

**2015, 2016, and 2017 Tilefish
Specifications, Environmental Assessment,
Regulatory Impact Review, and
Initial Regulatory Flexibility Analysis**

September 2014

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

Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201
Dover, DE 19901
(302) 674-2331 tel.
(302) 674-5399 fax

National Marine Fisheries Service

55 Great Republic Drive
Gloucester, MA 01930
(978) 281-9315 tel.
(978) 281-9135 fax

1.0 EXECUTIVE SUMMARY

This document was prepared by the Mid-Atlantic Fishery Management Council (Council) in consultation with the National Marine Fisheries Service (NMFS). The purpose of this action (specifications document) is to implement commercial quotas for the tilefish fishery in 2015, 2016, and 2017 that are necessary to prevent overfishing and ensure annual catch limits (ACLs) are not exceeded.

This specifications document was developed in accordance with all applicable laws and statutes as described in section 8.0 and the document details all management alternatives for the tilefish fishery for a three year period (2015-2017). Under the FMP, if no action is taken to set specifications, the continuation of harvest level specified in the tilefish fishing regulations (1.995 M lb or 905 mt)¹ would continue.

The proposed actions in this specifications document only consider modifications of the commercial quotas for 2015, 2016, and 2017 (Box ES-1). The Council did not recommend changes to other regulations in place for this fishery. Therefore, any other fishery management measures in place will remain unchanged (*status quo*) for the 2015-2017 fishing years.

Summary of Alternatives

The following section presents a qualitative summary of expected impacts for the alternatives under consideration for 2015-2017 (Box ES-2). For purposes of impact evaluation, *status quo* alternatives for 2015, 2016, and 2017 are compared to the 2014 baseline condition, while all other alternatives are compared to the *status quo* (no action) baseline alternative. None of the direct or indirect impacts of the proposed alternatives, positive or negative, are expected to be significant.

2015-2017 Tilefish Catch Limit and Quota Alternatives

Overall, preferred alternative 1 for tilefish for 2015, 2016, and 2017 is expected to result in biological impacts on the managed resources and non-target species that range from slightly positive to positive in 2015, 2016, and 2017, when compared to the *status quo* (Box ES-2). Alternative 1 is consistent with the acceptable biological catch (ABC) recommendations of the Council's Scientific and Statistical Committee (SSC) for 2015-2016 and slightly more restrictive than the SSC recommendation for 2017. Overall, preferred alternative 1 is the most restrictive alternative and may be more restrictive than necessary given the advice of the SSC. Non-preferred alternative 2 (*status quo*/no action) is expected to result in overall biological impacts on the managed resource and non-target species that range from neutral to negative, when compared to existing impacts. Non-preferred alternative 2 is not consistent with the recommendations of the SSC for

¹ 1 metric ton (mt) = 2,204.62262 pounds (lb)

2015, 2016, or 2017. This alternative proposes commercial quotas that are higher than those considered under alternatives 1 and 3.

Box ES-1. Summary of the tilefish alternatives for 2015, 2016, and 2017 analyzed in this specifications document. IFQ = individual fishing quota.				
Alternatives	Commercial Component	2015 Quotas	2016 Quotas	2017 Quotas
Alternative 1 (Preferred)	IFQ vessels	1,667,136 lb (756.20 mt)	1,792,799 lb (813.20 mt)	1,792,799 lb (813.20 mt)
	Incidental vessels	87,744 lb (39.80 mt)	94,357 lb (42.80 mt)	94,357 lb (42.80 mt)
Alternative 2 (Non-Preferred: <i>Status Quo/No Action</i>)	IFQ vessels	1,895,250 lb (859.75 mt)	1,895,250 lb (859.75 mt)	1,895,250 lb (859.75 mt)
	Incidental vessels	99,750 lb (45.25 mt)	99,750 (45.25 mt)	99,750 lb (45.25 mt)
Alternative 3 (Non-Preferred: SSC and MC Recommended)	IFQ vessels	1,667,136 lb (756.20 mt)	1,792,799 (813.20 mt)	1,840,970 lb (835.05 mt)
	Incidental vessels	87,744 lb (39.80 mt)	94,357 lb (42.80 mt)	96,893 lb (43.95 mt)

Box ES-2. Overall qualitative summary of the expected impacts of various tilefish alternatives considered in this document for 2015-2017. A minus sign (-) signifies an expected negative impact, a plus sign (+) signifies an expected positive impact, and zero (0) is used to indicate a null impact. A “sl” in front of a sign is used to convey a minor effect, such as slight positive (sl+).

Alternatives	Year	Biological	EFH	Protected Resources	Economic	Social
Alternative 1 (Preferred)	2015-2017	sl+/+	sl+/+	0	-	-
Alternative 2 (Non-Preferred: <i>Status Quo/No Action</i>)	2015-2017	0/-	0	0	0	0
Alternative 3 (Non-Preferred: SSC and MC Recommended)	2015-2017	sl+/+	sl+/+	0	sl-/-	sl-/-

Overall, non-preferred alternative 3 for 2015, 2016, and 2017 is expected to result similar directional impacts on the managed resource and non-target species as under preferred alternative 1 but smaller in magnitude. Non-preferred alternative 3 for 2015, 2016, and 2017 is the second most restrictive alternative presented in the document. Ranking these three alternatives from more likely to less likely to result in overall positive biological impacts, they rank as alternative 1, alternative 3, and alternative 2.

Overall, preferred alternative 1 for 2015, 2016, and 2017 is expected to result in habitat impacts that range from slightly positive to positive when compared to the *status quo* (Box ES-2). Non-preferred alternative 2 for 2015, 2016, and 2017 (*status quo*/no action) is expected to result in overall neutral habitat impacts, when compared to existing conditions. Non-preferred alternative 3 for 2015, 2016, and 2017 is expected to result in habitat impacts that range from slightly positive to positive when compared to the *status quo*. Both preferred alternative 1 and non-preferred alternative 3 are expected to result in similar habitat impacts. Ranking these three alternatives from more likely to less likely to result in overall positive habitat impacts, they rank as alternative 1, alternative 3, and alternative 2.

Given the range of potential impacts on Endangered Species Act (ESA) listed and Marine Mammal Protection Act (MMPA) protected resources, preferred alternative 1 for 2015, 2016, and 2017 is expected to result in impacts that are neutral, when compared to the *status quo* (Box ES-2). Non-preferred alternative 2 for 2015, 2016, and 2017 (*status quo*/no action) is expected to result in overall impacts on ESA-listed and MMPA protected resources that are neutral, when compared to existing impacts. Non-preferred alternative 3 for 2015, 2016, and 2017 is expected to have overall impacts on ESA-listed and MMPA protected resources that are neutral, when compared to the *status quo*. Both preferred alternative 1 and non-preferred alternative 3 are expected to result in similar overall impacts on ESA-listed and MMPA protected resources.

Overall, under preferred alternative 1 for 2015, 2016, and 2017, it is expected that negative social and economic impacts will occur, when compared to the *status quo* (Box ES-2). Under non-preferred alternative 2 for 2015, 2016, and 2017, it is expected that neutral impacts will occur, when compared to existing impacts. Non-preferred alternative 3 for 2015, 2016, and 2017 is expected to result in social and economic impacts that range from slightly negative to negative, when compared to the *status quo*. Ranking these three alternatives from more likely to less likely to result in overall positive impacts, they rank as alternative 2, alternative 3, and alternative 1.

Cumulative Impacts

For tilefish, the Council analyzed the biological, habitat (EFH), ESA-listed and MMPA protected species, and social and economic impacts of the Council-considered alternatives. When the proposed action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future 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 (see section 7.5).

Conclusions

A detailed description and discussion of the expected environmental impacts resulting from each of the alternatives, as well as any cumulative impacts, considered in this specifications document are provided in section 7.0. 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 National Environmental Protection Act (NEPA); therefore, a “Finding of No Significant Impact” is warranted.

2.0 LIST OF ACRONYMS

B	Biomass
ABC	Annual Biological Catch
ACL	Annual Catch Limit
ACT	Annual Catch Target
ALWTRP	Atlantic Large Whale Take Reduction Plan
AM	Accountability Measure
ASAP	Age Structured Assessment Program (A Statistical Catch at Age Model)
ASPIC	A Stock Production Model Incorporating Covariates (A Surplus Production Model)
BMSY	Biomass at Maximum Sustainable Yield
CEA	Cumulative Effects Analysis
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CV	Coefficient of Variation
CZMA	Coastal Zone Management Act
DOC	Department of Commerce
DPS	Distinct Population Segment
CS	Consumer Surplus
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
FR	Federal Register
FMP	Fishery Management Plan
FMSY	Fishing Mortality Rate at Maximum Sustainable Yield
FONSI	Finding of No Significant Impact
FY	Fishing Year
GARFO	Greater Atlantic Regional Fisheries Office (formerly NERO/Northeast Regional Office)
IFQ	Individual Fishing Quota
IRFA	Initial Regulatory Flexibility Analysis
LNG	Liquified Natural Gas
LOF	List of Fisheries
MAFMC	Mid-Atlantic Fishery Management Council
MC	Monitoring Committee
MMPA	Marine Mammal Protection Act
MFMT	Maximum Fishing Mortality Threshold
MRFSS	Marine Recreational Fisheries Statistical Survey
MRIP	Marine Recreational Information Program
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSRA	Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006
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
mt	metric tons
OFL	Overfishing Limit
OY	Optimal Yield
PRA	Paperwork Reduction Act
PS	Producer Surplus

RFA	Regulatory Flexibility Analysis
RIR	Regulatory Impact Review
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SBA	Small Business Administration
SBRM	Standardized Bycatch Reporting Methodology
SSB	Spawning Stock Biomass
SSBMSY	Spawning Stock Biomass at Maximum Sustainable Yield
SSC	Scientific and Statistical Committee
TAL	Total Allowable Landings
U.S.	United States
USFWS	U.S. 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	VI
3.0 TABLE OF CONTENTS	8
<i>ENVIRONMENTAL ASSESSMENT</i>	12
4.0 INTRODUCTION AND BACKGROUND OF SPECIFICATION PROCESS	12
4.1 PURPOSE AND NEED OF THE ACTION	12
5.0 MANAGEMENT ALTERNATIVES	15
5.1 ALTERNATIVE 1 - PREFERRED (2015, 2016, 2017)	16
5.2 ALTERNATIVE 2 - NON-PREFERRED: STATUS QUO/NO ACTION (2015, 2016, 2017)	18
5.3 ALTERNATIVE 3 - NON-PREFERRED: SSC AND MC RECOMMENDED (2015, 2016, 2017)	18
6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES	20
6.1 DESCRIPTION OF THE MANAGED RESOURCE	20
6.1.1 Description of the Fisheries	20
6.1.2 Description of the Stock (Including Status, Stock Characteristics, and Ecological Relationships)	21
6.1.3 Non-Target Species	22
6.2 HABITAT (INCLUDING ESSENTIAL FISH HABITAT)	22
6.2.1 Physical Environment	24
6.2.2 Essential Fish Habitat (EFH)	25
6.2.3 Fishery Impact Considerations	26
6.3 ESA-LISTED SPECIES AND MMPA PROTECTED SPECIES	27
6.3.1 Species in the Fisheries Environment	27
6.3.2 Commercial Fisheries Interactions	28
6.3.3 Description of Species with Interactions	28
6.4 HUMAN COMMUNITIES AND ECONOMIC ENVIRONMENT	30
6.4.1 Fishery Descriptions	30
6.4.2 Description of the Areas Fished	31
6.4.3 Port and Community Description	31
6.4.4 Vessels, Permits, Dealers, and Markets	34
7.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES	36
7.1 BIOLOGICAL IMPACTS	39
7.1.1 Alternative 1 - Preferred (2015, 2016, 2017)	41
7.1.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)	42
7.1.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)	43
7.2 HABITAT	44
7.2.1 Alternative 1 - Preferred (2015, 2016, 2017)	44
7.2.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)	45
7.2.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)	46
7.3 ESA-LISTED SPECIES AND MMPA PROTECTED SPECIES	46
7.3.1 Alternative 1 - Preferred (2015, 2016, 2017)	46
7.3.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)	48
7.3.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)	48
7.4 SOCIOECONOMIC IMPACTS	49
7.4.1 Alternative 1 - Preferred (2015, 2016, 2017)	50
7.4.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)	52
7.4.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)	53
7.5 CUMULATIVE EFFECTS ANALYSIS	54
7.5.1 Consideration of the VECs	54

