastal states from Maine through North Carolina (section 6.4).

7.5.3 Temporal Boundaries

The temporal scope of past and present actions for VECs is primarily focused on actions that have occurred after FMP implementation (1988 for summer flounder; 1996 for scup and black sea bass). For endangered and other protected resources, the scope of past and present actions is on a species-by-species basis (section 6.3) and is largely focused on the 1980s and 1990s, (when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ) through the present. The temporal scope of future actions for all five VECs extends about three years (2021) into the future beyond the analyzed time frame of the proposed actions in this document. The dynamic nature of resource management for these three species and lack of information on projects that may occur in the future make it very difficult to predict impacts beyond this timeframe with any certainty.

7.5.4 Actions Other Than Those Proposed in this Document

The impacts of each of the alternatives considered in this specifications document are described in section 7.1 through 7.4. Table 30 presents meaningful past (P), present (Pr), or reasonably

foreseeable future (RFF) actions to be considered other than those actions considered in this specifications document. These impacts are described in chronological order and qualitatively, as the actual impacts of these actions are too complex to be quantified in a meaningful way. When any of these abbreviations (P, Pr, or RFF), occur together it indicates that some past actions are still relevant to the present and/or future actions.

Past and Present Actions

The historical management practices of the Council have resulted in positive impacts on the health of the summer flounder, scup, and black sea bass stocks (section 6.1). The Council has taken numerous actions to manage the commercial and recreational fisheries for these species through amendment and framework adjustment actions. The specifications process is intended to provide the opportunity for the Council and NMFS to regularly assess the status of the fishery and to make necessary adjustments to ensure that there is a reasonable expectation of meeting the objectives of the FMP and the targets associated with any rebuilding programs under the FMP. The MSA is the statutory basis for Federal fisheries management. To the degree with which this regulatory regime is complied, the cumulative impacts of past, present, and reasonably foreseeable future federal fishery management actions on the VECs should generally be associated with positive long-term outcomes. Constraining fishing effort through regulatory actions can often have negative short-term socioeconomic impacts. All three of these fisheries have annual catch limits and AMs (section 6.1.4) which are regularly adjusted to ensure landings are constrained to the catch and landings limits. These impacts are usually necessary to bring about long-term sustainability of a given resource, and as such should in the long-term, promote positive effects on human communities, especially those that are economically dependent on summer flounder, scup, and black sea bass fisheries.

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

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

Reasonably Foreseeable Future Actions

The Council has initiated amendments for summer flounder and for scup. These amendments re-evaluate the FMP goals and objectives with regards to summer flounder and scup, and will re-evaluate the allocation schemes and other aspects of summer flounder and scup fisheries management. These two amendments are likely to be implemented within the next three years. The Council has also initiated an FMP framework adjustment to modify the scup Gear Restricted Areas. This framework is likely to be completed by the end of 2016.

For many of the proposed non-fishing activities to be permitted under other federal agencies (e.g. beach nourishment, offshore wind facilities, etc.), those agencies would conduct examinations of potential impacts on the VECs. The MSA (50 CFR 600.930) imposes an obligation on other federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight Fishery Management Councils are engaged in this review process by making comments and recommendations on any federal or state action that may affect habitat, including EFH, for their managed species and by commenting on actions likely to substantially affect habitat, including EFH.

In addition to mortality on this stock due to fishing, there are other indirect effects from non-fishing anthropogenic activities in the Atlantic Ocean (e.g., climate change, point source and non-point source pollution, shipping, dredging, etc.); however, these effects are generally difficult to quantify. Nye et al. (2009) examined the distribution of 36 fish stocks, including summer flounder (but not scup or black sea bass), on the northeast United States continental shelf from 1968 to 2007. They found only "weak indicators of distributional changes consistent with warming" for summer flounder; however, they found stronger indicators of shifts in distribution for other species (Nye et al. 2009).

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

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

7.5.5 Magnitude and Significance of Cumulative Effects

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

Table 30. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).

Action	Description	Impacts on Managed Resource	Impacts on Non-Target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr Original FMP and subsequent FMP Amendments and Frameworks	Established commercial and recreational management measures	**Indirect Positive** Regulatory tool available to rebuild and manage stocks	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Benefited domestic businesses
P, Pr, RFF Summer Flounder, Scup, and Black Sea Bass Specifications	Establish quotas, recreational harvest limits, and other fishery regulations (commercial and recreational)	**Indirect Positive** Regulatory tool to specify catch limits, and other regulations; allows response to annual stock updates	**Indirect Positive** Reduced effort levels; gear requirements	**Indirect Positive** Reduced effort levels; gear requirements	**Indirect Positive** Reduced effort levels; gear requirements	**Indirect Positive** Benefited domestic businesses
P, Pr, RFF Developed, Applied, and Redo of Standardized Bycatch Reporting Methodology	Established acceptable level of precision and accuracy for monitoring of bycatch in fisheries	**Neutral** May improve data quality for monitoring total removals of managed resource	**Neutral** May improve data quality for monitoring removals of non-target species	**Neutral** Will not affect distribution of effort	**Neutral** May increase observer coverage and will not affect distribution of effort	**Uncertain – Likely Indirect Negative** May impose an inconvenience on vessel operations
P, Pr, RFF Agricultural runoff	Nutrients applied to agricultural land are introduced into aquatic systems	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality negatively affects resource
P, Pr, RFF Port maintenance	Dredging of coastal, port and harbor areas for port maintenance	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Direct Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Mixed** Dependent on mitigation effects

Table 30 (Continued). Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).

Action	Description	Impacts on Managed Resource	Impacts on Non-Target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr, RFF Beach nourishment	Offshore mining of sand for beaches	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Mixed** Positive for mining companies, possibly negative for fishing industry
	Placement of sand to nourish beach shorelines	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Positive** Beachgoers like sand; positive for tourism
P, Pr, RFF Marine transportation	Expansion of port facilities, vessel operations and recreational marinas	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Mixed** Positive for some interests, potential displacement for others
P, Pr, RFF Offshore disposal of dredged materials	Disposal of dredged materials	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality negatively affects resource viability
P, Pr, RFF Renewable and Non-renewable Offshore and Nearshore Energy Development	Transportation of oil, gas, and electric through pipelines and cables; Construction of oil platforms, wind facilities, liquefied natural gas facilities (LNG); Additional port development infrastructure	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Indirect Negative** Dependent on mitigation effects	**Uncertain – Likely Direct Negative** Reduced habitat quality; offshore platforms may benefit structure oriented fish species habitat	**Uncertain - Likely Direct Negative** Dependent on mitigation effects	**Uncertain – Likely Mixed** Dependent on mitigation effects

Table 30 (Continued). Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).

Action	Description	Impacts on Managed Resource	Impacts on Non-Target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr, RFF Deep Sea Corals Amendment to the Mackerel, Squid, and Butterfish FMP	Prohibits the use of bottom-tending gear in certain areas known or highly likely to contain deep sea corals.	**Direct Positive** If areas protected from bottom trawling result in increased productivity for managed resources	**Direct Positive** If areas protected from bottom trawling result in increased productivity for non-target species	**Direct Positive** Reduced gear impacts in protected areas	**Direct Positive** Reduced likelihood of gear interactions in protected areas	**Mixed** Negative impacts to fishermen who previously used bottom-tending gear in protected areas; positive impacts due to potential increased productivity for some species.
RFF Convening of Take Reduction Teams (periodically)	Recommend measures to reduce mortality and injury to marine mammals and sea turtles	**Indirect Positive** Will improve data quality for monitoring total removals	**Indirect Positive** Reducing availability of gear could reduce bycatch	**Indirect Positive** Reducing availability of gear could reduce gear impacts	**Indirect Positive** Reducing availability of gear could reduce encounters	**Indirect Negative** Reducing availability of gear could reduce revenues
RFF Comprehensive Summer Flounder and Scup Amendments	Amendments to update several aspects of the FMP with regards to summer flounder and scup, including FMP goals and objectives and allocation schemes	**Direct Positive** Will improve management of summer flounder and scup fisheries	**Uncertain – Likely Neutral** Depending on actions implemented, will not likely result in significant changes to fishing behavior	**Uncertain – Likely Neutral** Depending on actions implemented, will not likely result in significant changes to fishing behavior	**Uncertain – Likely Neutral** Depending on actions implemented, will not likely result in significant changes to fishing behavior	**Indirect Positive** Will benefit domestic businesses
RFF Scup Gear Restricted Areas Framework	Consider modifications to the scup Gear Restricted Areas (GRAs)	**Direct Positive** Will ensure that GRAs remain effective tools for minimizing scup bycatch	**Uncertain – Likely Neutral or Indirect Positive** Depending on changes made, could reduce bycatch of non-target species	**Uncertain – Likely Neutral or Indirect Positive** Depending on changes made, could reduce gear impacts	**Uncertain – Likely Neutral or Indirect Positive** Depending on changes made, could reduce encounters	**Uncertain - Likely Indirect Mixed** Depending on changes made, could benefit scup fishery and could negatively impact small mesh fisheries

7.5.5.1 Managed Resources

Those past, present, and reasonably foreseeable future actions whose effects may impact the managed resources and the direction of those potential impacts, are summarized in Table 31. The indirectly negative actions described in Table 31 are localized in nearshore areas and marine areas where the projects occur. Therefore, the magnitude of those impacts on the managed resources is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude; however, the impact on productivity of the managed resources is not quantifiable. As described in section 7.5.4, NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on the managed resources. It is anticipated that the future management actions described in Table 31 will result in additional indirect positive effects on the managed resources through actions which reduce and monitor bycatch, protect habitat, and protect the ecosystem services on which summer flounder, scup, and black sea bass productivity depends. Upcoming amendments to review management objectives and allocations schemes for summer flounder and scup will likely improve management of these fisheries. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to summer flounder, scup, and black sea bass have had a positive cumulative effect.

Catch limits, commercial quotas and recreational harvest limits for each of the managed resources have been specified to ensure these rebuilt stocks are managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts of annual specification of management measures established in previous years on the managed resources are largely dependent on how effective those measures were in meeting the objectives of preventing overfishing and achieving optimum yield (OY), and on the extent to which mitigating measures were effective. The proposed actions described in this document would positively reinforce the past and anticipated positive cumulative effects on the summer flounder, scup, and black sea bass stock, by achieving the objectives specified in the FMP. Therefore, the proposed action would not have any significant effect on the managed resources individually or in conjunction with other anthropogenic activities (Table 31).

Table 31. Summary of the effects of past, present, and reasonably foreseeable future actions on the managed resources.

Action	Past to the Present		Reasonably Foreseeable Future
Original FMP and subsequent amendments and frameworks to the FMP	**Indirect Positive**		
Summer flounder, scup and black sea bass specifications	**Indirect Positive**		
Development, application, and reconfiguration of Standardized Bycatch Reporting Methodology	**Neutral**		
Agricultural runoff	**Indirect Negative**		
Port maintenance	**Uncertain – Likely Indirect Negative**		
Beach nourishment – offshore sand mining	**Indirect Negative**		
Beach nourishment – sand placement	**Indirect Negative**		
Marine transportation	**Indirect Negative**		
Offshore disposal of dredged materials	**Indirect Negative**		
Renewable and non-renewable offshore and nearshore energy development	**Uncertain – Likely Indirect Negative**		
Convening Gear Take Reduction Teams (periodically)			**Indirect Positive**
Comprehensive summer flounder and scup amendments			**Direct Positive**
Scup Gear Restricted Area Framework			**Direct Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on the managed resources * See section 7.5.5.1 for explanation.**		

7.5.5.2 Non-Target Species or Bycatch

The past, present, and reasonably foreseeable future actions which may impact non-target species, and the direction of those potential impacts, are summarized in Table 32. The effects of indirectly negative actions described in Table 32 are localized in nearshore areas and marine areas where the projects occur. Therefore, the magnitude of those impacts on non-target species is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude; however, the impact on productivity of non-target resources and the oceanic ecosystem is not quantifiable. As described in section 7.5.4, NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. NMFS can consider impacts to non-target species (federally-managed or otherwise) and comment on potential impacts. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources within NMFS' jurisdiction.

Past fishery management actions taken through the FMP and the annual specification process have had a positive cumulative effect on non-target species. Implementation and application of a standardized bycatch reporting methodology (SBRM) would have a particular impact on non-target species by improving the methods which can be used to assess the magnitude and extent of a potential bycatch problem. The implementation of the revised SBRM will result in better assessment of potential bycatch issues and allow more effective and specific management measures to be developed to address bycatch problems. The managed resource fisheries, and other fisheries (including New England Council managed fisheries), have incorporated AMs into their FMPs to constrain landings of target and some non-target resources (section 6.1.4). It is anticipated that future management actions, described in Table 32, will result in additional indirect positive effects on non-target species through actions which reduce and monitor bycatch, protect habitat, and protect ecosystem services on which the productivity of many of these non-target resources depend. The impacts of these future actions could be broad in scope, and it should be noted that the managed resource and non-target species are often coupled in that they utilize similar habitat areas and ecosystem resources on which they depend. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful have had a positive cumulative effect on non-target species.

Catch limits, commercial quotas and recreational harvest limits for each of the managed resources have been specified to ensure these rebuilt stocks are managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document have impacts on non-target species that range from neutral to positive or negative impacts, and would not change the past and anticipated positive cumulative effects on non-target species and thus would not have any significant effect on these species individually or in conjunction with other anthropogenic activities (Table 32).

Table 32. Summary of the effects of past, present, and reasonably foreseeable future actions on non-target species.

Action	Past to the Present		Reasonably Foreseeable Future
Original FMP and subsequent amendments and frameworks to the FMP	**Indirect Positive**		
Summer flounder, scup and black sea bass specifications	**Indirect Positive**		
Development, application, and reconfiguration of Standardized Bycatch Reporting Methodology	**Neutral**		
Agricultural runoff	**Indirect Negative**		
Port maintenance	**Uncertain – Likely Indirect Negative**		
Beach nourishment – offshore sand mining	**Indirect Negative**		
Beach nourishment – sand placement	**Indirect Negative**		
Marine transportation	**Indirect Negative**		
Offshore disposal of dredged materials	**Indirect Negative**		
Renewable and non-renewable offshore and nearshore energy development	**Uncertain – Likely Indirect Negative**		
Convening Gear Take Reduction Teams (periodically)			**Indirect Positive**
Comprehensive summer flounder and scup amendments			**Uncertain – Likely Neutral**
Scup Gear Restricted Area Framework			**Uncertain – Likely Neutral or Indirect Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on the non-target species * See section 7.5.5.2 for explanation.**		

7.5.5.3 Habitat (Including EFH)

Those past, present, and reasonably foreseeable future actions, whose effects may impact habitat (including EFH) and the direction of those potential impacts, are summarized in Table 33. The direct and indirect negative actions described in Table 33 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on habitat is expected to be limited due to a lack of exposure to habitat at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude; however, the impact on habitat and EFH is not quantifiable. As described in section 7.5.4, NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources and the habitat on which they rely prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of direct and indirect negative impacts those actions could have on habitat utilized by resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on habitat and EFH. The actions have constrained fishing effort at a large scale and locally, and have implemented gear requirements, which may reduce habitat impacts. As required under these FMP actions, EFH and Habitat Areas of Particular Concern were designated for the managed resources. It is anticipated that the future management actions, described in Table 33, will result in additional direct or indirect positive effects on habitat through actions which protect EFH for federally-managed species and protect ecosystem services on which these species' productivity depends. These impacts could be broad in scope. All of the VECs are interrelated; therefore, the linkages among habitat quality and EFH, managed resources and non-target species productivity, and associated fishery yields should be considered. For habitat and EFH, there are direct and indirect negative effects from actions which may be localized or broad in scope; however, positive actions that have broad implications have been, and will likely continue to be, taken to improve the condition of habitat. Some actions, such as coastal population growth and climate change may indirectly impact habitat and ecosystem productivity; however, these actions are beyond the scope of NMFS and Council management. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to habitat have had a neutral to positive cumulative effect.

Catch limits, commercial quotas and recreational harvest limits for each of the managed resources have been specified to ensure these rebuilt stocks are managed in a sustainable manner and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on habitat and thus, would not have any significant effect on habitat individually or in conjunction with other anthropogenic activities (Table 33).

Table 33. Summary of the effects of past, present, and reasonably foreseeable future actions on the habitat and EFH.

Action	Past to the Present	Reasonably Foreseeable Future
Original FMP and subsequent amendments and frameworks to the FMP	**Indirect Positive**	
Summer flounder, scup and black sea bass specifications	**Indirect Positive**	
Development, application, and reconfiguration of Standardized Bycatch Reporting Methodology	**Neutral**	
Agricultural runoff	**Direct Negative**	
Port maintenance	**Uncertain – Likely Direct Negative**	
Beach nourishment – offshore sand mining	**Direct Negative**	
Beach nourishment – sand placement	**Direct Negative**	
Marine transportation	**Direct Negative**	
Offshore disposal of dredged materials	**Direct Negative**	
Renewable and non-renewable offshore and nearshore energy development	**Uncertain – Likely Direct Negative**	
Convening Gear Take Reduction Teams (periodically)		**Indirect Positive**
Comprehensive summer flounder and scup amendments		**Uncertain – Likely Neutral**
Scup Gear Restricted Area Framework		**Uncertain – Likely Neutral or Indirect Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, neutral to positive impacts on habitat, including EFH * See section 7.5.5.3 for explanation.**	

7.5.5.4 ESA-Listed and MMPA Protected Species

Those past, present, and reasonably foreseeable future actions, whose effects may impact the protected resources and the direction of those potential impacts, are summarized in Table 34. The indirectly negative actions described in Table 34 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on protected resources, relative to the range of many of the protected resources, is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude; however, the impact on protected resources is not quantifiable. As described in section 7.5.4, NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' protected resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on protected resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on ESA and MMPA protected species through the reduction of fishing effort (and thus reduction in potential interactions) and implementation of gear requirements. It is anticipated that future management actions, specifically those recommended in the ALWTRP and the development of strategies for sea turtle conservation described in Table 34, will result in additional indirect positive effects on the protected resources. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to protected resources have had a positive cumulative effect.

Catch limits, commercial quotas and recreational harvest limits for each of the managed resources have been specified to ensure these rebuilt stocks are managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on ESA and MMPA protected species and thus, would not have any significant effect on protected resources individually or in conjunction with other anthropogenic activities (Table 34).

Table 34. Summary of the effects of past, present, and reasonably foreseeable future actions on protected species.

Action	Past to the Present		Reasonably Foreseeable Future
Original FMP and subsequent amendments and frameworks to the FMP	**Indirect Positive**		
Summer flounder, scup and black sea bass specifications	**Indirect Positive**		
Development, application, and reconfiguration of Standardized Bycatch Reporting Methodology	**Neutral**		
Agricultural runoff	**Indirect Negative**		
Port maintenance	**Uncertain – Likely Indirect Negative**		
Beach nourishment – offshore sand mining	**Indirect Negative**		
Beach nourishment – sand placement	**Indirect Negative**		
Marine transportation	**Indirect Negative**		
Offshore disposal of dredged materials	**Indirect Negative**		
Renewable and non-renewable offshore and nearshore energy development	**Uncertain – Likely Direct Negative**		
Convening Gear Take Reduction Teams (periodically)			**Indirect Positive**
Comprehensive summer flounder and scup amendments			**Uncertain – Likely Neutral**
Scup Gear Restricted Area Framework			**Uncertain – Likely Neutral or Indirect Positive**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on protected resources * See section 7.5.5.4 for explanation.**		

7.5.5.5 Human Communities

Those past, present, and reasonably foreseeable future actions, whose effects may impact human communities and the direction of those potential impacts, are summarized in Table 35. The indirectly negative actions described in Table 35 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on human communities is expected to be limited in scope. Those actions may, however, displace fishermen from project areas. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal ecosystem may be of a larger magnitude. This may result in indirect negative impacts on human communities by reducing resource availability; however, this effect is not quantifiable. As described in section 7.5.4, NMFS has several means under which it can review non-fishing actions of other federal or state agencies prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on human communities.

Past fishery management actions taken through the FMP and annual specification process have had both positive and negative cumulative effects by benefiting domestic fisheries through sustainable fishery management practices, while at the same time potentially reducing the availability of the resource to all participants. Sustainable management practices are, however, expected to yield broad positive impacts to fishermen, their communities, businesses, and the nation as a whole. It is anticipated that the future management actions, described in Table 35, will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on the human communities could occur through management actions if they result in reduced revenues. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had an overall positive cumulative effect.

Catch limits, commercial quotas and recreational harvest limits for each of the managed resources have been specified to ensure these rebuilt stocks are managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts from annual specification measures established in previous years on the managed resources are largely dependent on how effective those measures were in meeting their intended objectives and the extent to which mitigating measures were effective. Overages may alter the timing of commercial fishery revenues (revenues realized a year earlier), and there may be impacts on some fishermen caused by unexpected reductions in their opportunities to earn revenues in the commercial fisheries in the year during which the overages are deducted. Similarly recreational fisheries may have decreased harvest opportunities due to reduced harvest limits as a result of overages, or more restrictive management measures such as minimum fish size, possession limits, fishing seasons that must be implemented to address overages.

Despite the potential for negative short-term effects on human communities, positive long-term effect on human communities are expected due to the long-term sustainability of summer flounder, scup, and black sea bass stocks. Overall, the proposed actions in this document would not change the past and anticipated cumulative effects on human communities and thus, would not have any significant effect on human communities individually, or in conjunction with other anthropogenic activities (Table 35).

Table 35. Summary of the effects of past, present, and reasonably foreseeable future actions on human communities.

Action	Past to the Present	Reasonably Foreseeable Future
Original FMP and subsequent amendments and frameworks to the FMP	**Indirect Positive**	
Summer flounder, scup and black sea bass specifications	**Indirect Positive**	
Development, application, and reconfiguration of Standardized Bycatch Reporting Methodology	**Uncertain – Likely Indirect Negative**	
Agricultural runoff	**Indirect Negative**	
Port maintenance	**Uncertain – Likely Mixed**	
Beach nourishment – offshore sand mining	**Mixed**	
Beach nourishment – sand placement	**Positive**	
Marine transportation	**Mixed**	
Offshore disposal of dredged materials	**Indirect Negative**	
Renewable and non-renewable offshore and nearshore energy development	**Uncertain – Likely Mixed**	
Convening Gear Take Reduction Teams (periodically)		**Indirect Negative**
Comprehensive summer flounder and scup amendments		**Indirect Positive**
Scup Gear Restricted Area Framework		**Uncertain – Likely Indirect Mixed**
Summary of past, present, and future actions excluding those proposed in this specifications document	**Overall, actions have had, or will have, positive impacts on human communities. * See section 7.5.5.5 for explanation.**	

7.5.6 Preferred Action on all the VECs

The Council's preferred alternatives are described in section 5.0. The direct and indirect impacts of the proposed action on the VECs are described in sections 7.1 through 7.4. The magnitude and significance of the cumulative effects, including additive and synergistic effects of the proposed actions, as well as past, present, and future actions, have been taken into account.

When considered in conjunction with all other pressures placed on the fisheries by past, present, and reasonably foreseeable future actions, the preferred alternatives are not expected to result in any significant impacts, positive or negative. The preferred alternatives are consistent with other management measures (i.e., commercial quotas and recreational harvest limits) that have been implemented in the past for these fisheries. These measures are part of a broader management scheme for the summer flounder, scup, and black sea bass fisheries. This management scheme has helped to rebuild the stocks and ensure long-term sustainability, while minimizing environmental impacts.

The regulatory atmosphere within which Federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of resources, habitat, and human communities. Consistent with NEPA, the Magnuson-Stevens Act requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because fishery management actions must strive to create and maintain sustainable resources, impacts on all VECs from past, present and reasonably foreseeable future actions, when combined with baseline conditions, have generally been positive and are expected to continue in that manner for the foreseeable future. This is not to say that some aspects of the various VECs are not experiencing impacts, but rather that when taken as a whole and as a result of the management measure implemented in these fisheries, the overall long-term trend is positive (Table 36).

There are no significant cumulative effects associated with the preferred alternatives based on the information and analyses presented in this document and in past FMP documents (Table 36). Cumulatively, through 2021, it is anticipated that the proposed alternatives will result in generally positive impacts on the all VECs. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to the VECs have had a neutral to positive cumulative effect.

Table 36. Magnitude and significance of the cumulative, additive, and synergistic effects of the 2016-2018 preferred alternative, as well as past (P), present (PR), and reasonably foreseeable future (RFF) actions.

VEC	Status in 2015	Net Impact of P, Pr, and RFF Actions	Impact of the Preferred Actions for 2016-2018	Significant Cumulative Effects
Managed Resource	Complex and variable (section 6.1)	Positive (see sections 7.5.4 and 7.5.5.1)	Neutral to positive (see section 7.1)	**None**
Non-target Species	Complex and variable (section 6.1)	Positive (see sections 7.5.4 and 7.5.5.2)	Neutral to positive (see section 7.1)	**None**
Habitat	Complex and variable (section 6.2)	Neutral to positive (see sections 7.5.4 and 7.5.5.3)	Neutral to positive (see section 7.2)	**None**
Protected Resources	Complex and variable (section 6.3)	Positive (see sections 7.5.4 and 7.5.5.4)	Neutral to positive (see section 7.3)	**None**
Human Communities	Complex and variable (section 6.4)	Likely mixed (see sections 7.5.4 and 7.5.5.5)	Short-term negative to positive (see section 7.4)	**None**

8.0 APPLICABLE LAWS

8.1 Magnuson-Stevens Fishery Conservation and Management Act (MSA)

8.1.1 National Standards

Section 301 of the MSA requires that FMPs contain conservation and management measures that are consistent with the ten National Standards. The most recent FMP amendments describe how the management actions implemented comply with the National Standards. The Council continues to meet the obligations of National Standard 1 by adopting and implementing conservation and management measures that will continue to prevent overfishing, while achieving, on a continuing basis, the optimum yield (OY) for summer flounder, scup, and black sea bass and the U.S. fishing industry. To achieve OY, both scientific and management uncertainty need to be addressed when establishing catch limits; therefore, the Council has developed recommendations that do not exceed the ABC recommendations of the SSC which explicitly address scientific uncertainty. In addition, the Council has considered relevant sources of management uncertainty and other social, economic, and ecological factors, which resulted in recommendations for annual catch targets for all three species. The Council uses the best scientific information available (National Standard 2) and manages all three species throughout their range (National Standard 3). These management measures do not discriminate among residents of different states (National Standard 4) and they do not have economic allocation as their sole purpose (National Standard 5). The measures account for variations in these fisheries (National Standard 6), they avoid unnecessary duplication (National Standard 7), they take into account the fishing communities (National Standard 8) and they promote safety at sea (National Standard 10). The proposed actions are consistent with National Standard 9, which addresses bycatch in fisheries. The Council has implemented many regulations that have indirectly reduced fishing gear impacts on EFH. By continuing to meet the National Standards requirements of the MSA through future FMP amendments, framework actions, and the annual specification setting process, the Council will insure that cumulative impacts of these actions will remain positive overall for the managed resources, the ports and communities that depend on these fisheries, and the Nation as a whole.

8.2 NEPA FINDING OF NO SIGNIFICANT IMPACT (FONSI)

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

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

None of the proposed specifications presented in this document are expected to jeopardize the sustainability of any target species affected by the action. The preferred alternatives establish catch and landing limits for each species that are consistent with the FMP objectives and the recommendations of the Council's SSC. The proposed measures are not expected to result in overfishing. The proposed actions will ensure the long-term sustainability of harvests from the summer flounder, scup, and black sea bass stocks (section 7.1).

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

None of the proposed specifications presented in this document are expected to jeopardize the sustainability of any non-target species, including ESA and MMPA protected species. The proposed measures are not expected to alter fishing methods or activities (section 7.1 and 7.3).

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 is not expected to cause substantial damage to the ocean, coastal habitats, and/or EFH as defined under the MSA and identified in the FMP. In general, bottom-tending mobile gear (primarily otter trawls) has the potential to adversely affect EFH for the species detailed in section 6.2. The quota-setting measures proposed in this action could, under certain conditions, increase the amount of time that bottom trawling vessels spend fishing for summer flounder, scup, or black sea bass, but the adverse impacts of this increased level of fishing on benthic habitats would not be expected to be significant (section 7.2).

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

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

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 substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, this action is not expected to affect ESA and MMPA protected species or critical habitat in any manner not considered in previous consultations on the fisheries (section 7.3).

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 implements catch and landings limits in 2016-2018 for summer flounder and scup, and in 2016-2017 for black sea bass. None of the proposed specifications are expected to alter fishing methods or activities. None of the proposed specifications is expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort (section 7).

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

The proposed action is not expected to have a substantial impact on the natural or physical environment. Commercial capture of all three occurs predominately in the Mid-Atlantic mixed trawl fishery. Bottom otter trawls have a potential to impact bottom habitat. In addition, a number of non-target species are taken incidentally in the prosecution of these fisheries. However, none of the proposed specifications are expected to alter fishing methods or activities or to substantially 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 (sections 7.1 through 7.4).

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

This action merely implements catch and landings limits in 2016-2018 for the summer flounder and scup fisheries, and in 2016-2017 for black sea bass fisheries. The proposed action is based on measures contained in the FMP, which have been in place for many years. In addition, the scientific information upon which the annual quotas are based has been peer reviewed and is the most recent information available (section 4.2). Thus, the measures contained in this action are not expected to be highly controversial.

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

This action merely implements catch and landings limits for 2016-2018 for the summer flounder and scup fisheries, and for 2016-2017 for black sea bass fisheries. None of the proposed specifications are expected to alter fishing methods or activities or to substantially increase fishing effort. Other types of commercial fishing already occur in this area and although it is possible that historic or cultural resources such as shipwrecks could be present, vessels try to avoid fishing too close to wrecks due to possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would result in substantial impacts to unique 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. This action merely implements catch and landings limits in 2016-2018 for summer flounder and scup, and in 2016-2017 for black sea bass. None of the proposed specifications are expected to alter fishing methods or activities or to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The measures contained in this action are not expected to have highly uncertain effects or to involve unique or unknown risks on the human environment.

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

As discussed in section 7.5, the proposed action is not expected to have individually insignificant, but cumulatively significant impacts. The synergistic interaction of improvements in the efficiency of the fishery is expected to generate insignificant positive impacts overall. The proposed actions, together with past, present, and reasonably foreseeable future actions, are not expected to result in cumulatively significant 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. This action merely implements catch and landings limits in 2016-2018 for summer flounder and scup, and in 2016-2017 for black sea bass. Although there are shipwrecks present in the area where fishing occurs, including some registered on the National Register of Historic Places, vessels typically avoid fishing too close to wrecks due to possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would adversely affect the historic resources listed above.

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

This action merely implements catch and landings limits in 2016-2018 for summer flounder and scup, and in 2016-2017 for black sea bass. There is no evidence or indication that these fisheries have ever resulted in the introduction or spread of nonindigenous species. None of the proposed specifications are expected to alter fishing methods or activities. None of the proposed specifications are expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed action would result in the introduction or spread of a non-indigenous species.

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

This action merely implements catch and landings limits in 2016-2018 for summer flounder and scup, and in 2016-2017 for black sea bass. None of the proposed specifications is expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. When new stock assessments or other biological information about these species become available in the future, then the specifications will be adjusted consistent with the FMP and MSA. None of these specifications results in significant effects, nor do they represent a decision in principle about a future consideration. The impact of any future changes will be analyzed as to their significance in the process of developing and implementing them.

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

This action merely implements catch and landings limits in 2016-2018 for summer flounder and scup, and in 2016-2017 for black sea bass. None of the proposed 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. The proposed measures have been found to be consistent with other applicable laws (sections 8.3 - 8.11).

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 proposed alternatives on the biological, physical, and human environment are described in section 7. The cumulative effects of the proposed action on target and non-target species, including ESA and MMPA protected species, are detailed in section 7.5. None of the proposed specifications are expected to substantially 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 and consistent with scientific advice is expected to generate positive impacts overall.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting EA prepared for the 2016-2018 summer flounder and scup, and 2016 and 2017 black sea bass fisheries specifications, it is hereby determined that the proposed actions in this specification package will not significantly impact the quality of the human environment as described above and in the EA. 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.

Harold C Means — 12/9/15

Regional Administrator for GARFO, NMFS, NOAA — *Date*

for John. K. Bullard

8.3 Endangered Species Act

Sections 6.3 and 7.0 contain an assessment of the impacts of the proposed action on endangered species and protected resources. None of the specifications proposed in this document are expected to alter fishing methods or activities; therefore, this action is not expected to affect endangered or threatened species or critical habitat in any manner not considered in previous consultations on the fisheries.

8.4 Marine Mammal Protection Act

Sections 6.3 and 7.0 contain an assessment of the impacts of the proposed action on marine mammals. None of the specifications proposed in this document are expected to alter fishing methods or activities; therefore, this action is not expected to affect marine mammals or critical habitat in any manner not considered in previous consultations on the fisheries.

8.5 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972, as amended, provides measures for ensuring productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. The Council has developed this specifications document and will submit it to NMFS. NMFS will determine whether the proposed actions are consistent to the maximum extent practicable with the CZM programs for each state (Maine through North Carolina).

8.6 Administrative Procedure Act

Sections 551-553 of the Federal Administrative Procedure Act establish 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 notice and opportunity to comment before the agency promulgates new regulations.

The Administrative Procedure Act requires solicitation and review of public comments on actions taken in the development of an FMP and subsequent amendments and framework adjustments. There were many opportunities for public review, input, and access to the rulemaking process during the development of the proposed management measures described in this document and during the development of this document. This action and the proposed specifications document were developed through a multi-stage process that was open to review by affected members of the public. The public had the opportunity to review and comment on management measures during the SSC meeting held on July 21-23, 2015, in Baltimore, MD, the Summer Flounder, Scup, and Black Sea Bass MC meeting held on July 23-24, 2015, in Baltimore, MD, the Advisory Panel meeting held July 29, 2015 via webinar, and during the Council meeting held on August 10-13, 2015, in New York, NY. The public will have further opportunity to comment on this specifications document once NMFS publishes a request for comments notice in the *Federal Register*.

8.7 Section 515 (Data Quality Act)

Utility of Information Product

This action proposes annual commercial quotas and recreational harvest limits for the summer flounder and scup fisheries for 2016-2018 and for the black sea bass fisheries for 2016 and 2017. This document includes a description of the alternatives considered, the preferred action and rationale for selection, and any changes to the implementing regulations of the FMP. As such, this document enables the implementing agency (NMFS) to make a decision on implementation of annual specifications (i.e., management measures) and this document serves as a supporting document for the proposed rule.