7.5.2 Geographic Boundaries	55
7.5.3 Temporal Boundaries	55
7.5.4 Actions Other Than Those Proposed in this Amendment	55
7.5.5 Magnitude and Significance of Cumulative Effects.....	58
7.5.6 Preferred Action on all the VECS.....	73
8.0 APPLICABLE LAWS	74
8.1 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (MSA).....	74
8.1.1 National Standards	74
8.2 NEPA FINDING OF NO SIGNIFICANT IMPACT (FONSI)	74
8.3 ENDANGERED SPECIES ACT	79
8.4 MARINE MAMMAL PROTECTION ACT	79
8.5 COASTAL ZONE MANAGEMENT ACT	79
8.6 ADMINISTRATIVE PROCEDURE ACT	79
8.7 SECTION 515 (DATA QUALITY ACT)	80
8.8 PAPERWORK REDUCTION ACT.....	81
8.9 IMPACTS OF THE PLAN RELATIVE TO FEDERALISM/EO 13132.....	81
8.10 ENVIRONMENTAL JUSTICE/EO 12898	81
8.11 REGULATORY IMPACT REVIEW / INITIAL REGULATORY FLEXIBILITY ANALYSIS.....	81
8.11.1 Evaluation of EO 12866 Significance.....	82
8.11.2 Initial Regulatory Flexibility Analysis	95
8.11.3 Other Impacts	114
9.0 LITERATURE CITED.....	117
10.0 LIST OF AGENCIES AND PERSONS CONSULTED	119
APPENDIX A	120

LIST OF FIGURES

Figure 1. Commercial U.S. Golden Tilefish Landings from Maine-Virginia, 1970-2013. Source: 1970-1993 Tilefish FMP. 1994-2013 NMFS unpublished dealer data.....	21
Figure 2. Landings, ex-vessel value, and price for tilefish, Maine through Virginia combined, 1999-2013. Note: Prices were adjusted to 2013 values using the Bureau of Labor Statistics Producer Price Index.	30
Figure 3. NMFS Statistical Areas.	33

LIST OF TABLES

Table 1. Comparison of the tilefish alternatives for 2015, 2016, and 2017 and associated catch and landings limits.	17
Table 2. Summary of management measures and landings for FY ^a 2002 through 2014.	21
Table 3. Catch disposition for directed tilefish trips ^a , Maine through Virginia, 2004-2013 combined.....	23
Table 4. Tilefish commercial landings ('000 lb live weight) by gear, Maine through Virginia, 2009-2013 combined.....	26
Table 5. Species endangered and threatened under the ESA that are found in the environment utilized by the tilefish fishery. DPS = Distinct Population Segment.	29
Table 6. Commercial Fisheries Classification based on 2014 List of Fisheries (LOF).	29
Table 7. Landings, ex-vessel value, and price of tilefish by size category, from Maine-Virginia, 2009 through 2013, combined.	31
Table 8. Tilefish percent landings by statistical area and year, 1996-2013.....	32
Table 9. Top ports of landing (in lb) for golden tilefish, based on NMFS 2012 - 2013 dealer data. Since this table includes only the “top ports,” it may not include all of the landings for the year. (Note: values in parenthesis correspond to IFQ vessels).	34
Table 10. Ports that generated 1% or greater of total revenues from golden tilefish, 2009-2013.	34
Table 11. Dealers reporting buying golden tilefish, by state in 2012 - 2013.	35
Table 12. Dealer dependence on tilefish, 2009-2013.....	35
Table 13. Summary of the commercial quotas for each of the quota-based alternatives.	36
Table 14. The percentage difference between the proposed commercial quotas under each alternative and the 2013 commercial landings and <i>status quo</i> 2014 quotas.	37
Table 15. Changes in fishing effort as a result of adjustments to quota and/or fish availability.	40
Table 16. 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).	59
Table 17. Summary of the effects of past, present, and reasonably foreseeable future actions on the managed resource.....	64
Table 18. Summary of the effects of past, present, and reasonably foreseeable future actions on the non-target species.	66
Table 19. Summary of the effects of past, present, and reasonably foreseeable future actions on the habitat.	68
Table 20. Summary of the effects of past, present, and reasonably foreseeable future actions on the protected resources.....	70
Table 21. Summary of the effects of past, present, and reasonably foreseeable future actions on human communities.....	72
Table 22. Magnitude and significance of the cumulative effects; the additive and synergistic effects of the 2015-2017 preferred action, as well as past, present, and future actions.	73
Table 23. Qualitative comparison summary of economic effects on the 2015, 2016, and 2017 regulatory alternatives relative to the baseline.	92
Table 24. Change in landings and revenues associated with each proposed commercial quota for the 2015-2017 fishing years compared to the baseline period.	94
Table 25: Small entities average revenues and tilefish revenues, 2010-2012.	98
Table 26: Small entities average revenues and tilefish revenues for entities generating on average \$10,000 or more of their total revenues from tilefish revenues, 2010-2012.	98

Table 27. Threshold analysis of revenue impacts for participating vessels associated with the preferred alternative 1 for 2015.	101
Table 28. Review of revenue impacts under preferred alternative 1 for 2015, by home port state.	101
Table 29. Other 2013 permits held by the 7 vessels holding tilefish permits projected to have revenue reductions in the 5 percent or more range under preferred alternative 1 in 2015.	103
Table 30. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2015) based on 2013 descriptive data from NMFS permit files under preferred alternative 1 for 2015. No vessel characteristics data are reported for states with fewer than 3 permits. ...	104
Table 31. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under preferred alternative 1 for 2015 (holding permits for tilefish) by state, county and home port, from 2013 NMFS permit files.	105
Table 32. Threshold analysis of revenue impacts for participating vessels associated with the preferred alternative 1 for 2016.	105
Table 33. Review of revenue impacts under preferred alternative 1 for 2016, by home port state.	106
Table 34. Other 2013 permits held by the 7 vessels holding tilefish permits projected to have revenue reductions in the 5 percent or more range under preferred alternative 1 in 2016.	107
Table 35. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2016 based on 2013 descriptive data from NMFS permit files under preferred alternative 1 for 2016.	107
Table 36. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under preferred alternative 1 for 2016 (holding permits for tilefish) by state, county and home port, from 2013 NMFS permit files.	108
Table 37. Threshold analysis of revenue impacts for participating vessels associated with the non-preferred alternative 3 for 2017.	110
Table 38. Counties identified as having ≥ 5 commercial vessels showing revenue reductions of 5 percent or more as a consequence of the most restrictive quota scenario (2015-2017 preferred alternative 1) evaluated in this document (section 8.11.2.7.1).	116

ENVIRONMENTAL ASSESSMENT

4.0 INTRODUCTION AND BACKGROUND OF SPECIFICATION PROCESS

4.1 PURPOSE AND NEED OF THE ACTION

The purpose of this action (specifications document) is to implement commercial quotas for the tilefish fishery in 2015, 2016, and 2017. The need for this action is 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 National Environmental Protection Act (NEPA), the former being the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ), and the Tilefish Fishery Management Plan (FMP). Failure to specify management measures that constrain catch to prevent overfishing for tilefish would be inconsistent with the National Standards under the MSA. The management regime and objectives of the fishery are detailed in the FMP, including any subsequent amendments, and are available at:

<http://www.mafmc.org>.

The MSA requires each Council's Scientific and Statistical Committee (SSC) to provide recommendations for acceptable biological catch (ABC), preventing overfishing, and maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the Monitoring Committees (MCs) established in the FMP for each managed resource are responsible for developing recommendations for the Council on the management measures necessary to achieve the recommended catch limits, including annual catch targets (ACTs) for each species. A memo from the SSC chairman to the Council chair, dated March 19, 2014 (available at (<http://www.mafmc.org>), provides details on the derivation of ABC for the managed resource and highlights the specific sources of scientific uncertainty that were of particular relevance to the SSC deliberation. Briefing materials for the April 2014 Council Meeting (available at <http://www.mafmc.org>) detail the MC recommendations for ACTs that account for management uncertainty, and other recommended changes to management measures for the commercial fishery. An overview of the SSC and MC recommendations is provided below.

The SSC identified an overfishing limit (OFL) for tilefish for 2015, 2016, and 2017, of 2.180 M lb (989 mt), 2.343 M lb (1,063 mt), and 2.405 M lb (1,091 mt), respectively. The OFL is the maximum amount of catch that can be removed from the stock without causing overfishing, and is derived using the maximum fishing mortality threshold (MFMT) rate as applied to the projected stock size. The SSC identified tilefish as a Level 3 assessment and recommended an ABC for 2015, 2016, and 2017, of 1.766 M lb (801

² Magnuson-Stevens Fishery Conservation and Management Act (MSA), portions retained plus revisions made by the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (MSRA).

mt), 1.898 M lb (861 mt), and 1.949 M lb (884 mt)³, respectively. These are based on the Council risk policy for a typical stock, assuming a lognormal OFL distribution with a coefficient of variation (CV) = 100 percent. As defined in the Omnibus ACLs and AMs Amendment, ABC is equivalent to ACL.

The MC recommended the annual catch targets (ACTs) be set equal to their respective ACLs for 2015, 2016, and 2017. The MC recommended that the ACTs be adjusted for discards (0.011 M lb or 5 mt) to derive the total allowable landings (TAL). The 2015, 2016, and 2017 recommended TALs are 1.755 M lb (796 mt), 1.887 M lb (856 mt), and 1.938 M lb (879 mt) for 2015, 2016, and 2017, respectively. The resulting MC recommended IFQ quota and incidental quota for 2015, respectively, are 1,667,136 lb (756.2 mt) and 87,744 lb (39.8 mt); for 2016, they are 1,792,799 lb (813.20 mt) and 94,357 lb (42.80 mt), respectively; and for 2017, they are 1,840,970 lb (835.05 mt) and 96,893 lb (43.95 mt), respectively⁴.

After consideration of the SSC and MC's recommendations, the Council has developed recommendations to the NMFS Greater Atlantic Regional Administrator, with those alternatives recommended by the Council identified in this specifications document as "preferred". The Regional Administrator will review the recommendations forwarded through this document and may revise them if necessary to achieve FMP objectives and statutory requirements. This specifications document serves a dual purpose. It conveys the Council recommendations (i.e., preferred alternative) to the Regional Administrator and also serves as a decision document for the Regional Administrator, who reviews the analysis of impacts of the various management alternatives presented here and determines which alternative achieves the FMP objectives as well as the objectives and statutory requirements under MSA and other applicable laws.

This Environmental Assessment (EA) examines the impacts of each proposed action and their alternatives on the human environment. The 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). These VECs comprise the affected environment and are specifically defined as the managed resource (tilefish) and any non-target species; habitat, including Essential Fish Habitat (EFH) for the managed resource and non-target species; Endangered Species Act (ESA) listed and Marine Mammal Protection Act (MMPA) protected species; and any human communities (social and economic aspects of the environment). The impacts of the alternatives are evaluated with respect to these VECs.

All management alternatives under consideration for tilefish were analyzed for 2015-2017. A full description of each catch limit/quota alternative is given for 2015, 2016, and 2017. In this specifications document, the no action alternative and the *status quo* alternative are the same. The *status quo* alternatives used in the analysis for 2015-2017

³ Note the Council reduced the SSC recommended ABC for 2017 (see Table 1).

⁴ Note the Council reduced the MC recommended catch and landings limits for 2017 (see Table 1).

include commercial quotas that have been in place since the FMP became effective in 2009. These recommendations and their impacts are described in section 7.0.

5.0 MANAGEMENT ALTERNATIVES

The proposed alternatives described below modify the specifications for the tilefish fishery for 2015-2017. The Council recommended ACLs and ACTs, from which preferred commercial quotas are derived for these fishing years, based on the Council's SSC advice on ABCs and scientific uncertainty, and MC advice on management uncertainty (see section 4.1). The Council did not recommend changes to other regulations in place for this fishery; therefore, any other fishery management measures in place will remain unchanged (*status quo*) for the 2015-2017 fishing years. Comprehensive descriptions of the regulations for tilefish as detailed in the Code of Federal Regulations (CFR) are available through the website for the Greater Atlantic Regional Fisheries Office (GARFO) of NMFS: <http://www.nero.noaa.gov/nero/regs/>.

Under the management program for tilefish detailed in the FMP, the no action alternative is equivalent to the *status quo* alternative (see below for additional discussion). Therefore, for purposes of comparing impacts throughout this document, the proposed alternatives for tilefish are compared to the no action or *status quo* alternative (baseline). The tilefish regulations specify that the tilefish quota would remain at 1.995 M lb unless modified by the annual specifications process (section 648.292(b)).

The comprehensive system of catch limits and accountability measures considers both scientific and management uncertainty, and is designed to ensure commercial catch does not exceed the ACL, which is equal to the ABC. The amount of total catch, landings, and discards produced in this fishery in 2015-2017 is contingent on how the fishery regulations including IFQs and incidental landings interact to achieve the specific levels of overall commercial quotas implemented. Therefore, for the purposes of impact analyses, changes in the commercial quotas and associated landings are expected to drive any anticipated changes in effort and impacts on the valued VECs considered in this EA.

The catch and landings limits that were recommended under the preferred alternatives, including commercial quotas, are given below in Table 1. Given changes in the underlying commercial quotas and landings levels are the focus of the impacts analysis, a meaningful comparison can be done without those other levels being provided for non-preferred alternatives.