The action contained within this specifications document was developed to be consistent with the FMP, MSA, and other applicable laws, through a multi-stage process that was open to review by affected members of the public. The public had the opportunity to review and comment on management measures during a number of public meetings (section 8.6). The public will have further opportunity to comment on this specifications document once NMFS publishes a request for comments notice in the *Federal Register*.

Integrity of Information Product

This information product meets the standards for integrity under the following types of documents: Other/Discussion (e.g. Confidentiality of Statistics of the MSA; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act).

Objectivity of Information Product

The category of information product that applies here is "Natural Resource Plans." Section 8.0 describes how this document was developed to be consistent with any applicable laws, including MSA. The analyses used to develop the alternatives (i.e. policy choices) are based upon the best scientific information available. The most up to date information was used to develop the EA which evaluates the impacts of those alternatives (section 7.0). The specialists who worked with these core data sets and population assessment models are familiar with the most recent analytical techniques and are familiar with the available data and information relevant to the summer flounder, scup, and black sea bass fisheries.

The review process for this specifications document involves Council, Northeast Fisheries Science Center, Greater Atlantic Regional Fisheries Office (GARFO), and NMFS headquarters. The Northeast Fisheries Science Center's technical review is conducted by senior level scientists with specialties in fisheries ecology, population dynamics and biology, as well as economics and social anthropology. The Council review process involves public meetings at which affected stakeholders have the opportunity to comment on proposed management measures. Review by GARFO is conducted by those with expertise in fisheries management and policy, habitat conservation, protected resources, 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.

8.8 Paperwork Reduction Act

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

8.9 Impacts of the Plan Relative to Federalism/Executive Order 13132

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

8.10 Environmental Justice/ Executive Order 12898

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

The proposed actions are not expected to affect participation in the summer flounder, scup, and black sea bass fisheries. Because the proposed action represents no changes relative to the current levels of participation in these fisheries, no negative economic or social effects in the context of EO 12898 are anticipated as a result. Therefore, the proposed action is not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Indian Tribes.

8.11 Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA) requires the Federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. In reviewing the potential impacts of proposed regulations, the agency must either certify that the rule "will not, if promulgated, have a significant economic impact on a substantial number of small entities." This determination depends on the context of the proposed action, the problem to be addressed, and the structure of the regulated industry. Standards for determining significance are discussed below. As indicated in section 4.0, the proposed actions in this specifications document would modify commercial quotas and recreational harvest limits for the

summer flounder, scup, and black sea bass fisheries in 2016 and 2017, and commercial quotas and recreational harvest limits for the summer flounder and scup fisheries in 2018. A full description of each alternative, including a discussion of a *status quo* alternative, is given in section 5.0.

In 2016, negative economic impacts are anticipated as a result of the preferred action due to a 26.6% decrease in the summer flounder commercial quota compared to the 2015 *status quo* alternative. For black sea bass, positive economic impacts are anticipated due to the commercial quota increase of 1.4% when compared to 2015. For scup, neutral economic impacts are anticipated when compared to 2015.

In 2017, negative economic impacts are anticipated as a result of this action due to a 28.5% decrease in the commercial quota for summer flounder compared to 2015. For black sea bass, positive economic impacts are anticipated due to the quota increase of 1.4% when compared to 2015. For scup, neutral economic impacts are anticipated when compared to 2015.

In 2018, negative economic impacts are anticipated as a result of this action due to a 28.7% decrease in the summer flounder commercial quota compared to the 2015. For scup, neutral economic impacts are anticipated when compared to 2015.

An Initial Regulatory Flexibility Analysis (IRFA) was prepared to further evaluate the economic impacts of the various alternatives presented in this document on small business entities. This analysis is undertaken in support of a more thorough analysis for the 2016, 2017, and 2018 commercial specifications for summer flounder, scup, and black sea bass fisheries.

8.11.1 Initial Regulatory Flexibility Analysis

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 are also required to prepare a Final Regulatory Flexibility Analysis (FRFA) when they promulgate the 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.

An IRFA which evaluates the economic impacts of the alternatives on small business entities is provided in this section. The purpose of this action is to implement commercial quotas and recreational harvest limits for the summer flounder, scup, and black sea bass fisheries in 2016 and 2017, and to implement commercial quotas and recreational harvest limits for the summer flounder and scup fisheries in 2018. The economic analyses presented for the various alternatives are principally for the commercial fishery. General statements on potential changes in the recreational fishery due to changes in recreational harvest limits for summer flounder, scup, and black sea bass are made in this document. The effects of specific recreational management measures (i.e., bag limits, size limits, and seasonal closures) will be analyzed and submitted along with the Council and Board's recommendations in a separate action in early 2016. The Council and Board will met in December 2015 to adopt 2016 recreational management measures when more complete data regarding 2015 recreational landings will be available.

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

8.11.1.2 The Objectives and Legal Basis of the Proposed Rule

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

8.11.1.3 Estimate of the Number of Small Entities

The potential number of small entities (i.e., those which fit the definition of a small business) that may be affected by the proposed rule is presented below.

8.11.1.4 Reporting Requirements

There are no changes to the existing reporting requirements previously approved under this FMP for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the PRA.

8.11.1.5 Conflict with Other Federal Rules

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

8.11.1.6 Analysis of Economic Impacts

A description of the summer flounder, scup, and black sea bass fisheries is presented in section 6.0 of this document and section 3.0 of Amendment 13 to the FMP (MAFMC 2002). A description of ports and communities that are dependent on summer flounder, scup, and black sea bass is found in section 3.4.2 of Amendment 13 to the FMP. Recent landing patterns among ports are presented in section 6.4.3 and an analysis of permit data is found in section 6.4.4. Additional information on "Community Profiles for the Northeast US Fisheries" can be found at: http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

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

Description and estimates of number of small entities to which the rule applies

The Small Business Administration (SBA) defines a small business in the commercial harvesting sector as a firm with receipts (gross revenues) of up to $5.5 and $20.5 million for shellfish and for finfish business, respectively. A small business in the recreational fishery is a firm with receipts of up to $7.5 million. The proposed 2016, 2017, and 2018 quotas could affect any

business entity holding an active Federal permit for summer flounder, scup, and/or black sea bass.

In order to identify firms, new vessel ownership data which have been added to the permit database, were used to identify all the individuals who own fishing vessels.[24] With this information, vessels were grouped together according to common owners. The resulting groupings were then treated as a fishing business (firm or affiliate), for purposes of identifying small and large firms. The ownership database shows that for the 2012-2014 period, 485 affiliate firms held a summer flounder commercial permit and 547 affiliate firms held a summer flounder party/charter permit. Over the same time period, 446 affiliate firms held a scup commercial permit and 491 affiliate firms held a scup party/charter permit. 491 affiliate firms held a black sea bass commercial permit and 533 affiliate firms held a black sea bass party/charter permit. However, not all of those affiliate firms are active participants in these fisheries. According to the ownership database, 960 affiliate firms landed summer flounder, scup, and/or black sea bass during the 2012-2014 period, with 952 of those business affiliates categorized as small business and 8 categorized as large business.[25] In this IRFA, the primary units of observation when performing the threshold analysis (presented below) are the small business firms identified above. Table 37 describes the number of small firms that are active in the summer flounder, scup, and black sea bass fisheries, their average total revenues, and their average summer flounder, scup, and black sea bass revenues. Additional permit data information at the vessel level for 2014 is presented in section 6.4.4 of the EA.

Table 37. Small entities average revenues and summer flounder (SF), scup (S), and black sea bass (BSB) revenues, 2012-2014.

Revenue (millions of dollars)	Count of Firms	Average Gross Receipts	Average SF, S, BSB Receipts	SF, S, BSB Receipts as a Proportion of Gross Receipts
< 0.5	**796**	72,100,955	13,743,311	19.06 %
0.5 to < 1	**70**	51,383,109	10,409,739	20.26%
1 to < 2	**53**	75,846,921	7,995,879	10.54%
2 to < 3	**16**	39,638,122	3,252,563	8.21%
3 to <4	**10**	34,703,574	964,810	2.78%
4 to 20.5	**7**	38,024,289	1,260,561	3.32%
Total	**952**	311,696,970	37,626,864	12.07%

The eight firms that were categorized as large entities (not included in Table 37) had combined average gross receipts for all species combined of $103,458,141 and average summer flounder, scup, and black sea bass receipts of $3,450,585. As such, summer flounder, scup, and black sea bass receipts as a proportion of gross receipts is 3.34% for these large entities combined (ranging from 0.09% to 11.31%).

[24] Affiliate database for 2012-2014 was provided by Andrew Kitts and Min-Yang Lee, NMFS, NEFSC, Social Science Branch.

[25] A total of 682 firms landed summer flounder, 637 landed scup, and 744 landed black sea bass.

Because all permit holders may not be actively fishing and land any of the three species, the more immediate impact of the rule may be felt by the 960 firms that are active participants. The impacts of specific recreational management measures (i.e., bag limits, size limits, and seasonal closures) on "active" participants[26] will be analyzed and submitted along with the Council and Boards recommendations in the spring.

Description and estimate of economic impact on small entities

The economic effects of the commercial quota alternatives were estimated as follows. First, the expected change in average summer flounder, scup, and black sea bass revenues due to the proposed quota levels (2016 - 2018 quota levels versus 2015 quota levels) under each alternative were calculated for each business entity. The second step was to add or deduct, as appropriate, the expected change in summer flounder, scup, and black sea bass revenues for each business entity from the average estimated total revenues from all species landed for each business entity. The third step was to compare the estimated new revenues (2016-2018) for each entity (after adjustments in summer flounder, scup, and black sea bass landings were made) to the revenues from all species to the base year (average 2012-2014) for every business entity due to the proposed quota changes. For each quota alternative a summary table was constructed that reports the results of a threshold analysis.

While the proposed scup commercial quota and recreational harvest limits under alternative 1 in years 2016, 2017, and 2018, are lower than the 2015 quota from which those years are compared against, they are considerably higher than the 2013 and 2014 commercial and recreational landings, respectively. The high 2014 commercial quota and recreational harvest limits did not constrain the scup fishery in those years as they have in previous years when the commercial quota and recreational harvest limits were considerably lower. Unless market conditions change substantially in 2016 to 2018, it is expected that commercial and recreational landings will be close to the 2014 landings. There is no indication that the market environment for commercially and recreationally caught scup will change considerably in 2016 to 2018. As such, for cases that show a future allocation that is higher than the 2014 landings, it is assumed that future landings would be equal to the 2014 landings. However, for cases that show a future allocation smaller than their 2014 landings, the change due to the future allocation is considered for analysis purposes. In doing so, we avoid overestimating potential losses or gains in this fishery due to changes in the commercial quota levels.

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

[26] An active participant was defined as being any firm that reported having landed one or more pounds of any one of the three species in the Northeast affiliate data during calendar year 2012-2014. The dealer data used to create the affiliate data file covers activity by unique vessels that hold a Federal permit and provides summary data for vessels that fish exclusively in state waters. It is possible that if a company owns a state-waters only boat and a federal boat, that connection will not be detected in the affiliation data. Vessels that fish for summer flounder, scup, and black sea bass in state waters only and sell their product to non-federal dealers will not be captured in the affiliate data at the firm level. Therefore, revenues for all firms in the affiliate data base may be underestimated, which could lead to a larger number of small entities than actually exist.

individual business entities costs and revenues. However, in the absence of cost data for individual business entities engaged in these fisheries, changes in gross revenues are used a proxy for profitability. Where quantitative data were not available, qualitative analyses were conducted.

The threshold analysis described above is intended to identify impacted business entities and to characterize the potential economic impact on directly affected entities. In addition to evaluating if the proposed regulations reduce profit for a significant number of small entities, the RFA also requires that disproportionality be evaluated. Disproportionality is judged to occur when a proportionate effect on profits, costs, or net revenue is expected to occur for a substantial number of small entities compared to large entities, that is, if a regulation places a substantial number of small entities at a significant competitive disadvantage. According to the SBA definition of small business presented above, over 99% (952 out of 960) of the business firms that landed summer flounder, scup, and black sea bass in 2012-2014 fishing years readily fall within the definition of small business, while less than 1% (8 business firms) are categorized as large entities. Under preferred alternative 1 for 2016, 2017, and 2018, it is estimated that the bulk of the small business firms will incur revenue reductions of less than 5% (76%, 75%, and 72% of the firms for 2016, 2017, and 2018, respectively). The overall revenue reduction under preferred alternative 1 for 2016, 2017, and 2018 for all small firms combined is 2.0%, 2.2%, and 2.3%, respectively. The overall revenue reduction under alternative 1 for 2016 for all large firms combined is 0.7% and 0.8% for each 2017 and 2018. Therefore, there are no disproportionality issues.

In order to conduct a more thorough economic analysis, overall impacts of the three species were examined in combination. For example, for 2016, quota scenario 1 would include the preferred alternative for summer flounder, scup, and black sea bass; quota scenario 2 would include the non-preferred *status quo* alternative for summer flounder, scup, and black sea bass (this quota scenario includes measures that were previously implemented for all three species for the 2015 fishing year); quota scenario 3 would include the most restrictive alternative (also non-preferred) for summer flounder, scup, and black sea bass, which is based on the lowest quota for each species in recent years; and quota scenario 4 would include the least restrictive alternative (also non-preferred) for summer flounder, scup, and black sea bass, which is based on the highest quota for each species in recent years. The same quota scenario mix is also used to analyze the 2017 and 2018 measures (excluding black sea bass in 2018). Overall impacts (i.e., combined impacts of summer flounder, scup, and black sea bass) were examined because many of the firms active in these fisheries participate in more than one or even all three of these fisheries.

8.11.2 Description of Quota and Non-Quota Alternatives

8.11.2.1 Quota Alternatives

2016 Alternatives

Section 5.0 contains a full description of the commercial quotas and recreational harvest limits under consideration for 2016, 2017, and 2018. Quota scenario 1 includes preferred harvest levels for all three species. The summer flounder, scup, and black sea bass landings limits are

consistent with the ABC recommendations of the SSC and therefore based on the best scientific information available and are intended to prevent overfishing.

Quota scenario 2 includes non-preferred *status quo* harvest levels for all three species that were previously implemented for the 2015 fishing year. The combined measures contained under the *status quo* alternative for summer flounder and scup are higher than the measures recommended by the SSC for ABC and are therefore inconsistent with the Council's risk policy on overfishing (section 4.2). As such, it is possible that negative social and economic impacts could occur in the future if overfishing occurs and the sustainability of the stock is jeopardized. The black sea bass measures contained under this alternative are consistent with the SSC's ABC recommendations.

Quota scenario 3 includes the most restrictive harvest levels (i.e., those that would result in the greatest reductions in landings for all species). This scenario includes non-preferred harvest levels for all three species. The summer flounder measures are based on the initial staff recommendation for 2016-2018 (Dancy 2015). These measures are lower than the lowest measures implemented throughout the FMP time-series. They are based on an ABC lower than the ABC recommended by the SSC. The scup and black sea bass measures correspond to the FMP time series lows for commercial quotas and recreational harvest limits for both species. The measures contained under this alternative are substantially lower than the measure required to prevent overfishing (e.g., would be expected to have the lowest risk lowest risk of overfishing amongst all the evaluated alternatives). Conversely, these measures will be expected to result in the greatest negative social and economic impacts in 2016.

Quota scenario 4 includes the least restrictive harvest levels (i.e., those that would result in the greatest increases in landings for all three species). These harvest levels represent the highest commercial quotas and recreational harvest limits ever implemented for these three species since the FMP has been in place. These measures would result in combined landings above the ABC recommend by the SSC for 2016. Of all the analyzed alternatives, this alternative has the highest risk of overfishing because it includes the highest commercial quotas and recreational harvest limits.

2017 Alternatives

Quota scenario 1 includes preferred harvest levels for summer flounder, scup, and black sea bass. The summer flounder, scup, and black sea bass landings limits are consistent with the ABC recommendations of the SSC and therefore based on the best scientific information available and are intended to prevent overfishing.

Quota scenario 2 includes *status quo* harvest levels for all three species. This alternative is the same as described under 2016 *status quo* alternative 2.

Quota scenario 3 includes the most restrictive harvest levels. This alternative is the same as described under 2016 most restrictive alternative 3.

Quota scenario 4 includes the least restrictive harvest levels. This alternative is the same as described under 2016 least restrictive alternative 4.

2018 Alternatives

For 2018, alternatives are only for summer flounder and scup. The Council did not recommend specifications for black sea bass for 2018.

Quota scenario 1 includes preferred harvest levels for summer flounder and scup. The summer flounder and scup landings limits are consistent with the ABC recommendations of the SSC and therefore based on the best scientific information available and are intended to prevent overfishing.

Quota scenario 2 includes *status quo* harvest levels for summer flounder and scup. This alternative is the same as described under 2016 *status quo* alternative 2 (excluding black sea bass).

Quota scenario 3 includes the most restrictive harvest levels and this alternative is the same as described under 2016 most restrictive alternative 3 (excluding black sea bass).

Quota scenario 4 includes the least restrictive harvest levels and this alternative is the same as described under 2016 least restrictive alternative 4 (excluding black sea bass).

Effects of Minimum Mesh, Minimum Fish Size, Commercial Trip Limits, and Gear Restrictions

The proposed summer flounder, scup, and black sea bass alternatives would implement commercial quotas and recreational harvest limits for the summer flounder, scup, and black sea bass fisheries in 2016 and 2017, and implement commercial quotas and recreational harvest limits for the summer flounder and scup fisheries in 2018. Changes to other commercial management measures were not recommended for 2016, 2017, and 2018 by the Council, Board, or the MC. Therefore, other commercial management measures in place will remain unchanged (*status quo*) for the 2016, 2017, and 2018 fishing years (section 5.1 - 5.3).

8.11.3 Description and Estimate of Economic Impact on Small Entities

Several assumptions were made in the following analysis. First, average ex-vessel price for summer flounder, scup, and black sea bass were based on 2014 dealer data. In addition to this, 2012-2014 affiliate data were used to describe business firms participating in these fisheries. It is important to mention that revenue changes for 2016, 2017, and 2018 are dependent upon previous landings and overages. The Council-recommended commercial quotas and recreational harvest limits were not adjusted for 2015 partial-year overages. NMFS will adjust quotas, if necessary, based on updated information on overages as part of the final rule that implements the 2016 specifications late in 2015 when the data are more complete. Likewise, for 2017 and 2018, any overages will be addressed based on updated 2016 information in a subsequent notice. For the analyses themselves, reductions are estimated by examining the average total revenue earned by an individual firm (2012-2014), and comparing it to its potential revenue in 2016, 2017, and 2018, given the changes in fishing opportunity (harvest levels) compared to 2015. In addition, changes in business firm's gross revenues associated with the potential change in quotas in 2016,

2017, and 2018 assume static (2014) prices for summer flounder, scup, and black sea bass. Generally, the percent of a firm's revenue reduction varies considerably based on the permits it holds (i.e., based on the fisheries in which it was able to participate) and species it landed. Diversity in the fleet helps to balance loss in one fishery with revenue generated from other fisheries. Lastly, it was assumed that the entire allocations for summer flounder, scup, and black sea bass were taken in 2016-2018, unless noted otherwise.

Impacts Associated with the 2016 Alternatives

8.11.3.1 Quota Scenario 1 (Preferred 2016)

This quota scenario examines the impacts on industry that would result from the preferred landings limits for summer flounder, scup, and black sea bass. This scenario contains commercial quotas of 8.12, 20.47, and 2.24 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational landings limits of 5.42, 6.09, and 2.33 million pounds for flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder specifications would result in a 26.6% decrease in both the commercial quota and the recreational harvest limit relative to the 2015 allocations. The scup specifications would result in a 3.6% decrease the commercial quota and a 10.4% decrease in the recreational harvest limit relative to 2015. The black sea bass specifications would result in a 1.4% increase in the commercial quota and no change in recreational harvest limit relative to 2015 (Table 25).

8.11.3.1.1 Commercial Impacts

The results of a threshold analysis from affiliate data are reported in Table 38. This analysis indicates expected revenue losses on the order of 5-9% for 90 small firms in 2016 when compared to 2015, 10-19% for 80 firms, and 20-29% for 58 firms. In total, 228 firms (out of 952) are expected to incur revenue losses of 5% or more. Furthermore, 353 firms are expected to incur revenue losses of less than 5%. The analysis also indicates that 142 firms will incur no revenue changes under this alternative and 229 firms will see an increase in revenue in 2016 when compared to 2015 (Table 38).

Council staff further examined impacted business entities with revenue reduction of 5% or more to assess additional impacts. According to affiliate data, it was estimated that 9% of the small business entities (21 out of 228) projected to incur revenue reductions of greater than 5% had total gross sales (average for all possible species combined in 2012-2014, not just summer flounder, scup, and black sea bass) of $1,000 or less and 31% of the impacted entities (71 out of 228) had gross sales of $10,000 or less. In relative terms, 228 small business entities are likely to be impacted with revenue reductions of 5% or more; however, 40% of these entities (92 entities) had gross sales of $10,000 or less, likely indicating that the dependence on fishing for some of these firms is very small.

As previously stated, the affiliate data indicated that 8 large firms landed summer flounder, scup, and black sea bass during the 2012-2014 period. For these entities, the potential revenue

reduction associated with the analyzed harvest levels under this alternative would result in an overall revenue reduction of 0.7% (ranging from <0.5% for most firms to 2.2% for two firms).

Council staff also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. NMFS dealer data were used to derive the ex-vessel price for summer flounder, scup, and black sea bass. Assuming 2014 ex-vessel prices (summer flounder - $2.75/pound; scup - $0.60/pound; and black sea bass - $3.24/pound), the 2016 quotas associated with this scenario would decrease summer flounder revenues by approximately $8.1 million relative to the quota implemented in 2015 and would increase black sea bass revenues by $0.1 million. Assuming the decrease in summer flounder ex-vessel gross revenues was distributed equally among the firms that landed summer flounder (682), the average decrease in revenue associated with the decrease in quota is approximately $11,877 per firm. Assuming the increase in black sea bass ex-vessel gross revenues was distributed equally among the firms that landed black sea bass (744), the average increase in revenue associated with the increase in quota is approximately $134 per firm.[27] As discussed under section 8.11.1.6, given recent scup quota allocations, market conditions, and landings patterns in the fishery, it is assumed that scup landings in 2016 will be similar to the landings realized in 2014. As such, no change in revenue is expected for scup under this scenario. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2016 versus 2015 assumed static prices for summer flounder, scup, and black sea bass. However, it is possible that given the potential decrease in landings for summer flounder, price for this species may increase. An increase in the price for summer flounder may mitigate some of the revenue losses associated with lower summer flounder quota. It is important to stress that these are merely potential changes. Actual changes in revenue will likely vary. This variation would occur for several reasons, including revenues earned or lost due to possession limits and seasons set by a state to manage sub-allocations of quota, and other potential reductions in 2016 not accounted for here (section 5.0).

Furthermore, as indicated in section 8.11.1.6, changes in gross revenues are used as a proxy for profitability due to the absence of cost data. Therefore, in cases where a quota decrease is analyzed, it may be expected that fewer trips will be taken by commercial vessels and the decline in gross revenues for firms may be overstating negative economic impacts. Conversely, when a quota increase is analyzed, it may be expected that if more trips are taken, the increase in gross revenues may be overstating the economic impacts.

Even though preferred alternative 1 represents an overall decrease in commercial fishing opportunities when compared to the *status quo* (alternative 2), it is consistent with the ABC recommendations of the SSC and is therefore based on the best scientific information available and is intended to prevent overfishing.

[27] For business firms that landed a combination of summer flounder, scup, and black sea bass, the net change in revenues would be the summation of the change in revenue for each of the species landed.

Table 38. Threshold analysis of revenues for participating small entities under quota alternative 1 (preferred) for 2016.

Revenue (millions of dollars)	Count of Firms	Number of Entities Impacted by >5% Reduction	Overall Revenue Reduction	Increased Revenue (number of firms)	No change in Revenue (number of firms)	Number of Impacted Small Entities by Reduction							
						<1%	1 - <5%	5-9%	10-19%	20-29%	30-39%	40-49%	≥ 50%
<0.5	796	199	3.3%	224	121	141	111	71	70	58	0	0	0
0.5 to <1	70	21	3.4%	4	6	19	20	15	6	0	0	0	0
1 to <2	53	6	1.7%	1	11	21	14	3	3	0	0	0	0
2 to <3	16	2	1.3%	0	4	8	2	1	1	0	0	0	0
3 to <4	10	0	0.5%	0	0	8	2	0	0	0	0	0	0
4 to 20.5	7	0	0.6%	0	0	5	2	0	0	0	0	0	0
Total	952	228	2.0%	229	142	202	151	90	80	58	0	0	0

8.11.3.1.2 Recreational Impacts

The economic analyses presented for the various quota scenarios are principally for the commercial fisheries. While general statements regarding potential changes in the recreational fisheries due to changes in recreational harvest limits for summer flounder, scup, and black sea bass are made in this document, the effects of specific recreational management measures (i.e., bag limits, size limits, and seasonal closures) will be described in a separate action in early 2016.

If summer flounder recreational landings in 2016 are similar to those in 2014 (7.39 million pounds), additional management measures (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will likely be necessary to ensure that recreational landings do not exceed the recreational harvest limit under this scenario (5.42 million pounds). For this reason, the summer flounder recreational harvest limit under this scenario will likely reduce recreational satisfaction when compared to 2015.

If scup recreational landings in 2016 are similar to those in 2014 (4.12 million pounds), it is not likely that more restrictive measures (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will be necessary to ensure that the recreational harvest limit under this scenario (6.09 million pounds) is not exceeded. For this reason, the scup recreational harvest limit under this scenario will likely maintain recreational satisfaction for the scup recreational fishery when compared to 2015.

If black sea bass recreational landings in 2016 are similar to those in 2014 (3.78 million pounds), more restrictive measures (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will likely be necessary to ensure that the recreational harvest limit under this scenario (2.33 million pounds) is not exceeded. The black sea bass recreational harvest limit under this scenario will likely reduce recreational satisfaction when compared to 2015.

There is no information regarding how the potential decrease in the recreational harvest limits for these species will affect the demand for party/charter boat trips. Currently, the market demand for this sector is relatively stable; however, it is likely that given the proposed recreational harvest limits under this scenario, the demand for party/charter boat trips may decrease. Some anglers that choose to reduce their effort in 2016 as a consequence of these recreational harvest limits are likely to transfer their effort to other species (e.g., spot, bluefish, weakfish, striped bass, tautog, pelagics, etc.) resulting in very little change in overall fishing effort. However, recreational harvest restrictions for many of the other 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.

As mentioned above, the specific management measures for these recreational fisheries will be analyzed in a separate action in early 2016.

General Effort Trends

The number of party/charter boat trips taken in the North Atlantic and Mid-Atlantic sub-regions combined has shown a downward trend from the early 1990s to 2014. On average, for the 1990-2014 period, 1.7 million party/charter marine fishing trips were taken in the North Atlantic and Mid-Atlantic sub-regions combined, ranging from 1.1 million trips in 1999 to 2.6 million trips in 1993. For the last 10 years (2003-2012), the number of party/charter trips in both regions combined has ranged from 1.2 in 2010 to 2.2 million in 2007 (averaging 1.6 million). In 2014, 1.7 million party/charter trips were taken in the northeast region.

8.11.3.2 Quota Scenario 2 (*Status Quo* 2016)

This quota scenario examines the impacts on industry that would result from the *status quo* landings limits for summer flounder, scup, and black sea bass (this quota scenario includes measures that were previously implemented for all three species for the 2015 fishing year). This scenario contains commercial quotas of 11.07, 21.23, and 2.21 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational harvest limits of 7.38, 6.80, and 2.33 million pounds for summer flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder, scup, and black sea bass specifications would result in no aggregate change in allowable commercial landings or recreational harvest limit relative to the 2015 implemented limits (Table 25).

8.11.3.2.1 Commercial Impacts

It is not expected that changes in revenues or fishing opportunities would occur under this alternative.

8.11.3.2.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand of party/charter boat trips presented under section 8.11.3.1.2 also apply here.

If summer flounder, scup, and black sea bass recreational landings in 2016 are similar to those in 2014 (7.39, 4.12, and 3.78 million pounds, respectively), more restrictive measures (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will likely be required for black sea bass in 2016 to ensure that the recreational harvest limit (2.33 million pounds) is not exceeded. More restrictive measures will not likely be necessary for summer flounder or scup because the recreational harvest limits under this alternative (7.38 million pounds for summer flounder and 6.8 million pounds for scup) are higher than or very close to expected landings. For this reason, the recreational harvest limits under this scenario will likely provide similar recreational satisfaction for summer flounder and scup fisheries, relative to 2015, but lower recreational satisfaction for black sea bass.

8.11.3.3 Quota Scenario 3 (Non-Preferred: Most Restrictive 2016)

This quota scenario examines the impacts on industry that would result from the most restrictive landings limits for summer flounder, scup, and black sea bass. This scenario contains commercial quotas of 6.30, 2.53, and 1.13 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational harvest limits of 4.20, 1.24, and 1.17 million pounds for flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder specifications would result in a 43.1% decrease in both the commercial quota and the recreational harvest limit relative to 2015. The scup specifications would result in an 88.1% decrease in the commercial quota and an 81.8% decrease in the recreational harvest limit relative to 2015. The black sea bass specifications would result in a 48.9% decrease in the commercial quota and a 49.9% decrease in the recreational harvest limit relative to 2015 (Table 25).

8.11.3.3.1 Commercial Impacts

The results of a threshold analysis of affiliate data are reported in Table 39. The analysis of the harvest levels under this scenario indicate expected revenue losses on the order of 5-9% for 96 small firms in 2016 when compared to 2015, 10-19% for 120 firms, 20-29% for 82 firms, 30-39% for 75 firms, 40-49% for 82 firms, and equal or greater to 50% for 29 firms. In total, 484 firms are expected to incur revenue losses of 5% or more. Furthermore, 469 firms are expected to incur revenue losses of less than 5% in 2016 when compared to 2015.

Council staff further examined the impacted business entities with revenue reductions of 5% or more. According to affiliate data, it was estimated that 12% of the small business entities (57 out of 484) projected to incur revenue reductions of greater than 5% had total gross sales (average for all possible species combined in 2012-2014, not just summer flounder, scup, and black sea bass) of $1,000 or less and 36% of the impacted entities (172 out of 484) had gross sales of $10,000 or less. While the analysis presented above indicates that in relative terms 484 small business entities are likely to see revenue reductions of 5% or more, 47% of these entities (229 entities) had gross sales of $10,000 or less, likely indicating that the dependence on fishing for some of these firms is very small.

The affiliate data indicated that 8 large firms landed summer flounder, scup, and black sea bass during the 2012-2014 period. For these entities, the potential revenue reduction associated with the analyzed harvest levels under this alternative would result in an overall revenue reduction of 1.5% (ranging from ≤1.0% for most firms to 5.2% for one firm).

Council staff also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2014 ex-vessel prices (summer flounder - $2.75/pound; scup - $0.60/pound; and black sea bass - $3.24/pound), the 2016 quotas associated with this scenario would decrease summer flounder, scup, and black sea bass revenues by approximately $13.1,

$8.0, and $3.5 million, respectively, relative to the quota implemented in 2015.[28] Assuming the decrease in ex-vessel gross revenues was distributed equally among the firms that landed summer flounder, scup, and black sea bass (682, 637, and 744, respectively), the average decrease in revenue associated with the decrease in quota is approximately $19,208 per firm that landed summer flounder, $12,559 per firm that landed scup, and $4,704 per firm that landed black sea bass. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2016 versus 2015 assumed static prices for summer flounder, scup, and black sea bass. However, it is possible that given the potential decrease in landings of these species, price for these species may increase, holding all other factors constant. An increase in price could mitigate some of the revenue losses associated with lower quotas.

Alternative 3 contains the largest overall decrease in commercial fishing opportunities (and largest negative economic impacts) when compared to the *status quo* (alternative 2). The measures contained under this alternative are substantially lower than the measures derived from the ABCs recommended by the SSC. Of all the analyzed alternatives, alternative 3 has the lowest risk lowest risk of overfishing because it has the lowest commercial quotas and recreational harvest limits.

[28] In cases where the scup commercial quota would constrain landings, changes in scup revenues were calculated by estimating the difference between the value of the constraining scup quota and the 2014 landings, and then multiplying that value by the 2014 scup ex-vessel price.

Table 39. Threshold analysis of revenues for participating small entities under quota alternative 3 (most restrictive) for 2016.

Revenue (millions of dollars)	Count of Firms	Number of Entities Impacted by ≥5% Reduction	Overall Revenue Reduction	Increased Revenue (number of firms)	No change in Revenue (number of firms)	Number of Impacted Small Entities by Percent Reduction							
						<1%	1 - <5%	5-9%	10-19%	20-29%	30-39%	40-49%	≥ 50%
<0.5	796	418	9.6%	0	0	240	138	80	92	69	66	82	29
0.5 to <1	70	40	11.0%	0	0	21	9	5	18	11	6	0	0
1 to <2	53	20	5.9%	0	0	24	9	8	8	2	2	0	0
2 to <3	16	4	4.4%	0	0	11	1	1	2	0	1	0	0
3 to <4	10	1	1.4%	0	0	7	2	1	0	0	0	0	0
4 to 20.5	7	1	1.6%	0	0	4	2	1	0	0	0	0	0
Total	952	484	6.4%	0	0	308	161	96	120	82	75	82	29

8.11.3.3.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand of party/charter boat trips presented under section 8.11.3.1.2 also applies here.

If summer flounder, scup, and black sea bass recreational landings in 2016 are similar to those in 2014 (7.39, 4.12, and 3.78 million pounds, respectively), more restrictive limits (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will likely be necessary to ensure that the recreational harvest limits under this scenario (4.20 million pounds for summer flounder, 1.24 million pounds for scup, and 1.17 million pounds for black sea bass) are not exceeded. As such, the recreational harvest limits under this scenario will likely substantially decrease recreational satisfaction for these fisheries, relative to 2015.