Section 5.03(b) of NOAA Administrative Order (NAO) 216-6, "Environmental review procedures for implementing the National Environmental Policy Act," states that "an Environmental Assessment (EA) must consider all reasonable alternatives, including the preferred action and the no action alternative." Consideration of the "no action" alternative is important because it shows what would happen if the proposed action is not taken. Defining exactly what is meant by the "no action" alternative is often difficult. The President's Council on Environmental Quality (CEQ) has explained that there are two distinct interpretations of the "no action." One interpretation is essentially the *status quo*, i.e., no change from the current management; and the other interpretation is when a proposed project, such as building a railroad facility, does not take place. In the case of the proposed 2015-2017 catch limit alternatives for tilefish, the no action alternative is

equivalent to the *status quo* alternative. The *status quo* management for the tilefish fishery involve a set of indefinite (i.e., in force until otherwise changed) management measures, such as an incidental trip limit, recreational possession limit, tilefish GRAs, permit, vessel, quota, and reporting requirements. These measures will continue as they are even if the proposed specifications are not implemented by NMFS. The current management program includes catch and landings limits that are specific to the 2013-2014 fishing year.

There are “roll-over” provisions for this fishery currently provided for in the FMP that do not require action on the part of NMFS. Specifically, Section 648.292(c) states that the previous year's specifications will remain effective unless revised through the specifications process and/or a research quota process.

The no action or *status quo* alternative allows NMFS to specify and implement ACLs and commercial quotas for this fishery, as required in the regulations at 50 CFR part 648, for the upcoming fishing year. Monitoring the IFQ and incidental landings is essential for management of this fishery and forms the backbone of the current IFQ quota-based management systems under the FMP. Therefore, the alternatives proposed for catch and landings limits are compared to the no action or *status quo* (baseline) alternatives for 2015-2017.

5.1 Alternative 1 - Preferred (2015, 2016, 2017)

After consideration of the SSC and MC recommendations, the Council developed recommendations (preferred alternatives) similar to those made by the SSC and MC for 2015 and 2016. For 2017, the Council endorsed the OFL of 2.405 M lb (1,091 mt) as recommended by the SSC. However, all the other catch and landings components recommended by the Council for 2017 are equal to those recommended by the SSC and MC for 2016. The Council took into consideration industry input and maintained the 2016 ABC, ACL, ACT, TAL, total IFQ amount, and incidental category quota amount in 2017 in order to maintain fishery stability. Therefore, the catch and landings component for 2017 under the preferred alternative 1 are slightly lower than those recommended by the SSC and MC for 2017 (see alternative 3 in section 5.3 for additional details).

Alternative 1 (2015)

The preferred alternative 1 in 2015 includes an ABC of 1.766 M lb (801 mt). This ABC is 81 percent of the OFL, is associated with a 40 percent probability of overfishing consistent with the Council's risk policy, and is expected by the Council and the SSC to ensure that overfishing does not occur. The ACL is set equal to the ABC. This alternative also includes an ACT equal to 1.766 M lb (801 mt). After deducting discards (0.011 M lb or 5 mt), the commercial TAL is 1.755 M lb (796 mt), resulting in a total IFQ amount of 1,667,136 lb (756.20 mt) and an incidental category quota amount of 87,744 lb (39.80 mt).

Table 1. Comparison of the tilefish alternatives for 2015, 2016, and 2017 and associated catch and landings limits.

Alternative	Year	OFL	ABC	ACL	ACT	TAL	Commercial Component	Commercial Quota
Alternative 1 (Preferred)	2015	2.180 M lb (989 mt)	1.766 M lb (801 mt)	1.766 M lb (801 mt)	1.766 M lb (801 mt)	1.755 M lb (796 mt)	IFQ vessels	1,667,136 lb (756.20 mt)
							Incidental vessels	87,744 lb (39.80 mt)
	2016	2.343 M lb (1,063 mt)	1.898 M lb (861 mt)	1.898 M lb (861 mt)	1.898 M lb (861 mt)	1.887 M lb (856 mt)	IFQ vessels	1,792,799 lb (813.20 mt)
							Incidental vessels	94,357 lb (42.80 mt)
	2017	2.405 M lb (1,091 mt)	1.898 M lb (861 mt)*	1.898 M lb (861 mt)	1.898 M lb (861 mt)	1.887 M lb (856 mt)	IFQ vessels	1,792,799 lb (813.20 mt)
							Incidental vessels	94,357 lb (42.80 mt)
Alternative 2 (Non-Preferred: Status Quo/No Action)	2015	NA	2.013 M lb (913 mt)	2.013 M lb (913 mt)	2.013 M lb (913 mt)	1.995 M lb (905 mt)	IFQ vessels	1,895,250 lb (859.75 mt)
							Incidental vessels	99,750 lb (45.25 mt)
	2016	NA	2.013 M lb (913 mt)	2.013 M lb (913 mt)	2.013 M lb (913 mt)	1.995 M lb (905 mt)	IFQ vessels	1,895,250 lb (859.75 mt)
							Incidental vessels	99,750 lb (45.25 mt)
	2017	NA	2.013 M lb (913 mt)	2.013 M lb (913 mt)	2.013 M lb (913 mt)	1.995 M lb (905 mt)	IFQ vessels	1,895,250 lb (859.75 mt)
							Incidental vessels	99,750 lb (45.25 mt)
Alternative 3 (Non-Preferred: SSC and MC Recommended)	2015	2.180 M lb (989 mt)	1.766 M lb (801 mt)	1.766 M lb (801 mt)	1.766 M lb (801 mt)	1.755 M lb (796 mt)	IFQ vessels	1,667,136 lb (756.20 mt)
							Incidental vessels	87,744 lb (39.80 mt)
	2016	2.343 M lb (1,063 mt)	1.898 M lb (861 mt)	1.898 M lb (861 mt)	1.898 M lb (861 mt)	1.887 M lb (856 mt)	IFQ vessels	1,792,799 lb (813.20 mt)
							Incidental vessels	94,357 lb (42.80 mt)
	2017	2.405 M lb (1,091 mt)	1.949 M lb (884 mt)	1.949 M lb (884 mt)	1.949 M lb (884 mt)	1.938 M lb (879 mt)	IFQ vessels	1,840,970 lb (835.05 mt)
							Incidental vessels	96,893 lb (43.95 mt)

*The Council reduced the SSC recommended ABC of 1.949 m lb (884 mt) to 1.898 m lb (861 mt) for 2017.

Alternative 1 (2016)

The preferred alternative 1 in 2016 includes an ABC of 1.898 M lb (861 mt). This ABC is 81 percent of the OFL, is associated with a 40 percent probability of overfishing consistent with the Council's risk policy, and is expected by the Council and the SSC to

ensure that overfishing does not occur. The ACL is set equal to the ABC. This alternative also includes an ACT equal to 1.898 M lb (861 mt). After deducting discards (0.011 M lb or 5 mt), the commercial TAL is 1.887 M lb (856 mt), resulting in a total IFQ amount of 1,792,799 lb (813.20 mt) and an incidental category quota amount of 94,357 lb (42.80 mt).

Alternative 1 (2017)

The preferred alternative 1 in 2017 contains catch and landings levels equivalent to those presented under preferred alternative 1 for 2016. However, under this alternative the ABC is 79 percent of the OFL.

5.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)

Alternative 2 (2015)

Non-preferred alternative 2 in 2015 is the *status quo*/no action alternative and it would implement the same catch and landings levels implemented by the Council for the 2014 fishing year 2014. When developing tilefish recommendations for 2013-2014, the tilefish assessment was deemed a Level 4 stock; no OFL estimates were recommended by the SSC. The Council implemented a constant landings policy for 2013-2014. More specifically, the Council recommended an ABC of 2.013 M lb (913.00 mt). The Council also recommended the ABC = ACL = ACT. After deducting discards (0.018 M lb or 8 mt), the commercial TAL was 1.995 M lb (905 mt), resulting in a total IFQ amount of 1,895,250 lb (859.75 mt) and an incidental category quota amount of 99,750 lb (45.25 mt) for 2013-2014.

Alternative 2 (2016)

Non-preferred alternative 2 in 2016 is the same as described under the non-preferred alternative 2 for 2015 (see above).

Alternative 2 (2017)

Non-preferred alternative 2 in 2017 is the same as described under the non-preferred alternative 2 for 2015 (see above).

5.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)

Alternative 3 in 2015-2017 contains the recommendations made by the SSC and MC. Alternative 3 measures for 2015 and 2016 are identical to those under alternative 1 for 2015 and 2016. However, alternative 3 for 2017 contains the catch and landings limits recommended by the SSC and MC that were not considered preferred by the Council (see section 5.1 for additional details).

Alternative 3 (2015)

Non-preferred alternative 3 in 2015 is the same as described under the preferred alternative 1 for 2015 (see section 5.1).

Alternative 3 (2016)

Non-preferred alternative 3 in 2016 is the same as described under the preferred alternative 1 for 2016 (see section 5.1).

Alternative 3 (2017)

The non-preferred alternative 3 for 2017 includes an ABC of 1.949 M lb (884 mt). This ABC is 81 percent of the OFL, is associated with a 40 percent probability of overfishing consistent with the Council's risk policy, and is expected by the Council and the SSC to ensure that overfishing does not occur. The ACL is set equal to the ABC. This alternative also includes an ACT equal to 1.949 M lb (884 mt). After deducting discards (0.011 M lb or 5 mt), the commercial TAL is 1.938 M lb (879 mt), resulting in a total IFQ amount of 1,840,970 lb (835.05 mt) and an incidental category quota amount of 96,893 lb (43.95 mt).

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 is all golden tilefish (*Lopholatilus chamaeleonticeps*) under U.S. jurisdiction in the Atlantic Ocean north of the Virginia/North Carolina border. The commercial fisheries for tilefish are fully described in Amendment 1 to the FMP (MAFMC 2009) and are also outlined by principal port in section 6.4 of that document. Tilefish are primarily caught by bottom longline gear (directed fishery) and otter trawl gear (incidental fishery). An overview of landings for this fishery is provided below. Additional information on the tilefish fishery can be found in Council meeting materials available at: <http://www.mafmc.org>.

For the 1970 to 2013 calendar years, golden tilefish landings have ranged from 128 thousand pounds (1970) to 8.7 million pounds (1979). Since 2001, tilefish landings have ranged from 1.5 (2005) to 2.5 (2004) million pounds. In 2013, 1.7 million pounds of tilefish were landed (Figure 1).

Table 2 summarizes the tilefish management measures for the 2002-2014 fishing years (FY). With the exception of FY 2003, 2004, and 2010 commercial tilefish landings have been below the commercial quota specified each year since the Tilefish FMP was first implemented. As a result of the decision of the *Hadaja v. Evans* lawsuit, the permitting and reporting requirements for the FMP were postponed for close to a year (May 15, 2003 through May 31, 2004). During that time period, it was not mandatory for permitted tilefish vessels to report their landings. In addition, during that time period, vessels that were not part of the tilefish limited entry program also landed tilefish.

A small recreational fishery briefly occurred during the mid 1970's, with less than 100,000 pounds annually (MAFMC 2001). Subsequent recreational catches have been low for the 1982 - 2013 period, ranging from zero for most years to approximately 30,000 fish in 2010 according to NMFS recreational statistics. In addition, the 2014 stock assessment indicates that recreational catches appear to be a minor component of the total removals (NEFSC 2014).

VTR data indicates that the number of tilefish caught by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 6,535 fish in 2013. Mean party/charter effort ranged from less than one fish per angler in 1999 throughout 2002 and 2005 to approximately eight fish per angler in 1998, averaging 2.0 fish for the entire time series.