8.11.3.4 Quota Scenario 4 (Non-Preferred: Least Restrictive 2016)

This quota scenario examines the impacts on industry that would result from the least restrictive landings limits for summer flounder, scup, and black sea bass. This scenario contains commercial quotas of 18.18, 28.35, and 4.02 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational landings limits of 12.12, 8.57, and 4.18 million pounds for summer flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder specifications would result in a 64.2% increase in both the commercial quota and the recreational harvest limits relative to 2015. The scup specifications would result in a 33.5% increase in the commercial quota and a 26.0% increase in the recreational harvest limit relative to 2015. The black sea bass specifications would result in an 81.9% increase in the commercial quota and a 79.4% increase in the recreational harvest limit relative to 2015 (Table 25).

8.11.3.4.1 Commercial Impacts

The information regarding the limitation of the analysis and potential changes in prices and ex-vessel revenues due to changes in landings presented under section 8.11.3.1.1 also applies here.

The results of a threshold analysis of affiliate data are reported in Table 40. This analysis indicates that there are no small firms projected to have revenue losses in 2016 when compared to 2015. The analysis indicates that 882 firms are expected to see revenue gains (6.2% for all firms combined) and 70 firms are expected to see no revenue change in 2016 when compared to 2015.

The affiliate data indicated that 8 large firms landed summer flounder, scup, and black sea bass from 2012 to 2014. For these entities, the potential revenue increase associated with the analyzed harvest levels under this alternative would result in an overall revenue increase of 2.1%.

Council staff also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2014 ex-vessel prices (summer flounder - $2.75/pound; scup

- $0.60/pound; and black sea bass - $3.24/pound), the 2016 quotas associated with this scenario would increase summer flounder and black sea bass revenues by approximately $19.6 and $5.9 million, respectively, relative to the quota implemented in 2015. Assuming the increase in summer flounder and black sea bass ex-vessel gross revenues was distributed equally among the firms that landed summer flounder (682 firms) and black sea bass (744 firms), the average increase in revenue associated with the increase in quota is approximately $28,739 per firm that landed summer flounder and $7,930 per firm that landed black sea bass. As discussed under section 8.11.1.6, given recent overall scup quota allocations, market conditions, and landings patterns in the fishery, it is assumed that scup landings in 2016 will be similar to those in 2014.

Alternative 4 measures contain the greatest increase in commercial fishing opportunities (and greatest positive short-term economic impacts) when compared to the *status quo* (alternative 2). These measures would result in combined landings above the ABC recommend by the SSC for 2016. Because these measures contain the highest commercial quotas and recreational harvest limits of all the alternatives analyzed for 2016, they are expected to have the highest risk of overfishing. It is possible that negative social and economic impacts could occur in the future if overfishing occurs and the sustainability of this stock is jeopardized.

Table 40. Threshold analysis of revenues for participating small entities under quota alternative 4 (least restrictive) for 2016.

Revenue (millions of dollars)	Count of Firms	Number of Entities Impacted by ≥5% Reduction	Overall Revenue Increase	Increased Revenue (number of firms)	No change in Revenue (number of firms)	Number of Impacted Small Entities by Percent Reduction							
						<1%	1 - <5%	5-9%	10-19%	20-29%	30-39%	40-49%	≥ 50%
<0.5	796	0	10.8%	738	58	0	0	0	0	0	0	0	0
0.5 to <1	70	0	9.8%	67	3	0	0	0	0	0	0	0	0
1 to <2	53	0	4.7%	46	7	0	0	0	0	0	0	0	0
2 to <3	16	0	4.2%	14	2	0	0	0	0	0	0	0	0
3 to <4	10	0	1.5%	10	0	0	0	0	0	0	0	0	0
4 to 20.5	7	0	2.0%	7	0	0	0	0	0	0	0	0	0
Total	952	0	6.2%	882	70	0	0	0	0	0	0	0	0

8.11.3.4.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand for party/charter boat trips presented under section 8.11.3.1.2 also applies here.

If summer flounder, scup, and black sea bass recreational landings in 2016 are similar to those in 2014 (7.39, 4.12, and 3.78 million pounds, respectively), more restrictive measures (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will likely not be necessary to ensure that the recreational harvest limits (12.12 million pounds for summer flounder, 8.57 million pounds for scup, and 4.18 million pounds for black sea bass) are not exceeded. The recreational harvest limits under this scenario will likely increase recreational satisfaction for these fisheries by allowing anglers to harvest more of these species, relative to 2015.

Impacts Associated with the 2017 Alternatives

8.11.3.5 Quota Scenario 1 (Preferred 2017)

This quota scenario examines the impacts on industry that would result from the 2017 preferred landings limits for summer flounder, scup, and black sea bass. This scenario contains commercial quotas of 7.91, 18.38, and 2.24 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational landings limits of 5.28, 5.50, and 2.33 million pounds for flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder specifications would result in a 28.5% decrease in both the commercial quota and the recreational harvest limit relative to the 2015 allocations. The scup specifications would result in a 13.4% decrease in the commercial quota and a 19.1% decrease in the recreational harvest limit relative to 2015. The black sea bass specifications would result in an increase of 1.4% in the commercial quota and no change in recreational harvest limit relative to 2015 (Table 25).

8.11.3.5.1 Commercial Impacts

The information regarding the limitation of the analysis and potential changes in prices and ex-vessel revenues due to changes in landings presented under section 8.11.3.1.1 also applies here.

The results of a threshold analysis of affiliate data are reported in Table 41. This analysis shows expected revenue losses on the order of 5-9% for 96 small firms in 2017 when compared to 2015, 10-19% for 82 firms, and 20-29% for 64 firms. In total, 242 firms are expected to incur revenue losses of 5% or more. 344 firms are expected to incur revenue losses of less than 5%. 138 firms are expected to incur no revenue changes under this alternative and 228 firms will incur a revenue increase in 2017 when compared to 2015.

Council staff further examined impacted business entities with revenue reduction of 5% or more. According to affiliate data, it was estimated that 9% of the small business entities (21 out of 242) projected to incur revenue reductions of greater than 5% had total gross sales (average for all

possible species combined in 2012-2014, not just summer flounder, scup, and black sea bass) of $1,000 or less and 31% of the impacted entities (74 out of 242) had gross sales of $10,000 or less. While the analysis presented above indicates that, in relative terms, 242 small business entities are likely to be impacted with revenue reductions of 5% or more, 39% of these entities (95 entities) had gross sales of $10,000 or less, likely indicating that the dependence on fishing for some of these firms is very small.

The affiliate data indicated that 8 large firms landed summer flounder, scup, and black sea bass during the 2012-2014 period. For these entities, the potential revenue reduction associated with the analyzed harvest levels under this alternative would result in an overall revenue reduction of 0.8% (ranging from <0.1% for most firms to 2.3% for two firms).

Council staff also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2014 ex-vessel prices (summer flounder - $2.75/pound; scup - $0.60/pound; and black sea bass - $3.24/pound), the 2017 quotas associated with this scenario would decrease summer flounder revenues by approximately $8.7 million relative to the quota implemented in 2015 and would increase black sea bass revenues by $0.1 million. Assuming the decrease in summer flounder ex-vessel gross revenues was distributed equally among the firms that landed summer flounder (682), the average decrease in revenue associated with the decrease in quota is approximately $12,757 per firm. Assuming the increase in black sea bass ex-vessel gross revenues was distributed equally among the firms that landed black sea bass (744), the average increase in revenue associated with the increase in quota is approximately $134 per firm. As discussed under section 8.11.1.6, given recent scup quota allocations, market conditions, and landings patterns in the fishery, it is assumed that scup landings in 2017 would be close to the landings realized in 2014. As such, no change in revenue is expected for scup under this scenario.

Even though preferred alternative 1 represents an overall decrease in commercial fishing opportunities when compared to the *status quo* (alternative 2), it is consistent with the ABC recommendations of the SSC and is therefore based on the best scientific information available. Alternative 1 is intended to prevent overfishing.

Table 41. Threshold analysis of revenues for participating small entities under quota alternative 1 (preferred) for 2017.

Revenue (millions of dollars)	Count of Firms	Number of Entities Impacted by ≥5% Reduction	Overall Revenue Reduction	Increased Revenue (number of firms)	No change in Revenue (number of firms)	Number of Impacted Small Entities by Percent Reduction							
						<1%	1 - <5%	5-9%	10-19%	20-29%	30-39%	40-49%	≥ 50%
<0.5	796	211	3.5%	223	117	145	100	75	72	64	0	0	0
0.5 to <1	70	22	3.7%	4	6	18	20	16	6	0	0	0	0
1 to <2	53	7	1.8%	1	11	21	13	4	3	0	0	0	0
2 to <3	16	2	1.4%	0	4	8	2	1	1	0	0	0	0
3 to <4	10	0	0.6%	0	0	8	2	0	0	0	0	0	0
4 to 20.5	7	0	0.6%	0	0	5	2	0	0	0	0	0	0
Total	952	242	2.2%	228	138	205	139	96	82	64	0	0	0

8.11.3.5.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand of party/charter boat trips presented under section 8.11.3.1.2 also applies here.

If summer flounder, scup, and black sea bass recreational landings in 2017 are similar to those in 2014 (7.39, 4.12, and 3.78 million pounds, respectively), more restrictive measures (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will likely be necessary to ensure that the recreational harvest limits for summer flounder (5.28 million pounds) and black sea bass (2.33 million pounds) are not exceeded. More restrictive measures will likely not be necessary for scup (5.50 million pound recreational harvest limit). For this reason, the recreational harvest limits under this scenario will likely provide similar recreational satisfaction for scup relative to 2015 but lower satisfaction for summer flounder and black sea bass.

8.11.3.6 Quota Scenario 2 (*Status Quo* 2017)

This quota scenario examines the impacts on industry that would result from the *status quo* landings limits for summer flounder, scup, and black sea bass. This quota scenario includes measures that were previously implemented for all three species for the 2015 fishing year. This scenario contains commercial quotas of 11.07, 21.23, and 2.21 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational harvest limits of 7.38, 6.80, and 2.33 million pounds for summer flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder, scup, and black sea bass specifications would result in no aggregate change in allowable commercial landings or recreational harvest limits relative to the 2015 implemented limits (Table 25).

8.11.3.6.1 Commercial Impacts

It is not expected that changes in revenues or fishing opportunities would occur under this alternative.

8.11.3.6.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand of party/charter boat trips presented under section 8.11.3.1.2 also applies here.

Similar recreational impacts as those described under the quota scenario 2 for 2016 in section 8.11.3.2.2 also apply here.

8.11.3.7 Quota Scenario 3 (Non-Preferred: Most Restrictive 2017)

This quota scenario examines the impacts on industry that would result from the most restrictive landings limits for summer flounder, scup, and black sea bass. This scenario contains

commercial quotas of 6.30, 2.53, and 1.13 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational landings limits of 4.20, 1.24, and 1.17 million pounds for flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder specifications would result in a 43.1% decrease in both the commercial quota and the recreational harvest limit relative to the 2015 allocations. The scup specifications would result in an 88.1% decrease in the commercial quota and an 81.8% decrease in the recreational harvest limit relative to 2015. The black sea bass specifications would result in a 48.9% decrease in the commercial quota and a 49.9% decrease in the recreational harvest limit relative to 2015 (Table 25).

8.11.3.7.1 Commercial Impacts

The information regarding the limitation of the analysis and potential changes in prices and ex-vessel revenues due to changes in landings presented under section 8.11.3.1.1 also applies here.

Similar commercial impacts as those described under the quota scenario 3 for 2016 in section 8.11.3.3.1 also apply here.

8.11.3.7.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand of party/charter boat trips presented under section 8.11.3.1.2 also applies here.

Similar recreational impacts as those described under the quota scenario 3 for 2016 in section 8.11.3.3.2 also apply here.

8.11.3.8 Quota Scenario 4 (Non-Preferred: Least Restrictive 2017)

This quota scenario examines the impacts on industry that would result from the least restrictive landings limits for summer flounder, scup, and black sea bass. This scenario contains commercial quotas of 18.18, 28.35, and 4.02 million pounds for summer flounder, scup, and black sea bass, respectively. This scenario also specifies recreational landings limits of 12.12, 8.57, and 4.18 million pounds for summer flounder, scup, and black sea bass, respectively (Table 24).

Under this scenario, the summer flounder specifications would result in a 64.2% increase in both the commercial quota and the recreational harvest limit relative to the 2015 allocations. The scup specifications would result in a 33.5% increase in the commercial quota and a 26.0% increase in the recreational harvest limit relative to 2015. The black sea bass specifications would result in an 81.9% increase in the commercial quota and a 79.4% increase in the recreational harvest limit relative to 2015 (Table 25).

8.11.3.8.1 Commercial Impacts

The information regarding the limitation of the analysis and potential changes in prices and ex-vessel revenues due to changes in landings presented under section 8.11.3.1.1 also applies here.

Similar commercial impacts as those described under the quota scenario 4 for 2016 in section 8.11.3.4.1 also apply here.

8.11.3.8.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand for party/charter boat trips presented under section 8.11.3.1.2 also applies here.

Similar recreational impacts as those described under the quota scenario 3 for 2017 in section 8.11.3.4.2 also apply here.

Impacts Associated with the 2018 Alternatives

8.11.3.9 Quota Scenario 1 (Preferred 2018)

This quota scenario examines the impacts on industry that would result from the preferred landings limits for summer flounder and scup. This scenario contains commercial quotas of 7.89 and 17.34 million pounds for summer flounder and scup, respectively. This scenario also specifies recreational landings limits of 5.26 and 5.21 million pounds for summer flounder and scup, respectively (Table 24).

Under this scenario, the summer flounder specifications would result in a 28.7% decrease in both the commercial quota and the recreational harvest limit relative to the 2015 allocations. The scup specifications would result in an 18.3% decrease in the commercial quota and a 23.4% decrease in the recreational harvest limit relative to 2015 (Table 25).

8.11.3.9.1 Commercial Impacts

The information regarding the limitation of the analysis and potential changes in prices and ex-vessel revenues due to changes in landings presented under section 8.11.3.1.1 also applies here.

The results of a threshold analysis of affiliate data are reported in Table 42. This analysis shows expected revenue losses on the order of 5-9% for 97 small firms in 2018 when compared to 2015, 10-19% for 81 firms, and 20-29% for 66 firms. In total, 244 firms are expected to incur revenue losses of 5% or more. Furthermore, 336 firms are expected to incur revenue losses of less than 5%. 249 firms are expected to incur no revenue changes in 2018 when compared to 2015.

Council staff further examined impacted business entities with revenue reduction of 5% or more. According to affiliate data, it was estimated that 9% of the small business entities (21 out of 244) projected to incur revenue reductions of greater than 5% had total gross sales (average for all possible species combined in 2012-2014, not just summer flounder and scup) of $1,000 or less and 30% of the impacted entities (74 out of 244) had gross sales of $10,000 or less. In relative

terms 244 small business entities are likely to be impacted with revenue reductions of 5% or more; however, 39% of these entities (95 entities) had gross sales of $10,000 or less, likely indicating that the dependence on fishing for some of these firms is very small.

The affiliate data indicated that 8 large firms landed summer flounder and scup during the 2012-2014 period. For these entities, the potential revenue reduction associated with the analyzed harvest levels under this alternative would result in an overall revenue reduction of 0.8% (ranging from <0.1% for most firms to 2.4% for two firms).

Council staff also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2014 ex-vessel prices (summer flounder - $2.75/pound; and scup - $0.60/pound), the 2018 quotas associated with this scenario would decrease summer flounder revenues by approximately $8.7 million relative to the quota implemented in 2015. Assuming the decrease in summer flounder ex-vessel gross revenues was distributed equally among the firms that landed summer flounder (682), the average decrease in revenue associated with the decrease in quota is approximately $12,757 per firm. As discussed under section 8.11.1.6, given recent scup quota allocations, market conditions, and landings patterns in the fishery, it is assumed that scup landings in 2017 will be similar to those in 2014. As such, no change in revenue is expected for scup under this scenario.

Even though preferred alternative 1 represents an overall decrease in commercial fishing opportunities when compared to the *status quo* (alternative 2), it is consistent with the ABC recommendations of the SSC and is therefore based on the best scientific information available. Alternative 1 is intended to prevent overfishing.

Table 42. Threshold analysis of revenues for participating small entities under quota alternative 1 (preferred) for 2018.

Revenue (millions of dollars)	Count of Firms	Number of Entities Impacted by ≥5% Reduction	Overall Revenue Reduction	Increased Revenue (number of firms)	No change in Revenue (number of firms)	Number of Impacted Small Entities By Percent Reduction							
						<1%	1 - <5%	5-9%	10-19%	20-29%	30-39%	40-49%	≥ 50%
<0.5	710	212	3.9%	0	231	167	100	75	71	66	0	0	0
0.5 to <1	65	23	4.0%	0	4	19	19	17	17	0	0	0	0
1 to <2	51	7	1.9%	0	10	21	13	4	4	0	0	0	0
2 to <3	16	2	1.5%	0	4	8	2	1	1	0	0	0	0
3 to <4	10	0	0.6%	0	0	8	2	0	0	0	0	0	0
4 to 20.5	7	0	0.7%	0	0	5	2	0	0	0	0	0	0
Total	859	244	2.3%	0	249	228	138	97	97	66	0	0	0

Note: The overall number of firms impacted under the 2018 alternatives is smaller than the number of impacted firms under the alternatives for 2016 and 2017 because the 2018 harvest limits apply to summer flounder and scup only.

8.11.3.9.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand of party/charter boat trips presented under section 8.11.3.1.2 also applies here.