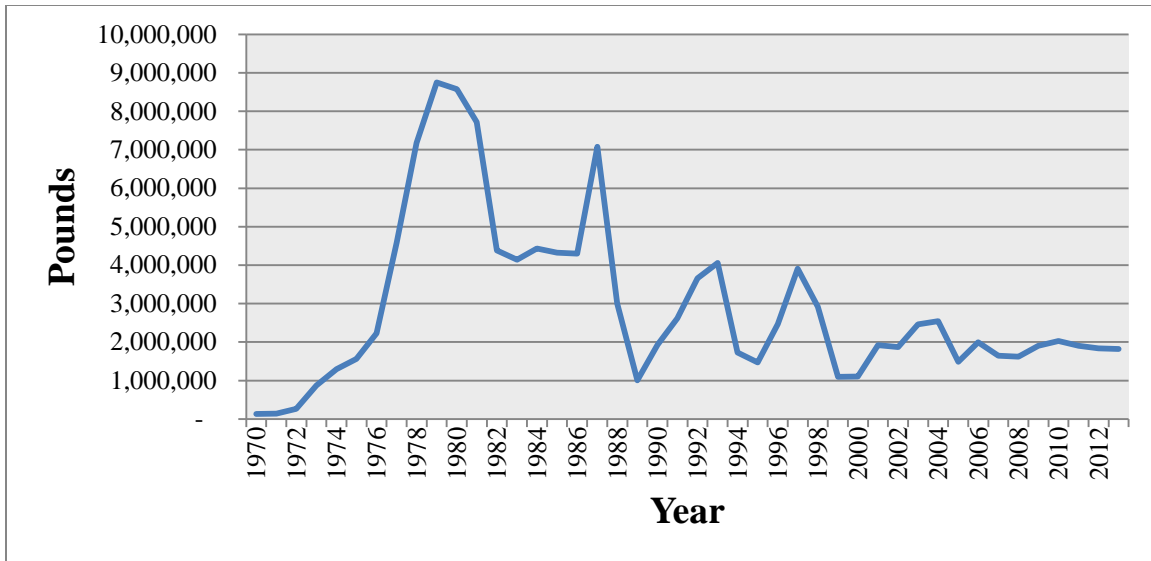


Figure 1. Commercial U.S. Golden Tilefish Landings from Maine-Virginia, 1970-2013. Source: 1970-1993 Tilefish FMP. 1994-2013 NMFS unpublished dealer data.

Table 2. Summary of management measures and landings for FY^a 2002 through 2014.

Management measures	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ABC (m lb)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.013	2.013
TAL (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995
Com. quota-initial (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995
Com. quota-adjusted (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995
Com. landings	1.935	2.318 ^b	2.647 ^b	1.497	1.897	1.777	1.672	1.887	1.997	1.946	1.873	1.817	-
Com. overage/underage (m lb)	-0.060	+0.323	+0.652	-0.498	-0.098	-0.218	-0.323	-0.108	+0.002	-0.049	-0.122	-0.178	-
Incidental trip limit (lb)	300	300	300	133	300	300	300	300	300	300	500	500	500
Rec. possession limit	-	-	-	-	-	-	-	-	8 ^c	8 ^c	8 ^c	8 ^c	8 ^c

^a FY 2002 (November 1, 2001 - October 31, 2002).

^b Lawsuit period (see text above).

^c Eight fish per person per trip.

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

Reports on stock status, including Stock Assessment Workshop (SAW) reports, and Stock Assessment Review Committee (SARC) reports, and assessment update reports are available online at the Northeast Fisheries Science Center (NEFSC) website: <http://www.nefsc.noaa.gov/>. The EFH Source Document, which includes details on stock characteristics and ecological relationships, is available at the following website: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>.

The tilefish stock assessment was peer reviewed and approved for use by management at Stock Assessment Workshop 58 (SAW 58). A statistical catch at age model called ASAP (Age Structured Assessment Program) was used in this assessment to incorporate newly available length and age data to better characterize the population dynamics of the stock. The tilefish resource is not overfished and overfishing is not occurring in 2012. SSB was estimated be 11.53 million lb (5,229 mt) in 2012, about 101% of the biomass target SSB_{MSY} proxy = $SSB_{25\%}$ = 11.36 million lb (5,153 mt)⁵. The fishing mortality rate was estimated to be 0.275 in 2012, below the fishing mortality threshold F_{MSY} proxy = $F_{25\%}$ = 0.370.

The reference points from the previous 2009 SAW 48 assessment were based on the ASPIC surplus production model and cannot be compared to the current assessment ASAP (SAW 58) model results and biological reference points (NEFSC 2014). The tilefish reference points derived from SAW 48 and prior assessments were based on B_{MSY} and F_{MSY} values, and these values were used as the specific basis for the rebuilding program in the FMP. Since new reference points were developed in SAW 58, these would have to be updated in the FMP in a following action.

6.1.3 Non-Target Species

The term "bycatch" as defined by the MSA, means fish that are harvested in a fishery but that are not sold or kept for personal use. Bycatch includes the discard of whole fish at sea or elsewhere, including economic and regulatory discards, and fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality).

According to VTR data, very little (< 0.2%) discarding was reported by longline vessels that targeted tilefish for the 2004 through 2013 period (Table 3). In addition, the 2014 stock assessment indicates that approximately 95% of the commercial landings are taken by the directed longline fishery, and that tilefish discards in the trawl and longline fishery are negligible (NEFSC 2014).

6.2 Habitat (Including Essential Fish Habitat)

A description of the habitat associated with the tilefish fishery is presented in Amendment 1 to the FMP (MAFMC 2009), and a brief summary of that information is given here. The impact of fishing on tilefish habitat (and EFH) and the impact of the tilefish fishery on other species' habitat and EFH can be found in the original FMP (MAFMC 2001) and in Amendment 1 to the FMP (MAFMC 2009). Potential impacts associated with the measures proposed in this specifications document on habitat (including EFH) are discussed in section 7.2.

⁵ NMFS has notified Council that tilefish is rebuilt.

Table 3. Catch disposition for directed tilefish trips^a, Maine through Virginia, 2004-2013 combined.

Common Name	Kept lb	% species	% total	Discarded lb	% species	% total	Total lb	Disc: Kept Ratio
GOLDEN TILEFISH	16,363,998	100.00%	99.48%	0	0.00%	0.00%	16,363,998	0.00
SPINY DOGFISH	44,100	70.45%	0.27%	18,500	29.55%	58.85%	62,600	0.42
BLUELINE TILEFISH	9,626	100.00%	0.06%	0	0.00%	0.00%	9,626	0.00
CONGER EEL	8,051	94.15%	0.05%	500	5.85%	1.59%	8,551	0.06
BLACK BELLIED ROSEFISH	3,477	100.00%	0.02%	0	0.00%	0.00%	3,477	0.00
SKATES	3,201	67.66%	0.02%	1,530	32.34%	4.87%	4,731	0.48
SNOWY GROUPER	3,100	100.00%	0.02%	0	0.00%	0.00%	3,100	0.00
TILEFISH OTHER	2,692	100.00%	0.02%	0	0.00%	0.00%	2,692	0.00
DOGFISH SMOOTH	2,294	78.72%	0.01%	620	21.28%	1.97%	2,914	0.27
ELL OTHER	1,485	100.00%	0.01%	0	0.00%	0.00%	1,485	0.00
BLUEFISH	998	24.53%	0.01%	3,070	75.47%	9.77%	4,068	3.08
WRECKFISH	984	100.00%	0.01%	0	0.00%	0.00%	984	0.00
MONKFISH	868	100.00%	0.01%	0	0.00%	0.00%	868	0.00
YELLOWFIN TUNA	770	100.00%	0.00%	0	0.00%	0.00%	770	0.00
BLACK SEA BASS	497	100.00%	0.00%	0	0.00%	0.00%	497	0.00
MAKO SHORTFIN SHARK	465	100.00%	0.00%	0	0.00%	0.00%	465	0.00
AMERICAN EEL	460	100.00%	0.00%	0	0.00%	0.00%	460	0.00
BLUEFIN TUNA	440	91.67%	0.00%	40	8.33%	0.13%	480	0.09
RED HAKE	412	94.28%	0.00%	25	5.72%	0.08%	437	0.06
SILVER HAKE (WHITING)	296	96.42%	0.00%	11	3.58%	0.03%	307	0.04
OTHER FISH	218	100.00%	0.00%	0	0.00%	0.00%	218	0.00
MAKO SHARK OTHER	194	88.58%	0.00%	25	11.42%	0.08%	219	0.13
ALBACORE TUNA	183	100.00%	0.00%	0	0.00%	0.00%	183	0.00
MIX RED & WHITE HAKE	130	100.00%	0.00%	0	0.00%	0.00%	130	0.00
DOLPHIN FISH	119	100.00%	0.00%	0	0.00%	0.00%	119	0.00
COD	100	100.00%	0.00%	0	0.00%	0.00%	100	0.00
CUSK	97	100.00%	0.00%	0	0.00%	0.00%	97	0.00
PORBEAGLE SHARK	95	100.00%	0.00%	0	0.00%	0.00%	95	0.00
REDFISH	72	100.00%	0.00%	0	0.00%	0.00%	72	0.00
SUMMER FLOUNDER	72	100.00%	0.00%	0	0.00%	0.00%	72	0.00
WHITE HAKE	71	100.00%	0.00%	0	0.00%	0.00%	71	0.00

Table 3 (continued). Catch disposition for directed tilefish trips^a, Maine through Virginia, 2004-2013 combined.

Common Name	Kept lb	% species	% total	Discarded lb	% species	% total	Total lb	Disc: Kept Ratio
BLACK WHITING	24	100.00%	0.00%	0	0.00%	0.00%	24	0.00
POLLOCK	22	100.00%	0.00%	0	0.00%	0.00%	22	0.00
LOLIGO SQUID	20	100.00%	0.00%	0	0.00%	0.00%	20	0.00
AMBER JACK	18	100.00%	0.00%	0	0.00%	0.00%	18	0.00
BUTTERFISH	15	100.00%	0.00%	0	0.00%	0.00%	15	0.00
SKATE BARDOOR	0	0.00%	0.00%	2,599	100.00%	8.27%	2,599	--
DOGFISH CHAIN	0	0.00%	0.00%	1,001	100.00%	3.18%	1,001	--
TIGER SHARK	0	0.00%	0.00%	1,000	100.00%	3.18%	1,000	--
JONAH CRAB	0	0.00%	0.00%	785	100.00%	2.50%	785	--
BLUE SHARK	0	0.00%	0.00%	645	100.00%	2.05%	645	--
LOBSTER	0	0.00%	0.00%	614	100.00%	1.95%	614	--
SKATE ROSETTE	0	0.00%	0.00%	310	100.00%	0.99%	310	--
HAMMERHEAD SHARK	0	0.00%	0.00%	100	100.00%	0.32%	100	--
SHARK OTHER	0	0.00%	0.00%	60	100.00%	0.19%	60	--
ALL SPECIES	16,449,664	99.81%	100.00%	31,435	0.19%	100.00%	16,481,099	0.00

^a Directed trips for tilefish were defined as trips comprising 75 percent or more by weight of tilefish landed. Number of trips = 1,155.

6.2.1 Physical Environment

Detailed information on the affected physical and biological environments inhabited by the managed resource is available in Stevenson et al. (2004). Tilefish inhabit the Northeast U.S. Shelf Ecosystem, which has been described as including 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 m. Four distinct sub-regions comprise the NOAA Fisheries Greater Atlantic Region: 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, NC. 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 potentially be affected by the proposed action overlaps with EFH for the managed resource. The following sections describe where to find detailed information on EFH and any past actions taken in the FMPs to minimize adverse EFH effects to the extent practicable.

6.2.2 Essential Fish Habitat (EFH)

Information on tilefish habitat requirements can be found in the document titled, "Essential Fish Habitat Source Document: Tilefish, *Lopholatilus chamaeleonticeps*, Life History and Habitat Characteristics" (Steimle et al. 1999). An electronic version of this source document is available at the following website:

<http://www.nefsc.noaa.gov/nefsc/habitat/efh/>.

The current designation of EFH by life history stage for tilefish is provided here:

Eggs and Larvae: EFH for tilefish eggs and larvae is the water column on the outer continental shelf and slope from the U.S./Canadian boundary to the Virginia/North Carolina boundary in mean water column temperatures between 7.5°C and 17.5°C (45.5°F to 63.5°F).

Juveniles and Adults: EFH for tilefish juveniles and adults is semi-lithified clay substrate on the outer continental shelf and slope from the U.S./Canadian boundary to the Virginia/North Carolina boundary in bottom water temperatures which range from 9°C to 14°C (48.2°F to 57.2°F), which generally occur in depths between 100 and 300 meters (328 to 984 ft). Tilefish create horizontal or vertical burrows in semi-lithified clay sediments, a substrate type with cohesive properties that allow the burrows to maintain their shape. Tilefish may also utilize rocks, boulders, scour depressions beneath boulders, and exposed rock ledges as shelter.

Although the revised designations emphasize temperature and substrate type (clay) over depth as being indicative of EFH, depth was used for the purposes of mapping the EFH designations. Depth is fixed and not seasonally variable, therefore the depth ranges that define the area where the preferred bottom temperatures conditions typically prevail (100 to 300 meters, or 328 ft to 984 ft) were used to create maps of benthic EFH for juvenile and adult tilefish on the outer continental shelf and slope from the U.S./Canadian boundary to the Virginia/North Carolina boundary.

Tilefish are primarily caught by bottom longline and otter trawl. Based on dealer data from 2009-2013, the bulk of the tilefish landings are taken by longline gear (98%) followed by bottom trawl gear (2%). No other gear had any significant commercial landings. Minimal catches were also recorded for hand line, dredge (other), gillnets, and lobster pot/traps (Table 4).

Table 4. Tilefish commercial landings ('000 lb live weight) by gear, Maine through Virginia, 2009-2013 combined.