If summer flounder and scup recreational landings in 2018 are similar to those in 2014 (7.39 and 4.12 million pounds, respectively), more restrictive measures (e.g., lower possession limits, greater minimum size limits, and/or shorter seasons compared to 2015) will likely be necessary to ensure that the summer flounder recreational harvest limit (5.26 million pounds) is not exceeded. More restrictive measures will not likely be necessary for scup (5.21 million pound recreational harvest limit). For this reason, the recreational harvest limits under this scenario will likely provide similar recreational satisfaction for scup in 2018 relative to 2015, but lower recreational satisfaction for summer flounder.

8.11.3.10 Quota Scenario 2 (*Status Quo* 2018)

This quota scenario examines the impacts on industry that would result from the *status quo* landings limits for summer flounder and scup. This scenario includes measures that were previously implemented for those two species for the 2015 fishing year. This scenario contains a commercial quota of 11.07 for summer flounder and 21.23 million pounds for scup. This scenario also specifies a recreational harvest limit of 7.38 for summer flounder and 6.80 million pounds for scup (Table 24).

Under this scenario, the summer flounder and scup specifications would result in no aggregate change in allowable commercial landings or recreational harvest limit relative to the 2015 implemented limits (Table 25). This alternative would provide the same fishing opportunities to commercial fishermen and recreational anglers in 2018 when compared to 2015 opportunities.

8.11.3.10.1 Commercial Impacts

It is not expected that changes in revenues or fishing opportunities would occur under this alternative.

8.11.3.10.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand for party/charter boat trips presented under section 8.11.3.1.2 also applies here.

Similar recreational impacts for summer flounder and scup as those described under the quota scenario 2 for 2016 in section 8.11.3.2.2 also apply here.

8.11.3.11 Quota Scenario 3 (Non-Preferred: Most Restrictive 2018)

This quota scenario examines the impacts on industry that would result from the most restrictive landings limits for summer flounder and scup. This scenario contains commercial quotas of 6.30 million pounds for summer flounder and 2.53 million pounds for scup. This scenario also

specifies recreational harvest limits of 4.20 million pounds for summer flounder and 1.24 million pounds for scup (Table 24).

Under this scenario, the summer flounder specifications would result in a 43.1% decrease in both the commercial quota and the recreational harvest limit relative to the 2015 allocations. The scup specifications would result in an 88.1% decrease in the commercial quota and an 81.8% decrease in the recreational harvest limit relative to 2015 (Table 25).

8.11.3.11.1 Commercial Impacts

The information regarding the limitation of the analysis and potential changes in prices and ex-vessel revenues due to changes in landings presented under section 8.11.3.1.1 also applies here.

The results of a threshold analysis of affiliate data are reported in Table 43. This analysis shows expected revenue losses on the order of 5-9% for 66 small firms in 2018 when compared to 2015, 10-19% for 106 firms, 20-29% for 74 firms, 30-39% for 66 firms, 40-49% for 44 firms, and equal or greater to 50% for 13 firms. In total, 372 firms are expected to incur revenue losses of 5% or more and 487 firms are expected to incur revenue losses of less than 5% in 2018 when compared to 2015.

Council staff further examined the impacted business entities with revenue reduction of 5% or more. According to affiliate data, it was estimated that 10% of the small business entities (39 out of 372) projected to incur revenue reductions of greater than 5% had total gross sales (average for all possible species combined in 2012-2014, not just summer flounder and scup) of $1,000 or less and 32% of the impacted entities (119 out of 372) had gross sales of $10,000 or less. In relative terms 372 small business entities are likely to be impacted with revenue reductions of 5% or more; however, 42% of these entities (158 entities) had gross sales of $10,000 or less, likely indicating that the dependence on fishing for some of these firms is very small.

The affiliate data indicated that 8 large firms landed summer flounder and scup during the 2012-2014 period. For these entities, the analyzed harvest levels under this alternative would result in an overall revenue reduction of 1.3% (ranging from <0.1% for most firms to 3.9% for two firms).

Council staff also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2014 ex-vessel prices (summer flounder - $2.75/pound; and scup - $0.60/pound), the 2018 quotas associated with this scenario would decrease summer flounder and scup revenues by approximately $13.1 and $8.0 million, respectively, relative to the quota implemented in 2015. Assuming the decrease in summer flounder and scup ex-vessel gross revenues was distributed equally among the firms that landed summer flounder and scup (682 and 637, respectively), the average decrease in revenue associated with the decrease in quota is approximately $19,208 per firm that landed summer flounder and $12,559 per firm that landed scup.

Alternative 3 contains the largest overall decrease in commercial fishing opportunities (and largest negative economic impacts) when compared to the *status quo* (alternative 2). The measures contained under this alternative are substantially lower than the measures based on the

ABCs recommended by the SSC. Because they include the lowest commercial quotas and recreational harvest limits of all the alternatives analyzed for 2018, they are expected to have the lowest risk lowest risk of overfishing.

Table 43. Threshold analysis of revenues for participating small entities under quota alternative 3 (most restrictive) for 2018.

Revenue (millions of dollars)	Count of Firms	Number of Entities Impacted by ≥5% Reduction	Overall Revenue Reduction	Increased Revenue (number of firms)	No change in Revenue (number of firms)	Number of Impacted Small Entities by Percent Reduction							
						<1%	1 - <5%	5-9%	10-19%	20-29%	30-39%	40-49%	≥ 50%
<0.5	710	309	8.5%	0	0	283	118	53	78	60	61	44	13
0.5 to <1	65	40	10.6%	0	0	19	6	6	20	10	4	0	0
1 to <2	51	19	5.8%	0	0	22	10	8	7	3	1	0	0
2 to <3	16	4	3.7%	0	0	11	1	2	1	1	0	0	0
3 to <4	10	0	1.3%	0	0	7	3	0	0	0	0	0	0
4 to 20.5	7	0	1.3%	0	0	4	3	0	0	0	0	0	0
Total	859	372	5.8%	0	0	346	141	69	106	74	66	44	13

8.11.3.11.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand of party/charter boat trips presented under section 8.11.3.1.2 also applies here.

Similar recreational impacts for summer flounder and scup as those described under the quota scenario 3 for 2016 in section 8.11.3.3.2 also apply here.

8.11.3.12 Quota Scenario 4 (Non-Preferred: Least Restrictive 2018)

This quota scenario examines the impacts on industry that would result from the least restrictive landings limits for summer flounder and scup. This scenario contains commercial quotas of 18.18 million pounds for summer flounder and 28.35 million pounds for scup. This scenario also specifies recreational landings limits of 12.12 for summer flounder and 8.57 million pounds for s scup (Table 24).

Under this scenario, the summer flounder specifications would result in a 64.2% increase in both the commercial quota and the recreational harvest limit relative to the 2015 allocations. The scup specifications would result in a 33.5% increase in the commercial quota and a 26.0% increase in the recreational harvest limit relative to 2015 (Table 25).

8.11.3.12.1 Commercial Impacts

The information regarding the limitation of the analysis and potential changes in prices and ex-vessel revenues due to changes in landings presented under section 8.11.3.1.1 also applies here.

The results of a threshold analysis of affiliate data are reported in Table 44. This analysis shows that no firms are projected to have revenue losses under this scenario. 629 small firms are expected to incur revenue gains (5.2% for all firms combined) and 230 firms are expected to incur no revenue change in 2018 when compared to 2015.

The affiliate data indicate that 8 large firms landed summer flounder and scup during the 2012-2014 period. For these entities, the potential revenue increase associated with the analyzed harvest levels under this alternative would result in an overall revenue increase of 1.8% (ranging from <1.0% for most firms to 5.4% for two firms).

Council staff also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming 2014 ex-vessel prices (summer flounder - $2.75/pound; scup - $0.60/pound), the 2018 quotas associated with this scenario would increase summer flounder revenues by approximately $19.6 million relative to the quota implemented in 2015. Assuming the increase in summer flounder ex-vessel gross revenue was distributed equally among the firms that landed summer flounder (682), the average increase in revenue associated with the increase in quota is approximately $28,739 per firm that landed summer flounder. As discussed under section 8.11.1.6, given recent scup quota allocations, market conditions, and landings patterns in the fishery, it is assumed that scup landings in 2018 will be similar to those in 2014.

Alternative 4 measures contain the largest overall increase in commercial fishing opportunities (and largest positive short-term economic impacts) when compared to the *status quo* (alternative 2). These measures would result in landings above the ABCs recommend by the SSC for 2018. Because alternative 4 contains the highest commercial quotas and recreational harvest limits of all the alternatives analyzed for 2018, it has the highest risk of overfishing. It is possible that negative social and economic impacts could occur in the future if overfishing occurs and the sustainability of this stock is jeopardized.

8.11.3.12.2 Recreational Impacts

The information regarding the potential impacts of reduced recreational harvest limits on the demand for party/charter boat trips presented under section 8.11.3.1.2 also applies here.

Similar recreational impacts for summer flounder and scup as those described under the quota scenario 4 for 2016 in section 8.11.3.4.2 also apply here.

Table 44. Threshold analysis of revenues for participating small entities under quota alternative 4 (least restrictive) for 2018.

Revenue (millions of dollars)	Count of Firms	Number of Entities Impacted by ≥5% Reduction	Overall Revenue Increase	Increased Revenue (number of firms)	No change in Revenue (number of firms)	Number of Impacted Small Entities by Percent Reduction							
						<1%	1 - <5%	5-9%	10-19%	20-29%	30-39%	40-49%	≥ 50%
<0.5	710	0	8.7%	493	217	0	0	0	0	0	0	0	0
0.5 to <1	65	0	8.9%	62	3	0	0	0	0	0	0	0	0
1 to <2	51	0	4.3%	43	8	0	0	0	0	0	0	0	0
2 to <3	16	0	3.3%	14	2	0	0	0	0	0	0	0	0
3 to <4	10	0	1.3%	10	0	0	0	0	0	0	0	0	0
4 to 20.5	7	0	1.5%	7	0	0	0	0	0	0	0	0	0
Total	859	0	5.2%	629	230	0	0	0	0	0	0	0	0

10.0 LITERATURE CITED

ASMFC (Atlantic States Marine Fisheries Commission). 2007. Special report to the Atlantic Sturgeon Management Board: Estimation of Atlantic sturgeon bycatch in coastal Atlantic commercial fisheries of New England and the Mid-Atlantic. August 2007. 95 p.

ASSRT (Atlantic Sturgeon Status Review Team). 2007. Status review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Report to National Marine Fisheries Service, Northeast Regional Office. February 23, 2007. 174 p.

Balazs, G.H. 1985. Impact of ocean debris on marine turtles: entanglement and ingestion. NOAA Technical Memorandum NMFS-SWFSC-54:387-429.

Baum, E.T. 1997. *Maine Atlantic Salmon - A National Treasure*. Atlantic Salmon Unlimited. Hermon, Maine.

Baumgartner, M.F., T.V.N. Cole, R.G. Campbell, G.J. Teegarden and E.G. Durbin. 2003. Associations between North Atlantic right whales and their prey, *Calanus finmarchicus*, over diel and tidal time scales. *Marine Ecological Progress Series*. 264: 155–166.

Baumgartner, M.F. and B.R. Mate. 2003. Summertime foraging ecology of North Atlantic right whales. *Marine Ecological Progress Series*. 264: 123–135.

Beanlands, G.E., and P. N. Duinker. 1984. Ecological framework adjustment for environmental impact assessment. *Journal of Environmental Management*. 8:3.

Beardsall, J.W., M. F. McLean, S. J. Cooke, B. C. Wilson, M. J. Dadswell, A. M. Redden, and M. J. W. Stokesbury. 2013. Consequences of incidental otter trawl capture on Survival and Physiological Condition of Threatened Atlantic Sturgeon. *Transactions of the American Fisheries Society*. 142:1202–1214.

Blumenthal, J.M., J.L. Solomon, C.D. Bell, T.J. Austin, G. Ebanks-Petrie, M.S. Coyne, A.C. Broderick, and B.J. Godley. 2006. Satellite tracking highlights the need for international cooperation in marine turtle management. *Endangered Species Research.* 2:51-61.

Braun, J., and S.P. Epperly. 1996. Aerial surveys for sea turtles in southern Georgia waters, June 1991. *Gulf of Mexico Science*. 1996(1):39-44.

Braun-McNeill, J., and S.P. Epperly. 2004. Spatial and temporal distribution of sea turtles in the western North Atlantic and the U.S. Gulf of Mexico from Marine Recreational Fishery Statistics Survey (MRFSS). *Marine Fisheries Review*. 64(4):50-56.

Braun-McNeill, J., C.R. Sasso, S.P.Epperly, C. Rivero. 2008. Feasibility of using sea surface temperature imagery to mitigate cheloniid sea turtle–fishery interactions off the coast of northeastern USA. *Endangered Species Research*. 5: 257–266.

Brown, M.B., O.C. Nichols, M.K. Marx, and J.N. Ciano. 2002. Surveillance of North Atlantic right whales in Cape Cod Bay and adjacent waters. Final report to the Division of Marine Fisheries, Commonwealth of Massachusetts. September 2002. 29 p.

Clapham, P.J., L.S. Baraff, C.A. Carlson, M.A. Christian, D.K. Mattila, C.A. Mayo, M.A. Murphy and S. Pittman. 1993. Seasonal occurrence and annual return of humpback whales, *Megaptera novaeangliae*, in the southern Gulf of Maine. *Canadian Journal of Zoology*. 71: 440-443.

Cole, T. V. N., P. Hamilton, A. G. Henry, P. Duley, R. M. Pace III, B. N. White, T. Frasier. 2013. Evidence of a North Atlantic right whale *Eubalaena glacialis* mating ground. *Endangered Species Research*. 21: 55–64.

Collins, M. R. and T. I. J. Smith. 1997. Distribution of shortnose and Atlantic sturgeons in South Carolina. *North American Journal of Fisheries Management*. 17: 995-1000.

Conant, T.A., P.H. Dutton, T. Eguchi, S.P. Epperly, C.C. Fahy, M.H. Godfrey, S.L. MacPherson, E.E. Possardt, B.A. Schroeder, J.A. Seminoff, M.L. Snover, C.M. Upite, and B.E. Witherington. 2009. Loggerhead sea turtle (*Caretta caretta*) 2009 status review under the U.S. Endangered Species Act. Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009. 222 p.

Dadswell, M. 2006. A review of the status of Atlantic sturgeon in Canada, with comparisons to populations in the United States and Europe. *Fisheries*. 31: 218-229.

Dadswell, M. J., B. D. Taubert, T. S. Squiers, D. Marchette, and J. Buckley. 1984. Synopsis of Biological Data on Shortnose Sturgeon, *Acipenser brevirostrum*, LeSuer 1818. NOAA Technical Report NMFS 14.

Dancy, K. 2015. Memorandum to Chris Moore. Summer flounder management measures for 2016-2018. July 9, 2015. Available at: http://www.mafmc.org/briefing/august-2015

Dodge, K.L., B. Galuardi, T. J. Miller, and M. E. Lutcavage. 2014. Leatherback turtle movements, dive behavior, and habitat characteristics in ecoregions of the northwest Atlantic Ocean. *PLOS ONE*. 9 (3) e91726: 1-17.

Dovel, W.L. and T.J. Berggren. 1983. Atlantic sturgeon of the Hudson River Estuary, New York. *New York Fish and Game Journal*. 30: 140-172.

DPSWG (Northeast Data Poor Stocks Working Group). 2009. The Northeast Data Poor Stocks Working Group report, December 8-12, 2008 meeting. Part A. Skate species complex, deep sea red crab, Atlantic wolffish, scup, and black sea bass. Northeast Fisheries Science Center Reference Document 09-02; 496 p.

Drohan, A. F., J. P. Manderson, D. B. Packer. 2007. Essential Fish Habitat source document: black sea bass, *Centropristis Striata*, life history and habitat characteristics, 2nd edition. NOAA Technical Memo NMFS NE 200; 68 p.

Dunton, K.J., A. Jordaan, K.A. McKown, D.O. Conover, and M.J. Frisk. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) within the northwest Atlantic Ocean, determined from five fishery-independent surveys. *Fishery Bulletin*. 108:450-465.

Eckert, S.A., D. Bagley, S. Kubis, L. Ehrhart, C. Johnson, K. Stewart, and D. DeFreese. 2006. Internesting and postnesting movements of foraging habitats of leatherback sea turtles (*Dermochelys coriacea*) nesting in Florida. *Chelonian Conservation and Biology*. 5(2): 239-248.

Epperly, S.P., J. Braun, and A.J. Chester. 1995a. Aerial surveys for sea turtles in North Carolina inshore waters. *Fishery Bulletin*. 93: 254-261.

Epperly, S.P., J. Braun, A.J. Chester, F.A. Cross, J.V. Merriner, and P.A. Tester. 1995b.Winter distribution of sea turtles in the vicinity of Cape Hatteras and their interactions with the summer flounder trawl fishery. *Bulletin of Marine Science*. 56(2): 547-568.

Epperly, S.P., J. Braun, and A. Veishlow. 1995c. Sea turtles in North Carolina waters. *Conservation Biology*. 9(2): 384-394.

Erickson, D. L., A. Kahnle, M. J. Millard, E. A. Mora, M. Bryja, A. Higgs, J. Mohler, M. DuFour, G. Kenney, J. Sweka, and E. K. Pikitch. 2011. Use of pop-up satellite archival tags to identify oceanic-migratory patterns for adult Atlantic Sturgeon, *Acipenser oxyrinchus oxyrinchus* Mitchell, 1815. *Journal of Applied Ichthyology*. 27: 356–365.