Gear	Pounds	Percent
Otter Trawl Bottom, Fish	143	1.5
Otter Trawl Bottom, Scallop	1	*
Otter Trawl Bottom, Other	4	*
Otter Trawl, Midwater	3	*
Gillnet, Anchored/Sink/Other	8	*
Pots and Traps, Lobster, Inshore/Offshore Combined	*	*
Pots and Traps, Fish/Other Combined	*	*
Lines Hand	19	*
Lines Long Set with Hooks	9,272	97.7
Dredge, Other	3	*
Unknown, Other Combined Gears	37	*
All Gear	9,490	100

Note: * = less than 1,000 pounds or less than 1 percent.

There are other federally-managed species with lifestages that occupy essential benthic habitats that may be susceptible to adverse impacts from otter trawl gear; descriptions of these are given in Table 1 of Appendix A (from Stevenson et al. 2004) and are available at: <http://www.nero.noaa.gov/habitat/publications/publications.html>.

6.2.3 Fishery Impact Considerations

The directed commercial fishery for tilefish is largely by bottom longline gear. Otter trawls may also be used, but have limited utility because of the habitat preferred by tilefish. Otter trawls are only effective where the bottom is firm, flat, and free of obstructions. Soft mud bottom, rough or irregular bottom, or areas with obstructions, which are those that are most frequented by tilefish, are not conducive to bottom trawling. However, tilefish are often taken incidental to other directed fisheries, such as the trawl fisheries for lobster and flounder (Freeman and Turner 1977) and hake, squid, Atlantic mackerel and butterfish (NMFS, unpublished landings data).

A panel of experts who participated in a 2001 workshop to evaluate the potential habitat impacts of fishing gears used in the Northeast region concluded that longlines (which land the bulk of the tilefish) cause some low degree impacts in mud, sand, and gravel habitats. Bottom trawls, which account for nearly all of the rest of the landings, and which are mostly incidental catches, had the greatest impacts which occur in low and high energy gravel habitats and in hard clay outcroppings (NEFSC 2002).

Tilefish are restricted to the continental shelf break south of the Gulf of Maine (Steimle et al. 1999). They occupy a number of habitats, including scour basins around rocks or other rough bottom areas that form burrow-like cavities, and pueblo habitats in clay substrate. The dominant habitat type is a vertical burrow in a substrate of semi-hard silt-clay, 6 to 10 feet deep and 12 to 16 feet in diameter with a funnel shape. These burrows are excavated by tilefish, secondary burrows are created by other organisms, including lobsters, conger eels, and galatheid crabs. Tilefish are visual daytime feeders on galatheid crabs, mollusks, shrimps, polychaetes, and occasionally fish. Mollusks and echinoderms are more important to smaller tilefish. Little is known about juveniles of this species. A report to the Mid-Atlantic Fishery Management Council (Able and Muzeni 2002), based upon a review of archived video surveys in areas of tilefish habitat, did not find visual evidence of direct impacts to burrows due to otter trawls. The Northeast Region EFH Steering Committee Workshop (NEFSC 2002) concluded that there was the potential for a high degree of impact to the physical structure of hard clay outcroppings (pueblo village habitat) by trawls that would result in permanent change to a major physical feature which provides shelter for tilefish as well as their benthic prey. Although Able and Muzeni's (2002) review did not offer any evidence of this type of negative effect, their sample size for this habitat type was very small. Due to the tilefish's reliance on structured shelter and benthic prey, as well as the benthic prey's reliance on much of the same habitat, and the need for further study, the vulnerability of tilefish EFH to otter trawls was ranked as high (Stevenson et al. 2004). Clam dredges operate in shallow, sandy waters typically uninhabited by tilefish (Wallace and Hoff 2005), so EFH vulnerability was rated as none for this gear. Scallop vessel monitoring data indicate that scallop dredges operate to a small extent in areas overlapping tilefish EFH; therefore, EFH vulnerability to scallop dredges was ranked as low (Stevenson et al. 2004). Tilefish eggs and larvae are pelagic: therefore, EFH vulnerability to gear is not applicable.

Amendment 1 to the Tilefish FMP (MAFMC 2009) prohibited the use of bottom-tending mobile gear within specific areas of the Oceanographer, Lydonia, Veatch, and Norfolk canyons⁶. The gear restricted areas in these four canyons were chosen to providing protection to areas that are known to have clay outcrop/pueblo habitats.

6.3 ESA-Listed Species and MMPA Protected Species

6.3.1 Species in the Fisheries Environment

There are numerous species inhabiting the environment, within the management unit of tilefish, that are afforded protection under the Endangered Species Act (ESA) of 1973 (i.e., for those designated as threatened or endangered) and the Marine Mammal Protection Act of 1972 (MMPA). Table 5 provides species formally listed as threatened or endangered under the ESA, with 2 additional candidate species, that occur within the management unit for tilefish.

⁶ See tilefish regulations at: <http://www.nero.noaa.gov/reg/fr.html> for specific coordinates of the closed areas.

Two species (dusky shark and cusk) are candidate species for listing under the ESA (Table 5). Candidate species receive no substantive or procedural protection under the ESA (i.e., conference provisions requirement of the ESA applies only if a candidate species is proposed for listing); however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on candidate species from any proposed project. The Protected Resources Division of the NMFS GARFO has initiated a review of recent stock assessments, bycatch information, and other information for the candidate species. Any conservation measures deemed appropriate for these species will follow the information from these reviews. Section 6.3.2 below documents any commercial fishery interactions. More detailed description of the species listed in Table 5, including their environment, ecological relationships and life history information including recent stock status, is available at: http://www.nero.noaa.gov/prot_res/.

6.3.2 Commercial Fisheries Interactions

A description of the areas fished commercially for tilefish (i.e., area affected by the proposed action) is given in section 6.4.2. The directed commercial fishery for tilefish is prosecuted with bottom longline gear. While some tilefish (< 5 percent) are landed incidentally to other fisheries, those fisheries are not directly targeting tilefish. The List of Fisheries (LOF) classifies U.S. commercial fisheries into Categories according to the level of interactions that result in incidental mortality or serious injury of marine mammals (Table 6).

6.3.3 Description of Species with Interactions

There are no documented interactions with ESA-listed and MMPA protected species with bottom longline gear in the tilefish fishery. Detailed descriptions of other ESA-listed and MMPA protected species that are distributed within the management unit of tilefish are available at the following website: <http://www.nmfs.noaa.gov/pr/>. This site also contains general information on marine mammals (cetaceans and pinnipeds), marine turtles, marine and anadromous fish, and marine invertebrates and plants.

Table 5. Species endangered and threatened under the ESA that are found in the environment utilized by the tilefish fishery. DPS = Distinct Population Segment.

Species	Common name	Scientific Name	Status
Cetaceans	North Atlantic right	<i>Eubalaena glacialis</i>	Endangered
	Humpback	<i>Megaptera novaeangliae</i>	Endangered
	Fin	<i>Balaenoptera physalus</i>	Endangered
	Blue	<i>Balaenoptera musculus</i>	Endangered
	Sei	<i>Balaenoptera borealis</i>	Endangered
	Sperm	<i>Physeter macrocephalus</i>	Endangered
Sea Turtles	Leatherback	<i>Dermochelys coriacea</i>	Endangered
	Kemp's ridley	<i>Lepidochelys kempii</i>	Endangered
	Green	<i>Chelonia mydas</i>	Threatened
	Hawksbill	<i>Eretmochelys imbricata</i>	Endangered
	Loggerhead ⁷	<i>Caretta caretta</i>	Threatened
Fishes	Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered
	Atlantic salmon	<i>Salmo salar</i>	Endangered
	Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	Threatened - Gulf of Maine DPS
			Endangered - New York Bight DPS
			Endangered - Chesapeake Bay DPS
			Endangered - Carolina DPS
			Endangered - South Atlantic DPS
	Cusk	<i>Brosme brosme</i>	Candidate
Dusky shark	<i>Carcharhinus obscuras</i>	Candidate	

Table 6. Commercial Fisheries Classification based on 2014 List of Fisheries (LOF).

Fishery (Action Area)	Resource	Gears	LOF	Potential for Interactions
See section 6.4.2 for a description of the areas fished the managed resource	tilefish	U.S. Mid-Atlantic bottom longline	Cat. II	No documented interactions where marine mammal species and stocks incidentally killed or injured

⁷ Northwest Atlantic distinct population segment (DPS) of loggerhead turtles.

6.4 Human Communities and Economic Environment

A detailed description of the social and economic aspects of the fishery for tilefish was presented in Amendment 1 to the FMP (MAFMC 2009). Montauk, New York and Barnegat Light, New Jersey continue to be the ports with the vast amount of landings. Recent trends in the fishery are presented below.

6.4.1 Fishery Descriptions

Commercial tilefish ex-vessel revenues have ranged from \$2.5 to \$5.5 million for the 1999 through 2013 period (calendar year). The mean price for tilefish (adjusted) has ranged from \$1.03/lb in 2004 to \$3.27/lb in 2013 (Figure 2).

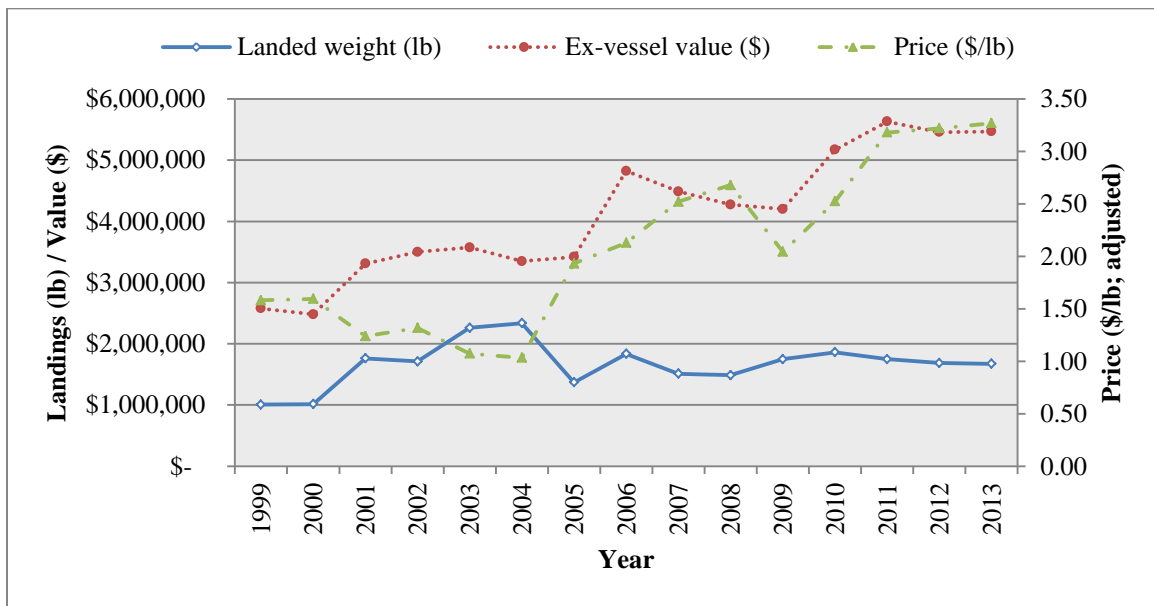


Figure 2. Landings, ex-vessel value, and price for tilefish, Maine through Virginia combined, 1999-2013. Note: Prices were adjusted to 2013 values using the Bureau of Labor Statistics Producer Price Index.

The 2009 through 2013 coastwide average ex-vessel price per pound for all market categories combined was \$2.98, \$3.31 for extra large, \$3.71 for large, \$2.86 for medium, \$2.21 for kittens, \$1.92 for small-kittens; \$1.83 for small, and \$3.29 for unclassified. Price differentials for the 2009 through 2013 period combined indicate that the ex-vessel price per pound for extra large tilefish was 72 percent and 81 percent greater than for small-kittens and small size categories, respectively. Price differentials for the same time period indicate that large tilefish was 93 percent and 103 percent greater than for small-kittens and small size categories, respectively. This price differential indicates that larger fish tend to bring higher prices (Table 7). Nevertheless, even though there is a price differential for various sizes of tilefish landed, tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (L. Nolan 2006; Kitts et al. 2007).

Table 7. Landings, ex-vessel value, and price of tilefish by size category, from Maine-Virginia, 2009 through 2013, combined.

Size Category	Landed Weight ('000 lb)	Value (\$1,000)	Price (\$/lb)
Extra large	188,914	624,911	3.31
Large	2,375,270	8,802,967	3.71
Medium	2,990,944	8,554,064	2.86
Small	229,507	419,970	1.83
Kittens	1,744,892	3,855,677	2.21
Small-Kittens	168,219	323,821	1.92
Unclassified	1,016,436	3,347,014	3.29
All	8,714,182	25,928,424	2.98

6.4.2 Description of the Areas Fished

A detailed description of the areas fished by the fishery for tilefish was presented in Amendment 1 to the FMP (MAFMC 2009). The following provides information about recent fishery conditions.