Fay, C., M. Bartron, S. Craig, A. Hecht, J. Pruden, R. Saunders, T. Sheehan, and J. Trial. 2006. Status review for anadromous Atlantic salmon (*Salmo salar*) in the United States. Report to the National Marine Fisheries Service and U.S. Fish and Wildlife Service. 294 pages.

Griffin, D.B., S. R. Murphy, M. G. Frick, A. C. Broderick, J. W. Coker, M. S. Coyne, M. G. Dodd, M. H. Godfrey, B. J. Godley, L. A. Hawkes, T. M. Murphy, K. L. Williams, and M. J. Witt. 2013. Foraging habitats and migration corridors utilized by a recovering subpopulation of adult female loggerhead sea turtles: implications for conservation. *Marine Biology*. 160: 3071–3086.

Hawkes, L.A., A.C. Broderick, M.S. Coyne, M.H. Godfrey, L.-F. Lopez-Jurado, P. Lopez Suarez, S.E. Merino, N. Varo-Cruz, and B.J. Godley. 2006. Phenotypically linked dichotomy in sea turtle foraging requires multiple conservation approaches. *Current Biology*. 16: 990-995.

Hawkes, L.A., M.J. Witt, A.C. Broderick, J.W. Coker, M.S. Coyne, M. Dodd, M.G. Frick, M.H. Godfrey, D.B. Griffin, S.R. Murphy, T.M. Murphy, K.L. Williams, and B.J. Godley. 2011. Home on the range: spatial ecology of loggerhead turtles in Atlantic waters of the USA. *Diversity and Distributions*. 17: 624–640.

Henry, A.G., T.V.N. Cole, L. Hall, W. Ledwell, D. Morin D, and A. Reid. 2015. Mortality and serious injury determinations for baleen whale stocks along the Gulf of Mexico, United States east coast and Atlantic Canadian provinces, 2009-2013. Northeast Fisheries Science Center Reference Document 15-10; 45 p.

Hirth, H.F. 1997. Synopsis of the biological data of the green turtle, *Chelonia mydas* (Linnaeus 1758). USFWS Biological Report 97(1): 1-120.

Hyvarinen, P., P. Suuronen and T. Laaksonen. 2006. Short-term movement of wild and reared Atlantic salmon smolts in brackish water estuary – preliminary study. *Fisheries Management and Ecology*. 13(6): 399 -401.

James, M.C., R.A. Myers, and C.A. Ottenmeyer. 2005. Behaviour of leatherback sea turtles, *Dermochelys coriacea*, during the migratory cycle. *Proceedings of the Royal Society B.* 272: 1547-1555.

James, M.C., S.A. Sherrill-Mix, K. Martin, and R. A. Myers. 2006. Canadian waters provide critical foraging habitat for leatherback sea turtles. *Biological Conservation*. 133: 347-357.

Kenney, J., and D. Hartley. 2001. Draft large whale entanglement summary 1997-2001. Report to the National Marine Fisheries Service, updated October.

Kenney, R.D., M.A.M. Hyman, R.E. Owen, G.P. Scott and H.E. Winn. 1986. Estimation of prey densities required by western North Atlantic right whales. *Marine Mammal Science*. 2: 1–13.

Kenney, R.D., H.E. Winn and M.C. Macaulay 1995. Cetaceans in the Great South Channel, 1979-1989: right whale (*Eubalaena glacialis*). *Continental Shelf Research*. 15: 385–414.

Khan, C., T.V.N. Cole, P. Duley, A. Glass, M. Niemeyer, and C. Christman. 2009. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2008 Results Summary. NEFSC Reference Document 09-05. 7 p.

Khan, C., T. Cole, P. Duley, A. Glass, and J. Gatzke. 2010. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2009 Results Summary. NEFSC Reference Document 10-07. 7 p.

Khan, C., T. Cole, P. Duley, A. Glass, and J. Gatzke. 2011. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2010 Results Summary. NEFSC Reference Document 11-05. 6 p.

Khan C., T. Cole, P. Duley, A. Glass, and J. Gatzke, J. Corkeron. 2012. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2011 Results Summary. NEFSC Reference Document 12-09; 6 p.

Kocik. J.F., S.E. Wigley, and D. Kircheis. 2014. Annual bycatch update Atlantic salmon 2013. U.S. Atlantic Salmon Assessment Committee Working Paper 2014:05. Old Lyme, CT. 6 p. (cited with permission of authors).

Kynard, B., M. Horgan, M. Kieffer, and D. Seibel. 2000. Habitat used by shortnose sturgeon in two Massachusetts rivers, with notes on estuarine Atlantic sturgeon: a hierarchical approach. *Transactions of the American Fisheries Society*. 129: 487-503.

Lacroix, G.L. and P. McCurdy. 1996. Migratory behavior of post-smolt Atlantic salmon during initial stages of seaward migration. *Journal of Fish Biology*. 49: 1086-1101.

Lacroix, G. L, P. McCurdy, and D. Knox. 2004. Migration of Atlantic salmon post smolts in relation to habitat use in a coastal system. *Transactions of the American Fisheries Society*. 133(6):1455-1471.

Lacroix, G.L. and D. Knox. 2005. Distribution of Atlantic salmon (*Salmo salar*) postsmolts of different origins in the Bay of Fundy and Gulf of Maine and evaluation of factors affecting migration, growth, and survival. *Canadian Journal of Fisheries and Aquatic Science*. 62: 1363–1376.

Laney, R.W., J.E. Hightower, B.R. Versak, M.F. Mangold, W.W. Cole Jr., and S.E. Winslow 2007. Distribution, habitat use, and size of Atlantic sturgeon captured during cooperative winter tagging cruises, 1988–2006. Pages 167-182. In: J. Munro, D. Hatin, J. E. Hightower, K. McKown, K. J. Sulak, A. W. Kahnle, and F. Caron, (editors), Anadromous sturgeons: Habitats, threats, and management. American Fisheries Society Symposium 56, Bethesda, MD.

Lyssikatos, M.C. 2015. Estimates of cetacean and pinniped bycatch in Northeast and mid-Atlantic bottom trawl fisheries, 2008-2013. Northeast Fisheries Science Center Reference Document 15-19; 20 p.

MAFMC (Mid-Atlantic Fishery Management Council). 2002. Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. 552 p. + append. Available at: http://www.mafmc.org/fisheries/fmp/sf-s-bsb

MAFMC (Mid-Atlantic Fishery Management Council). 2011. Amendment 15 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. 383 p. Available at: http://www.mafmc.org/fisheries/fmp/sf-s-bsb

Mansfield, K.L., V.S. Saba, J. Keinath, and J.A. Musick. 2009. Satellite telemetry reveals adichotomy in migration strategies among juvenile loggerhead sea turtles in the northwest Atlantic. *Marine Biology*. 156:2555-2570.

Mayo, C.A., and M.K. Marx. 1990. Surface foraging behaviour of the North Atlantic right whale, *Eubalaena glacialis*, and associated zooplankton characteristics. *Canadian Journal of Zoology*. 68: 2214–2220.

McClellan, C.M., and A.J. Read. 2007. Complexity and variation in loggerhead sea turtle life history. *Biology Letters.* 3:592-594

McNamee, J., G. Fay, S. Cadrin. 2015. Data limited techniques for tier 4 stocks: an alternative approach to setting harvest control rules using closed loop simulations for management strategy evaluation. Available at: http://www.mafmc.org/ssc-meetings/2015/july-21-23

Miller, T. and G. Shepard. 2011. Summary of discard estimates for Atlantic sturgeon. Northeast Fisheries Science Center, Population Dynamics Branch, August 2011.

Mitchell, G.H., R.D. Kenney, A.M. Farak, and R.J. Campbell. 2003. Evaluation of occurrence of endangered and threatened marine species in naval ship trial areas and transit lanes in the Gulf of Maine and offshore of Georges Bank. NUWC-NPT Technical Memo 02-121A. 113 p.

Morreale, S.J. and E.A. Standora. 2005. Western North Atlantic waters: Crucial developmental habitat for Kemp's ridley and loggerhead sea turtles. *Chelonian Conservation Biology*. 4(4):872-882.

Murphy, T.M., S.R. Murphy, D.B. Griffin, and C. P. Hope. 2006. Recent occurrence, spatial distribution and temporal variability of leatherback turtles (*Dermochelys coriacea*) in nearshore waters of South Carolina, USA. *Chelonian Conservation Biology*. 5(2): 216-224.

Murray, K.T., 2008. Estimated average annual bycatch of loggerhead sea turtles (*Caretta caretta*) in US Mid-Atlantic bottom otter trawl gear, 1996–2004, second ed. Northeast Fisheries Science Center Reference Document 08-20, p. 32. Available at: http://www.nefsc.noaa.gov/publications/crd/crd0820

Murray, K.T. 2013. Estimated loggerhead and unidentified hard-shelled turtle interactions in mid-Atlantic gillnet gear, 2007-2011. NOAA Technical Memorandum. NMFS-NM-225. 20 p. Available at: http://www.nefsc.noaa.gov/publications/tm/

Murray, K.T. 2015. The importance of location and operational fishing factors in estimating and reducing loggerhead turtle (*Caretta caretta*) interactions in U.S. bottom trawl gear. *Fisheries Research*. 172: 440–451.

NEFSC (Northeast Fisheries Science Center). 2012. Black sea bass assessment summary for 2012. 24 p.

NEFSC (Northeast Fisheries Science Center). 2013. 57th Northeast Regional Stock Assessment Workshop (57th SAW) Assessment report. Northeast Fisheries Science Center Reference Document. 13-16; 967 p.

NEFSC (Northeast Fisheries Science Center). 2015a. 60th Northeast Regional Stock Assessment (60th SAW) assessment report. Northeast Fisheries Science Center Reference Document 15-08; 870 p.

NEFSC (Northeast Fisheries Science Center). 2015b. Stock Assessment Update of Summer Flounder for 2015. Northeast Fisheries Science Center Reference Document 15-13; 18 p.

NEFSC (Northeast Fisheries Science Center). 2015c. Black sea bass 2014 catch and survey information for northern stock – report to the Mid-Atlantic Science and Statistical Committee. 19 p.

NMFS (National Marine Fisheries Service). 1991. Final recovery plan for the humpback whale (*Megaptera novaeangliae*). Prepared by the Humpback Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, MD. 105 p.

NMFS (National Marine Fisheries Service). 2005. Revision- recovery plan for the North Atlantic right whale (*Eubalaena glacialis*). Prepared by the Office of Protected Resources National Marine Fisheries Service, Silver Spring, MD. 137 p.

NMFS (National Marine Fisheries Service). 2010. Final recovery plan for the fin whale (*Balaenoptera physalus*). Prepared by the Office of Protected Resources National Marine Fisheries Service, Silver Spring, MD. 121 p.

NMFS (National Marine Fisheries Service). 2011. Final recovery plan for the sei whale (*Balaenoptera borealis*). Prepared by the Office of Protected Resources National Marine Fisheries Service, Silver Spring, MD. 108 p.

NMFS (National Marine Fisheries Service). 2012. North Atlantic Right Whale (*Eubalaena glacialis*) five year review: summary and evaluation. NOAA Fisheries Service, Northeast Regional Office, Gloucester, MA. 36p.

NMFS (National Marine Fisheries Service). 2013. Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the Northeast Multispecies, Monkfish, Spiny Dogfish, Atlantic Bluefish, Northeast Skate Complex, Mackerel/Squid/Butterfish, and Summer Flounder/Scup/Black Sea Bass Fisheries. Available at: http://www.greateratlantic.fisheries.noaa.gov/protected/section7/bo/actbiops/batchedfisheriesopinionfinal121613.pdf

NMFS (National Marine Fisheries Service). 2014. Final Environmental Impact Statement for Amending the Atlantic Large Whale Take Reduction Plan: Vertical Line Rule. National Marine Fisheries Service. May 2014.

NMFS (National Marine Fisheries Service). 2015. Standardized Bycatch Reporting Methodology, an omnibus amendment to the fishery management plans of the Mid-Atlantic and New England Regional Fishery Management Councils. National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, MA 01930. Available at: http://www.greateratlantic.fisheries.noaa.gov/regs/2015/June/15sbrmomnibusamendea.pdf

NMFS NEFSC FSB (National Marine Fisheries Service Northeast Fisheries Science Center Fisheries Statistics Branch). 2015. Northeast Fisheries Observer Program: incidental take reports. Omnibus data request + supplemental data for 2014 from: http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 1991. Recovery plan for U.S. population of Atlantic green turtle (*Chelonia mydas*). National Marine Fisheries Service, Washington, D.C. 58 p.

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

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 1995. Status reviews for sea turtles listed under the Endangered Species Act of 1973. Silver Spring, Maryland: National Marine Fisheries Service. 139 p.

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 1998a. Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle (*Dermochelys coriacea*). Silver Spring, Maryland: National Marine Fisheries Service. 65 p.

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 1998b. Recovery Plan for U.S. Pacific Populations of the Green Turtle (*Chelonia mydas*). Silver Spring, Maryland: National Marine Fisheries Service. 84 p.

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 2005. Recovery plan for the Gulf of Maine distinct population segment of the Atlantic salmon (*Salmo salar*). National Marine Fisheries Service, Silver Spring, MD.

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 2007a. Kemp's ridley sea turtle (*Lepidochelys kempii*) 5 year review: summary and evaluation. Silver Spring, Maryland: National Marine Fisheries Service. 50 p.

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 2007b. Green sea turtle (*Chelonia mydas*) 5 year review: summary and evaluation. Silver Spring, Maryland: National Marine Fisheries Service. 102 p.

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 2008. Recovery plan for the Northwest Atlantic population of the loggerhead turtle (*Caretta caretta*), Second revision. Washington, D.C.: National Marine Fisheries Service. 325 p.

NMFS and USFWS (National Marine Fisheries Service and U.S. Fish and Wildlife Service). 2013. Leatherback sea turtle (*Dermochelys coriacea*) 5 year review: summary and evaluation. Silver Spring, Maryland: National Marine Fisheries Service. 91 p.

NMFS, USFWS, and SEMARNAT. 2011. Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Second Revision. National Marine Fisheries Service. Silver Spring, MD. 156 p. + appendices.

NOAA (National Oceanic and Atmospheric Administration). 2008. High numbers of right whales seen in Gulf of Maine: NOAA researchers identify wintering ground and potential breeding ground. NOAA press release. December 31, 2008.

Nye, J. D., J.S. Link, J. A. Hare, and W.J. Overholtz. 2009. Changing spatial distribution of fish stocks in relation to climate and population size on the Northeast United States continental shelf. *Marine Ecology Progress Series.* 393: 111-129.

O'Leary, S.J., K. J. Dunton, T. L. King, M. G. Frisk, and D.D. Chapman. 2014. Genetic diversity and effective size of Atlantic sturgeon, *Acipenser oxyrhinchus oxyrhinchus*, river spawning populations estimated from the microsatellite genotypes of marine-captured juveniles. *Conservation Genetics*. 15(5):1173-1181.

Packer, D. B, S. J. Griesbach, P. L. Berrien, C. A. Zetlin, D. L. Johnson, and W.W. Morse. 1999. Essential Fish Habitat source document: summer flounder, *Paralichthys dentatus*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-151.

Payne, P.M., J.R. Nicholas, L. O'Brien and K.D. Powers. 1986. The distribution of the humpback whale, *Megaptera novaeangliae*, on Georges Bank and in the Gulf of Maine in relation to densities of the sand eel, *Ammodytes americanus*. *Fishery Bulletin.* 84: 271-277.

Payne, P.M., D.N. Wiley, S.B. Young, S. Pittman, P.J. Clapham, and J.W. Jossi. 1990. Recent fluctuations in the abundance of baleen whales in the southern Gulf of Maine in relation to changes in selected prey. *Fishery Bulletin.* 88: 687-696.

Reddin, D.G. 1985. Atlantic salmon (*Salmo salar*) on and east of the Grand Bank. *Journal of Northwest Atlantic Fisheries Science*. 6(2):157-164.

Reddin, D.G and P.B. Short. 1991. Postsmolt Atlantic salmon (*Salmo salar*) in the Labrador Sea. *Canadian Journal of Fisheries and Aquatic Science*. 48:2-6.

Reddin, D.G and K.D. Friedland. 1993. Marine environmental factors influencing the movement and survival of Atlantic salmon. 4th Int. Atlantic Salmon Symposium. St. Andrews, N.B. Canada.

Sheehan, T.F., D.G. Reddin, G. Chaput and M.D. Renkawitz. 2012. SALSEA North America: Apelagic ecosystem survey targeting Atlantic salmon in the Northwest Atlantic. *ICES Journal of Marine Science*. 69(9):1580-1588.

Schilling, M. R., I. Seipt, M. T. Weinrich, S. E. Frohock, A. E. Kuhlberg, and P. J. Clapham. 1992. Behavior of individually-identified sei whales *Balaenoptera borealis* during an episodic influx into the southern Gulf of Maine in 1986. *Fishery Bulletin*. 90:749–755.

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

Steimle, F.W, C. A. Zetlin, P. L. Berrien, D. L. Johnson, and S. Chang. 1999a. Essential Fish Habitat source document: scup, *Stenotomus chrysops*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-149.