Over 56 percent of the landings for 2013 were caught in statistical area 537, which includes Atlantis and Block Canyons; statistical area 616 had 36 percent of the landings, which includes Hudson Canyon; and statistical area 626 had 5 percent of the landings (Table 8). Less than 1 percent of the total landings were caught in statistical areas 525 (includes Oceanographer, Lydonia, and Gilbert Canyons) and 526 (includes Hydrographer and Veatch Canyons). NMFS statistical areas are shown in Figure 3.

6.4.3 Port and Community Description

The ports and communities that are dependent on tilefish are fully described in Amendment 1 to the FMP (section 6.5; MAFMC 2009; found at: http://www.mafmc.org/fmp/pdf/Tilefish_Amend_1_Vol_1.pdf).

Additional information on "Community Profiles for the Northeast U.S. Fisheries" can be found at http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

To examine recent landings patterns among ports, 2012-2013 NMFS dealer data are used. The top commercial landings ports for tilefish are shown in Table 9. A "top port" is defined as any port that landed at least 10,000 lb of golden tilefish. Ports that received 1% or greater of their total revenue from tilefish are shown in Table 10.

Table 8. Tilefish percent landings by statistical area and year, 1996-2013.

Year	Unk	525	526	536	537	539	612	613	616	622	626	Other
1996	19.88	0.07	5.18	-	44.02	0.38	*	1.07	27.99	0.01	-	1.39
1997	23.30	0.03	0.67	-	56.21	0.02	*	2.59	16.40	0.01	*	0.76
1998	16.22	1.25	2.15	-	65.86	0.04	-	5.45	8.53	*	*	0.50
1999	2.57	0.97	0.22	-	55.07	0.01	0.11	3.68	36.79	0.02	0.02	0.54
2000	*	0.36	3.79	-	46.10	0.01	0.05	2.37	43.93	0.47	0.14	2.78
2001	-	0.23	3.09	-	23.92	*	0.01	3.16	68.96	*	0.10	0.52
2002	-	0.12	8.73	-	35.86	0.07	0.01	15.39	39.64	0.02	0.02	0.14
2003	-	0.88	1.79	-	38.48	0.10	-	11.85	46.51	0.05	0.05	0.28
2004	-	1.03	2.59	-	61.67	0.06	5.28	0.70	25.92	0.03	0.06	2.66
2005	-	0.12	0.25	-	62.99	0.02	0.03	6.11	25.68	0.03	0.20	4.56
2006	-	*	1.54	1.96	61.70	0.50	1.24	0.71	30.09	0.04	0.05	2.16
2007	-	0.02	0.42	4.80	55.15	0.01	-	5.53	31.56	0.85	0.43	1.23
2008	-	1.09	0.06	8.17	39.57	0.01	-	4.62	43.26	2.05	0.02	1.15
2009	-	2.17	0.01	4.18	42.62	1.30	0.04	4.37	41.72	1.34	1.16	1.10
2010	-	0.01	0.01	-	57.14	0.55	0.02	7.28	33.95	0.69	0.04	0.31
2011	-	0.02	*	-	53.06	0.01	-	3.12	39.88	0.31	0.06	3.44
2012	-	0.01	0.01	-	52.54	0.03	*	0.58	43.92	0.20	0.10	2.62
2013	-	*	0.63	-	56.22	1.09	0.03	0.09	35.83	1.25	4.72	0.14
All	4.85	0.47	1.73	0.87	51.65	0.23	0.54	4.21	33.31	0.35	0.37	1.42

Note: - = no landings; * = less than 0.01 percent. UNK = Unknown.

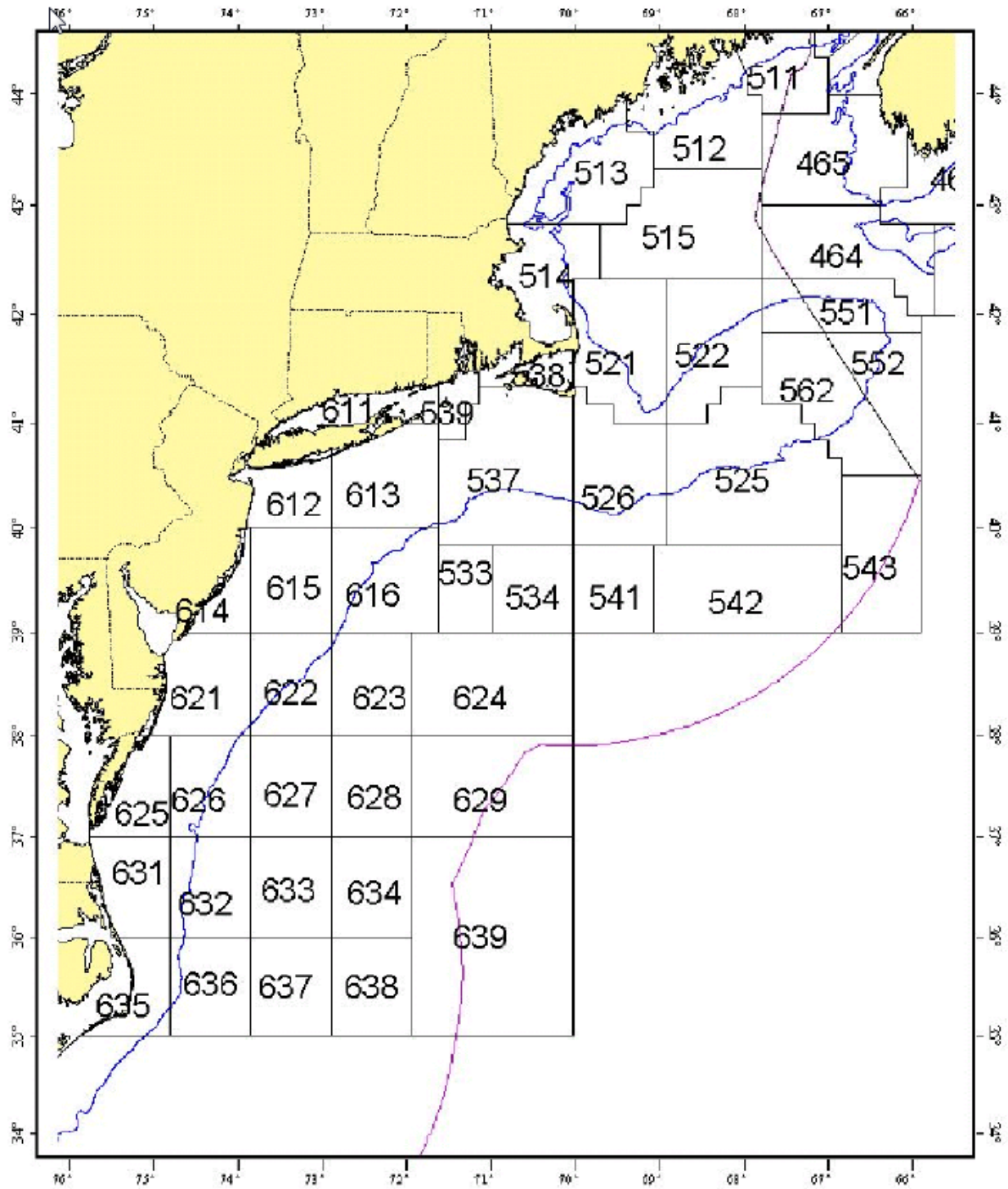


Figure 3. NMFS Statistical Areas.

Table 9. Top ports of landing (in lb) for golden tilefish, based on NMFS 2012 - 2013 dealer data. Since this table includes only the “top ports,” it may not include all of the landings for the year. (Note: values in parenthesis correspond to IFQ vessels).

Port	2012		2013	
	Landings	# Vessels	Landings	# Vessels
MONTAUK, NY	1,193,294 (1,188,394)	17 (4)	1,183,535 (1,179,437)	14 (4)
BARNEGAT LIGHT/LONG BEACH, NJ	397,610 (396,054)	12 (9)	357,360 (355,845)	8 (6)
HAMPTON BAYS, NY	213,948 (C)	3 (C)	250,941 (C)	4 (C)
POINT JUDITH, RI	7,789 (0)	48 (0)	13,868 (0)	53 (0)

Note: C = Confidential.

Table 10. Ports that generated 1% or greater of total revenues from golden tilefish, 2009-2013.

Port	State
BARNEGAT	NEW JERSEY
OTHER MONMOUTH	NEW JERSEY
BARNEGAT LIGHT /LONG BEACH	NEW JERSEY
MONTAUK	NEW YORK
HAMPTON BAYS	NEW YORK
MATTICUT	NEW YORK
SHINNECOCK	NEW YORK

6.4.4 Vessels, Permits, Dealers, and Markets

Data from the Greater Atlantic permit application database shows that in 2013 there were 1,827 vessels that held a valid commercial tilefish permit and 393 vessels held a valid party/charter tilefish permit. However, not all of those vessels are active participants in the fishery. In 2013 there were 61 Federally permitted dealers who bought golden tilefish from 143 vessels that landed this species from Maine through Virginia. In addition, 74 dealers bought tilefish from 140 vessels in 2012. These dealers bought approximately \$5.5 million of tilefish in both 2012 and 2013, and are distributed by state

as indicated in Table 11. Table 12 shows relative dealer dependence on tilefish. Furthermore, 25 party/charter vessels reported catching tilefish in 2013.

Table 11. Dealers reporting buying golden tilefish, by state in 2012 - 2013.

# of Dealers	MA		RI		CT		NY		NJ		MD		VA		Other	
	'12	'13	'12	'13	'12	'13	'12	'13	'12	'13	'12	'13	'12	'13	'12	'13
	11	9	11	9	8	7	20	17	12	10	5	2	6	7	1	0

Note: C = Confidential.

Table 12. Dealer dependence on tilefish, 2009-2013.

Number of Dealers	Relative Dependence on Tilefish
82	<5%
3	5% - 10%
2	10% - 25%
3	25% - 50%
1	50% - 75%
1	90%+

Most tilefish are sold fresh. The bulk of the catch is gutted at sea and iced during long trips. Incidental catches are not gutted. When the catch arrives at the dock it is sorted, washed, weighted, boxed and iced in 60 pound cartons. Tilefish are generally transported to the Fulton Market by truck. Tilefish is carried as a specialty item in the Fulton Market for mostly ethnic customers. However, an increasing although small amount is going to local buyers on Long Island, where there has been an uptick in local restaurants featuring local fishes as well as purchases by a Sea-to-Table business serving the larger region (sea2table.com). Tilefish supplies are very stable throughout the year as the IFQ participants spread their landings through the fishing season to avoid market gluts and price fluctuations. Nevertheless, the price for Golden tilefish decreases when tilefish landed in the South Atlantic "derby" fishery enters the New York market. This typically occurs a few months out of the year as the South Atlantic tilefish fishery typically closes early in the season. Fishermen in the Mid-Atlantic take this into account when planning fishing activity.

7.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This EA analyzes the impacts of the alternatives described fully under section 5.0 which specify commercial quotas for the 2015, 2016, and 2017 tilefish fishery, that are necessary to ensure overfishing does not occur and ACLs are not exceeded (Table 13). The Council did not recommend changes to other regulations in place for this fishery; therefore, any other management measures in place will remain unchanged (*status quo*) for the 2015-2017 fishing years (see section 5.0 for additional discussion).

Table 13. Summary of the commercial quotas for each of the quota-based alternatives.

Alternatives	Commercial Component	2015 Quotas	2016 Quotas	2017 Quotas
Alternative 1 (Preferred)	Overall	1,754,880 lb (796 mt)	1,887,156 lb (856 mt)	1,887,156 lb (856 mt)
	IFQ Vessels	1,667,136 lb (756.20 mt)	1,792,799 lb (813.20 mt)	1,792,799 lb (813.20 mt)
	Incidental Vessels	87,744 lb (39.80 mt)	94,357 lb (42.80 mt)	94,357 lb (42.80 mt)
Alternative 2 (Non-Preferred: <i>Status Quo/No Action</i>)	Overall	1,995,000 lb (905 mt)	1,995,000 lb (905 mt)	1,995,000 lb (905 mt)
	IFQ Vessels	1,895,250 lb (859.75 mt)	1,895,250 lb (859.75 mt)	1,895,250 lb (859.75 mt)
	Incidental Vessels	99,750 lb (45.25 mt)	99,750 (45.25 mt)	99,750 lb (45.25 mt)
Alternative 3 (Non-Preferred: SSC and MC Recommended)	Overall	1,754,880 lb (796 mt)	1,887,156 lb (856 mt)	1,937,863 lb (879 mt)
	IFQ Vessels	1,667,136 lb (756.20 mt)	1,792,799 (813.20 mt)	1,840,970 lb (835.05 mt)
	Incidental Vessels	87,744 lb (39.80 mt)	94,357 lb (42.80 mt)	96,893 lb (43.95 mt)

The nature and extent of impacts of the management programs for the managed resource fishery have been examined in detail in the EISs prepared for management actions for the FMP. The affected environment for the VECs that could be affected by the proposed actions in this EA are detailed in section 6.0, and the analysis in this section focuses on impacts of the alternatives described in section 5.0 relative to each VECs (managed resources and non-target species, habitat (including EFH), ESA-listed and MMPA protected species, and human communities).