Steimle, F.W, C. A. Zetlin, P. L. Berrien, and S. Chang. 1999b. Essential Fish Habitat source document: black sea bass, *Centropristis striata*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-143.

Stein, A. B., K. D. Friedland, and M. Sutherland. 2004a. Atlantic sturgeon marine distribution and habitat use along the northeastern coast of the United States. *Transactions of the American Fisheries Society*. 133: 527-537.

Stein, A. B., K. D. Friedland, and M. Sutherland. 2004b. Atlantic sturgeon marine bycatch andmortality on the continental shelf of the Northeast United States. *North American Journal of Fisheries Management*. 24: 171-183.

Stevenson, D., L. Chiarella, D. Stephan, R. Reid, K. Wilhelm, J. McCarthy, M. Pentony. 2004. Characterization of the fishing practices and marine benthic ecosystems of the Northeast U.S. Shelf, and an evaluation of the potential effects of fishing on Essential Fish Habitat. NOAA Technical Memorandum NMFS-NE-181; 179 p.

Swingle, W.M., S.G. Barco, T.D. Pitchford, W.A. McLellan, and D.A. Pabst. 1993. Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia. *Marine Mammal Science*.. 9: 309-315.

TEWG (Turtle Expert Working Group). 1998. An assessment of the Kemp's ridley (*Lepidochelys kempii*) and loggerhead (*Caretta caretta*) sea turtle populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-409:1-96.

TEWG (Turtle Expert Working Group). 2000. Assessment update for the Kemp's ridley and loggerhead sea turtle populations in the western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-444: 1-115.

TEWG (Turtle Expert Working Group). 2007. An assessment of the leatherback turtle population in the Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-555: 1-116.

TEWG (Turtle Expert Working Group). 2009. An assessment of the loggerhead turtle population in the Western North Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-575: 1-131.

Timoshkin, V. P. 1968. Atlantic sturgeon (*Acipenser sturio L*.) caught at sea. *Journal of Ichthyol.* 8(4): 598.

USASAC (U.S. Atlantic Salmon Assessment Committee). 2013. Annual reports 2001 through 2012. Annual Report of the U.S. Atlantic Salmon Assessment Committee.

Vu, E., D. Risch, C. Clark, S. Gaylord, L. Hatch, M. Thompson, D. Wiley, and S. Van Parijs. 2012. Humpback whale song occurs extensively on feeding grounds in the western North Atlantic Ocean. *Aquatic Biology*.14(2):175–183.

Waldman, J.R., T. King, T. Savoy, L. Maceda, C. Grunwald, and I. Wirgin. 2013. Stock origins of subadult and adult Atlantic sturgeon, *Acipenser oxyrinchus*, in a non-natal estuary, Long Island Sound. *Estuaries and Coasts*. 36:257–267.

Warden, M.L. 2011a. Modeling loggerhead sea turtle (*Caretta caretta*) interactions with US Mid-Atlantic bottom trawl gear for fish and scallops, 2005–2008. *Biological Conservation*. 144: 2202–2212.

Warden, M.L. 2011b. Proration of loggerhead sea turtle (*Caretta caretta*) interactions in US Mid-Atlantic bottom otter trawls for fish and scallops, 2005-2008, by managed species landed. NEFSC Reference Document 11-04; 8 p. Available at: http://www.nefsc.noaa.gov/publications/crd/

Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel, editors. 2014a. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments—2013. NOAA Tech Memo NMFS- NE-228. 475 p.

Waring, G.T., F. Wenzel, E. Josephson, M.C. Lyssikatos. 2014b. Serious Injury Determinations for Small Cetaceans and Pinnipeds Caught in Commercial Fisheries off the Northeast U.S. Coast, 2007-2011. Northeast Fisheries Science Center Reference Document 14-13; 26 p.

Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel, editors. 2015a. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments 2014. Available at: http://www.nmfs.noaa.gov/pr/sars/pdf/atl2014_final.pdf

Waring, G.T., E. Josephson, M.C. Lyssikatos, and F.W. Wenzel. 2015b. Serious injury determinations for small cetaceans and pinnipeds caught in commercial fisheries off the northeast U.S. coast, 2012. Northeast Fisheries Science Center Reference Document 15-12; 19 p.

Wirgin, I., L. Maceda, J.R. Waldman, S. Wehrell, M. Dadswell, and T. King. 2012. Stock origin of migratory Atlantic sturgeon in the Minas Basin, Inner Bay of Fundy, Canada, determined by microsatellite and mitochondrial DNA analyses. *Transactions of the American Fisheries Society.* 141(5): 1389-1398.

Wirgin, I., M. W. Breece , D. A. Fox , L. Maceda , K. W. Wark, and T. King. 2015. Origin of Atlantic sturgeon collected off the Delaware coast during spring months. North American *Journal of Fisheries Management*. 35: 20–30.

11.0 LIST OF AGENCIES AND PERSONS CONSULTED

In preparing this specifications document, the Council consulted with 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 GARFO personnel was sought.

Copies of the specifications document, including the Environmental Assessment and Initial Regulatory Flexibility Analysis and other supporting documents for the specifications are available from Dr. Christopher M. Moore, Executive Director, Mid-Atlantic Fishery Management Council, Suite 201, 800 North State Street, Dover, DE 19901

APPENDIX

Table 1. Essential Fish Habitat descriptions for summer flounder, scup, and black sea bass by life stage.

Species	Life Stage	EFH Description
Summer Flounder	Eggs	1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of the all the ranked ten-minute squares for the area where summer flounder eggs are collected in the MARMAP survey. 2) South of Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Hatteras, North Carolina to Cape Canaveral, Florida, to depths of 360 ft. In general, summer flounder eggs are found between October and May, being most abundant between Cape Cod and Cape Hatteras, with the heaviest concentrations within 9 miles of shore off New Jersey and New York. Eggs are most commonly collected at depths of 30 to 360 ft.
	Larvae	1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where summer flounder larvae are collected in the MARMAP survey. 2) South of Cape Hatteras, EFH is the nearshore waters of the Continental Shelf (from the coast out to the limits of the EEZ), from Cape Hatteras, North Carolina to Cape Canaveral Florida, in nearshore waters (out to 50 miles from shore). 3) Inshore, EFH is all the estuaries where summer flounder were identified as being present (rare, common, abundant, or highly abundant) in the ELMR database, in the "mixing" (defined in ELMR as 0.5 to 25.0 ppt) and "seawater" (defined in ELMR as greater than 25 ppt) salinity zones. In general, summer flounder larvae are most abundant nearshore (12-50 miles from shore) at depths between 30 to 230 ft. They are most frequently found in the northern part of the Mid-Atlantic Bight from September to February, and in the southern part from November to May.
	Juveniles	1) North of Cape Hatteras, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where juvenile summer flounder are collected in the NEFSC trawl survey. 2) South of Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ) to depths of 500 ft, from Cape Hatteras, North Carolina to Cape Canaveral, Florida. 3) Inshore, EFH is all of the estuaries where summer flounder were identified as being present (rare, common, abundant, or highly abundant) in the ELMR database for the "mixing" and "seawater" salinity zones. In general, juveniles use several estuarine habitats as nursery areas, including salt marsh creeks, seagrass beds, mudflats, and open bay areas in water temperatures greater than 37 oF and salinities from 10 to 30 ppt range.
	Adults	1) North of Cape Hatteras, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares for the area where adult summer flounder are collected in the NEFSC trawl survey. 2) South of Cape Hatteras, EFH is the waters over the Continental Shelf (from the coast out to the limits of the EEZ) to depths of 500 ft, from Cape Hatteras, North Carolina to Cape Canaveral, Florida. 3) Inshore, EFH is the estuaries where summer flounder were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally summer flounder inhabit shallow coastal and estuarine waters during warmer months and move offshore on the outer Continental Shelf at depths of 500 ft in colder months.

Scup	Eggs	EFH is estuaries where scup eggs were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general scup eggs are found from May through August in southern New England to coastal Virginia, in waters between 55 and 73 oF and in salinities greater than 15 ppt.
	Larvae	EFH is estuaries where scup were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. In general scup larvae are most abundant nearshore from May through September, in waters between 55 and 73 oF and in salinities greater than 15 ppt.
	Juveniles	1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares of the area where juvenile scup are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where scup are identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Juvenile scup, in general during the summer and spring are found in estuaries and bays between Virginia and Massachusetts, in association with various sands, mud, mussel and eelgrass bed type substrates and in water temperatures greater than 45 oF and salinities greater than 15 ppt.
	Adults	1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares of the area where adult scup are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where scup were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally, wintering adults (November through April) are usually offshore, south of New York to North Carolina, in waters above 45 oF.
Black Sea Bass	Eggs	EFH is the estuaries where black sea bass eggs were identified in the ELMR database as common, abundant, or highly abundant for the "mixing" and "seawater" salinity zones. Generally, black sea bass eggs are found from May through October on the Continental Shelf, from southern New England to North Carolina.
	Larvae	1) North of Cape Hatteras, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all ranked ten-minute squares of the area where black sea bass larvae are collected in the MARMAP survey. 2) EFH also is estuaries where black sea bass were identified as common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Generally, the habitats for the transforming (to juveniles) larvae are near the coastal areas and into marine parts of estuaries between Virginia and New York. When larvae become demersal, they are generally found on structured inshore habitat such as sponge beds.
	Juveniles	1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked squares of the area where juvenile black sea bass are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where black sea bass are identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Juveniles are found in the estuaries in the summer and spring. Generally, juvenile black sea bass are found in waters warmer than 43 oF with salinities greater than 18 ppt and coastal areas between Virginia and Massachusetts, but winter offshore from New Jersey and south. Juvenile black sea bass are usually found in association with rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas; offshore clam beds and shell patches may also be used during the wintering.
	Adults	1) Offshore, EFH is the demersal waters over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine to Cape Hatteras, North Carolina, in the highest 90% of all the ranked ten-minute squares of the area where adult black sea bass are collected in the NEFSC trawl survey. 2) Inshore, EFH is the estuaries where adult black sea bass were identified as being common, abundant, or highly abundant in the ELMR database for the "mixing" and "seawater" salinity zones. Black sea bass are generally found in estuaries from May through October. Wintering adults (November through April) are generally offshore, south of New York to North Carolina. Temperatures above 43 oF seem to be the minimum requirements. Structured habitats (natural and man-made), sand and shell are usually the substrate preference.

Table 2. Essential Fish Habitat descriptions for federally-managed species/life stages that are vulnerable to bottom tending fishing gear in the U.S. Northeast Shelf Ecosystem.

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
American plaice	juvenile	GOM, including estuaries from Passamaquoddy Bay to Saco Bay, ME and from Massachusetts Bay to Cape Cod Bay	45 - 150	Fine grained sediments, sand, or gravel
American plaice	adult	GOM, including estuaries from Passamaquoddy Bay to Saco Bay, ME and from Massachusetts Bay to Cape Cod Bay	45 - 175	Fine grained sediments, sand, or gravel
Atlantic cod	juvenile	GOM, GB, eastern portion of continental shelf off SNE, these estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	25 - 75	Cobble or gravel
Atlantic cod	adult	GOM, GB, eastern portion of continental shelf off SNE, these estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	10 - 150	Rocks, pebbles, or gravel
Atl halibut	juvenile	GOM and GB	20 - 60	Sand, gravel, or clay
Atl halibut	adult	GOM and GB	100 - 700	Sand, gravel, or clay
Barndoor skate	juvenile/ adult	Eastern GOM, GB, SNE, Mid-Atlantic Bight to Hudson Canyon	l0-750, most < 150	Mud, gravel, and sand
Black sea bass	juvenile	GOM to Cape Hatteras, NC, including estuaries from Buzzards Bay to Long Island Sound, Gardiners Bay, Barnegat Bay to Chesapeake Bay, Tangier/ Pocomoke Sound, and James River	1 - 38	Rough bottom, shellfish/ eelgrass beds, manmade structures, offshore clam beds, and shell patches
Black sea bass	adult	GOM to Cape Hatteras, NC, including Buzzards Bay, Narragansett Bay, Gardiners Bay, Great South Bay, Barnegat Bay to Chesapeake Bay, and James River	20 - 50	Structured habitats (natural and manmade), sand and shell substrates preferred
Clearnose skate	juvenile/ adult	GOM, along continental shelf to Cape Hatteras, NC, including the estuaries from Hudson River/Raritan Bay south to the Chesapeake Bay mainstem	0 – 500, most < 111	Soft bottom and rocky or gravelly bottom
Haddock	juvenile	GB, GOM, and Mid-Atlantic south to Delaware Bay	35 - 100	Pebble and gravel
Haddock	adult	GB, eastern side of Nantucket Shoals, and throughout GOM	40 - 150	Broken ground, pebbles, smooth hard sand, and smooth areas between rocky patches
Little skate	juvenile/ adult	GB through Mid-Atlantic Bight to Cape Hatteras, NC; includes estuaries from Buzzards Bay south to mainstem Chesapeake Bay	0-137, most 73 - 91	Sandy or gravelly substrate or mud
Ocean pout	eggs	GOM, GB, SNE, and Mid-Atlantic south to Delaware Bay, including the following estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay and Cape Cod Bay	<50	Generally sheltered nests in hard bottom in holes or crevices
Ocean pout	juvenile	GOM, GB, SNE, Mid-Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay, Massachusetts Bay, and Cape Cod Bay	< 50	Close proximity to hard bottom nesting areas
Ocean pout	adult	GOM, GB, SNE, Mid-Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay, MA Bay, Boston Harbor, and Cape Cod Bay	< 80	Smooth bottom near rocks or algae
Pollock	adult	GOME, GB, SNE, and Mid-Atlantic south to New Jersey and the following estuaries: Passamaquoddy Bay, Damariscotta R., MA Bay, Cape Cod Bay, Long Island Sound	15 – 365	Hard bottom habitats including artificial reefs

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
Red hake	juvenile	GOM, GB, continental shelf off SNE, and Mid-Atlantic south to Cape Hatteras, including the following estuaries: Passamaquoddy Bay to Saco Bay, Great Bay, MA Bay to Cape Cod Bay; Buzzards Bay to CT River, Hudson River, Raritan Bay, and Chesapeake Bay	< 100	Shell fragments, including areas with an abundance of live scallops
Red hake	adult	GOM, GB, continental shelf off SNE, Mid-Atlantic south to Cape Hatteras, these estuaries: Passamaquoddy Bay to Saco Bay, Great Bay, MA Bay to Cape Cod Bay; Buzzards Bay to CT River, Hudson River, Raritan Bay, Delaware Bay, and Chesapeake Bay	10 - 130	In sand and mud, in depressions
Redfish	juvenile	GOM, southern edge of GB	25 - 400	Silt, mud, or hard bottom
Redfish	adult	GOM, southern edge of GB	50 - 350	Silt, mud, or hard bottom
Rosette skate	juvenile/ adult	Nantucket shoals and southern edge of GB to Cape Hatteras, NC	33-530, most 74-274	Soft substrate, including sand/mud bottoms
Scup	juvenile/ adult	GOM to Cape Hatteras, NC, including the following estuaries: MA Bay, Cape Cod Bay to Long Island Sound, Gardiners Bay to Delaware inland bays, and Chesapeake Bay	0-38 for juv 2-185 for adult	Demersal waters north of Cape Hatteras and inshore estuaries (various substrate types)
Silver hake	juvenile	GOM, GB, continental shelf off SNE, Mid-Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Casco Bay, ME, MA Bay to Cape Cod Bay	20 – 270	All substrate types
Summer Flounder	juvenile/ adult	GOM to Florida – estuarine and over continental shelf to shelf break	0-250	Demersal/estuarine waters, varied substrates. Mostly inshore in summer and offshore in winter.
Smooth skate	juvenile/ adult	Offshore banks of GOM	31–874, most 110-457	Soft mud (silt and clay), sand, broken shells, gravel and pebbles
Thorny skate	juvenile/ adult	GOM and GB	18-2000, most 111-366	Sand, gravel, broken shell, pebbles, and soft mud
Tilefish	juvenile/ adult	Outer continental shelf and slope from the U.S./Canadian boundary to the Virginia/North Carolina boundary	100 - 300	Burrows in clay (some may be semi-hardened into rock)
White hake	juvenile	GOM, southern edge of GB, SNE to Mid-Atlantic and the following estuaries: Passamaquoddy Bay, ME to Great Bay, NH, Massachusetts Bay to Cape Cod Bay	5 - 225	Seagrass beds, mud, or fine grained sand
Winter flounder	adult	GB, inshore areas of GOM, SNE, Mid- Atlantic south to Delaware Bay and the estuaries from Passamaquoddy Bay, ME to Chincoteague Bay, VA	1 - 100	Mud, sand, and gravel
Winter skate	juvenile/ adult	Cape Cod Bay, GB, SNE shelf through Mid-Atlantic Bight to North Carolina; includes the estuaries from Buzzards Bay south to the Chesapeake Bay mainstem	0 - 371, most < 111	Sand and gravel or mud
Witch flounder	juvenile	GOM, outer continental shelf from GB south to Cape Hatteras	50 - 450 to 1500	Fine grained substrate
Witch flounder	adult	GOME, outer continental shelf from GB south to Chesapeake Bay	25 - 300	Fine grained substrate
Yellowtail flounder	adult	GB, GOM, SNE and Mid-Atlantic south to Delaware Bay and these estuaries: Sheepscot River and Casco Bay, ME, MA Bay to Cape Cod Bay	20 - 50	Sand or sand and mud