For purposes of comparing each of the alternatives, the proposed 2015, 2016, and 2017 commercial quotas under each alternative is compared to the 2014 commercial quota and 2013 commercial landings, to provide the increase or decrease quota (or fishing opportunity level) or harvest limit that is expected under each alternative (Table 14).

Table 14. The percentage difference between the proposed commercial quotas under each alternative and the 2013 commercial landings and *status quo* 2014 quotas.

Alternatives	Compare (Percent Change)	2015 Quotas	2016 Quotas	2017 Quotas
Alternative 1 (Preferred)	2013 Landings	-3.4	+3.9	+3.9
	2014 Quota	-12.0	-5.4	-5.4
Alternative 2 (Non-Preferred: <i>Status Quo/No Action</i>)	2013 Landings	+9.8	+9.8	+9.8
	2014 quota	0.0	0.0	0.0
Alternative 3 (Non-Preferred: SSC and MC Recommended)	2013 Landings	-3.4	+3.9	+6.6
	2014 quota	-12.0	-5.4	-2.9

Changes in quota can result in changes in fishing effort. The direction and magnitude of change is dependent on factors such as fish abundance/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 overall commercial tilefish quota (TAL) is allocated to individual fishing quota (IFQ) holders, which are allocated 95% of the overall quota, and incidental fishery vessels, which are allocated 5% of the overall quota. IFQ vessels directly target tilefish using bottom longline gear, and incidental vessel land tilefish incidentally when targeting other species. Most of the incidental landings occur with bottom trawl gear (Table 4). The magnitude of change in effort that results from changes in quota is difficult to quantify; therefore, the following describes the general directionality of impacts in response to two factors (Table 15). In general terms, it is expected that changes in quota would result in changes in fishing effort for the tilefish directed fishery. However, for the incidental fishery, changes in quotas are not expected to affect the effort of vessels that land tilefish incidentally (e.g., otter trawl vessels) as the catch and/or landings of tilefish incidentally occur as these vessels target other species and their fishing behavior is not expected to be driven by the level of the incidental tilefish quota.

A decrease in effort may result in positive biological impacts (+) as a result of fewer encounters with non-targets, and an increase in effort may result in a negative impact (-). Both increase and decrease in effort may result in neutral impacts (0) on encounters with ESA-listed and MMPA protected species and habitat gear impacts. The commercial fishery may avoid non-target species, particularly those that cannot be landed because commercial fishermen do not find it lucrative to spend additional fuel costs and

resources sorting/processing species that the commercial vessels do not have permits to land or a market to sell.

While a general evaluation of effort in response to these two important factors (i.e., quota levels, species availability) is generalized in Table 15, fishing effort does not always respond as expected (increase or decrease) as a result of consideration of only the quota or species availability. Fishing demand models are used to forecast the demand for trips as well as to determine the value that commercial fishermen place on the various 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, market conditions and other characteristics affect the demand for fishing trips. Limited data is available to address many of these factors. This makes evaluation of changes in fishing behavior difficult and complex and therefore makes it difficult to predict how fishing effort will change each year.

Box 7.1 shows the impact definition and impact qualifiers used to identify the impacts of the alternatives in this section.

Box 7.1. Impact chart showing impact definition and impact qualifiers.			
Impact Definition			
VEC	Directional Impact		
	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 (NQ), 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	

7.1 Biological Impacts

The tilefish stock was 101 percent of the SSB_{MSY} proxy in 2012, and is projected to be 101, 102, and 106 percent of SSB_{MSY} proxy in 2015, 2016, and 2017, respectively (NEFSC 2014, Paul Nitschke, Personal Communication, 2014). Therefore, overall tilefish abundance is expected to increase; however, these changes are small and fish abundance and availability would be expected to remain stable in 2015-2016 and slightly increase in 2017 (Table 15).

When comparing across each of the three alternatives for years 2015-2017 combined that follow, which have potential biological impacts that range from negative to positive, the greatest potential for overall positive biological impacts (that range from slight positive to positive) are associated with preferred alternative 1 because this alternative would result in the greatest decrease in landings. As a result, more tilefish would be expected to be left in the water to contribute to spawning stock biomass, and fewer encounters with non-target species⁸ should occur in the fishery, when compared to alternative 2 (*status quo*), due to potential decrease in effort. Alternative 3 (non-preferred) is likewise expected to decrease landings and have associated positive benefits of leaving more tilefish in the water and decreased encounters with non-targets, when compared to alternative 2 (*status quo*); however, these positive benefits are to a lesser extent than under preferred alternative 1. Alternative 2 is not consistent with the ABC recommendations of the SSC and/or Council and may have a higher risk of negative biological impacts as more tilefish would be harvested. It is also expected that under alternative 2 fishing effort may remain relatively stable in 2015-2017; therefore, the impacts on the incidental catch rates of non-target species will be neutral compared to existing conditions. Overall, alternative 2 (*status quo*) is expected to have biological impacts that range from neutral to negative, when compared to existing conditions.

⁸ As indicated in section 6.1.3, the bulk of the tilefish landings are taken by the directed bottom longline fishery and tilefish discards in the trawl and longline fishery are negligible.

Table 15. Changes in fishing effort as a result of adjustments to quota and/or fish availability.

Change in quota	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 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 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.

7.1.1 Alternative 1 - Preferred (2015, 2016, 2017)

Alternative 1 (2015)

The tilefish commercial quota proposed under preferred alternative 1 for 2015 is 12.0 percent lower when compared to the 2015 *status quo* non-preferred alternative 2 (Table 14). The measure contained under preferred alternative 1 for 2015 is consistent with the ABC recommendation of the SSC and, therefore, based on the best scientific information available intended to prevent overfishing. In addition, this preferred measure is consistent with the other catch and landings limits recommended by the MC for 2015. This alternative is expected to result in positive impacts on the managed resource overall because more tilefish would be left in the water (in 2015) to contribute to spawning biomass and reproduce when compared to 2015 *status quo* alternative 2. It is expected that 2015 fishing effort will decrease (Table 15; cell B); therefore, the impacts on the incidental catch rates of non-target species (as described in section 6.1.3) will be positive. Overall, preferred alternative 1 for 2015 is expected to result in positive biological impacts when compared to 2015 *status quo* alternative 2.

Alternative 1 (2016)

The tilefish commercial quota proposed under preferred alternative 1 for 2016 is 5.4 percent lower when compared to the 2016 non-preferred *status quo* alternative 2 (Table 14). The measure contained under preferred alternative 1 for 2016 is consistent with the ABC recommendations of the SSC and, therefore, based on the best scientific information available intended to prevent overfishing. In addition, this preferred measure is consistent with the other catch and landings limits recommended by the MC for 2016. This alternative is expected to result in slight positive impacts on the managed resource because more tilefish would be left in the water (in 2016) to contribute to spawning biomass and reproduce when compared to the 2016 *status quo* alternative 2. It is expected that the 2016 fishing effort will slightly decrease (Table 15; cell B); therefore, the impacts on the incidental catch rates of non-target species (as described in section 6.1.3) will be slight positive when compared to the 2016 *status quo* alternative 2. Overall, preferred alternative 1 for 2016 is expected to result in slight positive biological, when compared to 2016 *status quo* alternative 2.

Alternative 1 (2017)

The tilefish commercial quota proposed under preferred alternative 1 for 2017 is 5.4 percent lower, when compared to the 2017 non-preferred *status quo* alternative 2 (Table 14). The ABC contained under this alternative is slightly more restrictive than that recommended by the SSC, and may be more restrictive than necessary to prevent overfishing on this stock. In addition, this preferred measure also contains catch and landings limits that are slightly lower than those recommended by the MC for 2017. Therefore, it is expected to result in slight positive impacts on the managed resource overall because more tilefish would be left in the water (in 2017) to contribute to spawning biomass and reproduce when compared to the 2017 *status quo* alternative 2. It is expected that 2017 fishing effort will decrease (Table 15; cell C); therefore, the impacts on the incidental catch rates of non-target species (as described in section 6.1.3) will be positive when compared to the 2017 *status quo* alternative 2. Overall, preferred

alternative 1 for 2017 is expected to result in biological impacts that range from slight positive to positive, when compared to 2017 *status quo* alternative 2.

Combined Impacts Alternative 1 (2015, 2016, 2017)

Overall, it is expected that the combined alternative 1 for 2015-2017 would result in a lower quota when compared to the combined *status quo* alternative 2 for 2015-2017. The year-to-year ABCs associated with this alternative are consistent with the ABC recommendations of the SSC and/or slightly more restrictive than the SSC recommendations (in the case of 2017). It is expected that overall biological impacts that range from slight positive to positive would result under this alternative when compared to the *status quo* alternative 2 for 2015-2017 as more tilefish would be left in the water to contribute to spawning biomass and reproduce and the expectation that the reduction in fishing effort would result in impacts on incidental catch rates of non-target species that range from slight positive to positive when compared to the *status quo* alternative 2 for 2015-2017. In addition, preferred alternative 1 for 2015-2017 is expected to result similar directional positive biological impacts when compared to those under non-preferred alternative 3 for 2015-2017 but larger in magnitude.

7.1.2 Alternative 2 - Non-Preferred: *Status Quo/No Action* (2015, 2016, 2017)

Alternative 2 (2015)

The tilefish commercial quota proposed under non-preferred alternative 2 for 2015 is identical to the quota implemented in 2014 (Table 14). The measure contained under non-preferred alternative 2 for 2015 is not consistent with the ABC recommendation of the SSC and, therefore, not based on the best scientific information available intended to prevent overfishing. Alternative 2 is not consistent with the ABC recommendations of the SSC and/or Council and may have a higher risk of negative biological impacts on the managed resource as more tilefish would be harvested. It is expected that 2015 fishing effort may remain relatively stable (Table 15; cell E); therefore, the impacts on the incidental catch rates of non-target species (as described in section 6.1.3) will be neutral when compared to 2014. Overall, non-preferred alternative 2 for 2015 is expected to result in biological impacts that range from neutral to negative, when compared to current conditions.

Alternative 2 (2016)

The biological impacts under alternative 2 for 2016 are identical to those under alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

Alternative 2 (2017)

The biological impacts under alternative 2 for are identical to those under alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

Combined Impacts Alternative 2 (2015, 2016, 2017)

Overall, it is expected that the combined alternative 2 for 2015-2017 would result in an identical quota (yearly quotas) when compared to current conditions. The ABCs

associated with this alternative are inconsistent with the ABC recommendations of the SSC. It is expected that overall negative impacts on the managed resource would result under this alternative as overfishing may occur if the catch levels are fully realized in 2015-2017 when compared to current conditions. Lastly, it is also anticipated that since fishing effort is expected to remain relatively stable under this alternative, there would be neutral impacts on the incidental catch rates of non-target species when compared to current conditions. Overall, non-preferred alternative 2 for 2015-2017 is expected to result in biological impacts that range from neutral to negative, when compared to current conditions.

7.1.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)

The measure contained under non-preferred alternative 3 for 2015, 2016, and 2017 are consistent with the ABC recommendation of the SSC and, therefore, based on the best scientific information available intended to prevent overfishing. In addition, all non-preferred measures for 2015-2017 contained in alternative 3 are consistent with the other catch and landings limits recommended by the MC for those years.

Alternative 3 (2015)

The expected biological impacts under non-preferred alternative 3 for 2015 are identical to those under preferred alternative 1 for 2015, because the proposed commercial quotas are identical (see section 7.1.1)

Alternative 3 (2016)

The expected biological impacts under non-preferred alternative 3 for 2016 are identical to those under preferred alternative 1 for 2016, because the proposed commercial quotas are identical (see section 7.1.1)

Alternative 3 (2017)

The tilefish commercial quota proposed under non-preferred alternative 3 for 2017 is 2.9 percent lower when compared to the 2017 *status quo* non-preferred alternative 2 (Table 14). The measure contained under non-preferred alternative 3 for 2017 is consistent with the ABC recommendations of the SSC and, therefore, based on the best scientific information available intended to prevent overfishing. In addition, this non-preferred measure is consistent with the other catch and landings limits recommended by the MC for 2017. This alternative is expected to result in slight positive impacts on the managed resource overall because more tilefish would be left in the water to contribute to spawning biomass and reproduce when compared to the 2017 *status quo* alternative 2. It is expected that 2017 effort will decrease (Table 15; cell C); therefore, the impacts on the incidental catch rates of non-target species (as described in section 6.1.3) will be positive, when compared to 2017 *status quo* alternative 2. Overall, non-preferred alternative 3 would result in biological impacts that range from slight positive to positive, when compared to 2017 *status quo* alternative 3.

Combined Impacts Alternative 3 (2015, 2016, 2017)

Overall, it is expected that the combined alternative 3 for 2015-2017 would result in a lower quota when compared to the combined *status quo* alternative 2 for 2015-2017. The ABCs associated with this alternative are consistent with the ABC recommendations of the SSC. It is expected that overall biological impacts that range from slight positive to positive would result under this alternative when compared to the *status quo* alternative 2 for 2015-2017 as more tilefish would be left in the water to contribute to spawning biomass and reproduce and the expectation that the reduction in fishing effort would result in impacts on incidental catch rates of non-target species that range from slight positive to positive when compared to the *status quo* alternative 2 for 2015-2017. In addition, non-preferred alternative 3 for 2015-2017 is expected to result similar directional positive biological impacts when compared to those under alternative 1 for 2015-2017 but smaller in magnitude.

7.2 Habitat

When comparing across the 3 alternatives for years 2015-2017 combined that follow, which have potential habitat impacts that range from neutral to positive, the greatest potential for overall positive habitat impacts are associated with preferred alternative 1 because this alternative would result in the greatest reduction in landings. It is expected that effort would decrease; therefore, impacts on habitat (as described in section 6.2)⁹ will be range from slightly positive to positive, when compared to *status quo* (non-preferred alternative 2). The *status quo* alternative would result in neutral impacts, when compared to current conditions. Alternative 3 is expected to have similar impacts as those expected under alternative 1.

7.2.1 Alternative 1 - Preferred (2015, 2016, 2017)

Alternative 1 (2015)

The tilefish commercial quota proposed under preferred alternative 1 for 2015 is 12.0 percent lower when compared to the 2015 *status quo* non-preferred alternative 2 (Table 14). As described above in section 7.1.1, it is expected that 2015 fishing effort will decrease, which would reduce the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resource and other species. Therefore, the impacts on habitat and EFH (as described in section 6.2) will be positive, when compared to 2015 *status quo* alternative 2.

Alternative 1 - (2016)

The tilefish commercial quota proposed under preferred alternative 1 for 2016 is 5.4 percent lower when compared to the 2016 *status quo* non-preferred alternative 2 (Table

⁹ As indicated in section 6.2, the directed commercial fishery for tilefish is largely by bottom longline gear. Otter trawls may also be used (incidental fisheries), but have limited utility because of the habitat preferred by tilefish. Longlines (which land the bulk of the tilefish) cause some low degree impacts in mud, sand, and gravel habitats.

14). As described above in section 7.1.1, it is expected that 2016 fishing effort will slightly decrease, which would slightly decrease the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resource and other species. Therefore, the impacts on habitat and EFH (as described in section 6.2) will be slight positive, when compared to the 2016 *status quo* alternative 2.

Alternative 1 - (2017)

The tilefish commercial quota proposed under preferred alternative 1 for 2017 is 5.4 percent lower when compared to the 2017 *status quo* non-preferred alternative 2 (Table 14). As described above in section 7.1.1, it is expected that 2017 fishing effort will decrease, which would decrease the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resource and other species. Therefore, the impacts on habitat and EFH (as described in section 6.2) will be positive, when compared to 2016 *status quo* alternative 2.

Combined Impacts Alternative 1 (2015, 2016, 2017)

Overall, it is expected that the combined alternative 1 for 2015-2017 would result in a lower quota when compared to the combined *status quo* alternative 2 for 2015-2017. It is expected that impacts on habitat and EFH than range from slight positive to positive as the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resource and other species is expected to be reduced due to lower quotas, when compared to 2015-2017 *status quo* alternative 2.

7.2.2 Alternative 2 - Non-Preferred: *Status Quo/No Action* (2015, 2016, 2017)

Alternative 2 - (2015)

The tilefish commercial quota proposed under non-preferred alternative 2 for 2015 is identical to the quota implemented in 2014 (Table 14). As described above for tilefish in section 7.1.2., it is expected that 2015 fishing effort may remain relatively stable, which would not change the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resources and other species. Therefore, the impacts on habitat and EFH (as described in section 6.2) will be neutral, when compared to 2014.

Alternative 2 - (2016)

The habitat impacts under non-preferred alternative 2 for 2016 are identical to those under alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

Alternative 2 - (2017)

The habitat impacts under non-alternative 2 for 2017 are identical to those under alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

Combined Impacts Alternative 2 (2015, 2016, 2017)

Overall, it is expected that the combined alternative 2 for 2015-2017 would result in neutral habitat impacts, when compared to current conditions, as the quotas (yearly

quotas) are the same as existing quotas. It is not expected that the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resources and other species would change under this alternative.

7.2.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)

Alternative 3 - (2015)

The expected habitat impacts under this alternative for 2015 are identical to those under alternative 1 for 2015 because the proposed commercial quotas are identical (see section 7.2.1).

Alternative 3 - (2016)

The expected habitat impacts under this alternative for 2016 are identical to those under alternative 1 for 2016 because the proposed commercial quotas are identical (see section 7.2.1).

Alternative 3 - (2017)

The tilefish commercial quota proposed under non-preferred alternative 3 for 2017 is 2.9 percent lower when compared to the 2017 *status quo* non-preferred alternative 2 (Table 14). As described above in section 7.1.3, it is expected that 2017 fishing effort will decrease, which would reduce the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resource and other species. Therefore, the impacts on habitat and EFH (as described in section 6.2) will be positive, when compared to 2017 *status quo* alternative 2.

Combined Impacts Alternative 3 (2015, 2016, 2017)

Overall, it is expected that the combined alternative 3 for 2015-2017 would result in a lower quota when compared to the combined *status quo* alternative 2 for 2015-2017. It is expected that impacts on habitat and EFH than range from slight positive to positive as the amount of time fishing gear contacts/impacts the bottom habitat and EFH for the managed resource and other species is expected to be reduced due to lower quotas, when compared to 2015-2017 *status quo* alternative 2. In addition, non-preferred alternative 3 for 2015-2017 is expected to result similar positive habitat impacts when compared to those under alternative 1 for 2015-2017.

7.3 ESA-Listed Species and MMPA Protected Species

When comparing across the 3 alternatives for years 2015-2017 combined that follow, all are expected to result in neutral ESA-listed and MMPA protected resource impacts, when compared to impacts under the baseline condition.

7.3.1 Alternative 1 - Preferred (2015, 2016, 2017)

Alternative 1 (2015)

The tilefish commercial quota proposed under preferred alternative 1 is 12.0 percent lower when compared to the 2015 *status quo* non-preferred alternative 2 (Table 14). As

described above for tilefish in section 7.1.1, it is expected that 2015 fishing effort will decrease. The tilefish fishery bottom longline is classified as a Category II (as described in section 6.3). According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources (as described in section 6.3) will be neutral, when compared to 2015 *status quo* alternative 2.

Alternative 1 (2016)

The tilefish commercial quota proposed under preferred alternative 1 is 5.4 percent lower when compared to the 2016 *status quo* non-preferred alternative 2 (Table 14). As described above for tilefish in section 7.1.1, it is expected that 2016 fishing effort will slightly decrease. The tilefish fishery bottom longline is classified as a Category II (as described in section 6.3). According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources (as described in section 6.3) will be neutral, when compared to the 2016 *status quo* alternative 2.

Alternative 1 (2017)

The tilefish commercial quota proposed under preferred alternative 1 is 5.4 percent lower when compared to the 2017 *status quo* non-preferred alternative 2 (Table 14). As described above for tilefish in section 7.1.1, it is expected that 2017 fishing effort will decrease. The tilefish fishery bottom longline is classified as a Category II (as described in section 6.3). According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources (as described in section 6.3) will be neutral, when compared to the 2017 *status quo* alternative 2.

Combined Impacts Alternative 1 (2015, 2016, 2017)

Overall, it is expected that the combined preferred alternative 1 for 2015-2017 would result in a lower quota when compared to the combined *status quo* alternative 2 for 2015-2017. According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources will be neutral, when compared to the 2015-2017 *status quo* alternative 2.

7.3.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)

Alternative 2 (2015)

The tilefish commercial quota proposed under non-preferred alternative 2 is identical to 2014 (Table 14). As described above for tilefish in section 7.1.2, it is expected that 2015 fishing effort will remain relatively stable when compared to 2014. The tilefish fishery bottom longline is classified as a Category II (as described in section 6.3). According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources (as described in section 6.3) will be neutral, when compared to 2014.

Alternative 2 (2016)

The expected ESA-listed and MMPA protected resource impacts under this alternative for 2016 are identical to non-preferred preferred alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

Alternative 2 (2017)

The expected ESA-listed and MMPA protected resource impacts under this alternative for 2017 are identical to non-preferred alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

Combined Impacts Alternative 2 (2015, 2016, 2017)

Overall, it is expected that the combined non-preferred alternative 2 for 2015-2017 would result in similar year to year quotas and effort when compared to current conditions. According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources will be neutral, when compared to current conditions.

7.3.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)

Alternative 3 (2015)

The expected ESA-listed and MMPA protected resource impacts under this alternative for 2015 are identical to alternative 1 for 2015, because the proposed commercial quotas are identical (see section 7.3.1).

Alternative 3 (2016)

The expected ESA-listed and MMPA protected resource impacts under this alternative for 2016 are identical to alternative 1 for 2016, because the proposed commercial quotas are identical (see section 7.3.1).

Alternative 3 (2017)

The tilefish commercial quota proposed under non-preferred alternative 3 is 2.9 percent lower when compared to the 2017 *status quo* non-preferred alternative 2 (Table 14). As described above for tilefish in section 7.1.3, it is expected that 2017 fishing effort will decrease. The tilefish fishery bottom longline is classified as a Category II (as described in section 6.3). According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources (as described in section 6.3) will be neutral, when compared to 2017 *status quo* alternative 2.

Combined Impacts Alternative 3 (2015, 2016, 2017)

Overall, it is expected that the combined non-preferred alternative 3 for 2015-2017 would result in a lower quota when compared to the combined *status quo* alternative 2 for 2015-2017. According to the List of Fisheries for 2014, there are no documented interactions/takes in the directed tilefish fishery. As such, minimal interaction is expected between bottom longline gear and these protected resources, regardless of whether changes in fishing effort occur. Therefore, impacts on ESA-listed and MMPA protected resources will be neutral, when compared to the 2015-2017 *status quo* alternative 2.

7.4 Socioeconomic Impacts

The analyses presented for the various alternatives presented in this section are principally for the commercial fishery. Currently there are no catch and landings limits associated with the recreational fishery. Recreational catches appear to be a minor component of total removals (section 6.1.1) and the only management measure for the recreational fishery in the FMP is a recreational bag-limit of 8 fish per angler per trip which is not being revised through this specifications package. The Council will develop a framework document (Framework 2) to address various issues in the fishery including an evaluation of the recreational possession limit accounting process for tilefish onboard charter and party vessels (for-hire) to accommodate multiday trips (section 7.5.4). An analysis of the recreational fishery will be conducted when Framework 2 to the Tilefish FMP is developed. The proposed catch and landing limits for the commercial fishery are not expected to affect recent trends in recreational catches or recreational trips for tilefish. As such, no economic changes to that small sector of the fishery are expected.

When comparing across each of the three alternatives for years 2015-2017 combined that follow, which have potential socioeconomic impacts that range from neutral to negative, the greatest potential for overall negative socioeconomic impacts are associated with preferred alternative 1 because this alternative would result in the greatest decrease in landings, when compared to non-preferred alternative 2 (*status quo*). Non-preferred alternative 3 is also expected to result in negative socioeconomic impacts but slightly smaller in magnitude when compared to preferred alternative 1. Alternative

2 (*status quo*) has the potential for neutral socioeconomic impacts as it would maintain existing landings levels (fishing opportunity), when compared to existing conditions.

7.4.1 Alternative 1 - Preferred (2015, 2016, 2017)

Alternative 1 (2015)

The analysis of the commercial quota level under this scenario indicate that the economic impacts from expected revenue losses on the order of 5 percent or less (relative to the *status quo*) for 134 vessels, 5-9 percent for 2 vessels, and 10-19 percent for 5 vessels (section 8.11.2.7.1).

The Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming an ex-vessel price of \$3.44/lb¹⁰, the 2015 quota under preferred alternative 1 would decrease tilefish revenues by approximately \$826,013 relative to the *status quo* quota for 2015. On average, IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur in a reduction of revenues of \$71,337 under preferred alternative 1 in 2015 when compared to the *status quo* alternative 2 for 2015; and incidental vessels (130 vessels) would incur a \$318 reduction in revenues.

Of the 134 vessels projected to incur in revenue losses of 5 percent or less, 85 percent (114 vessels) had tilefish gross receipts of \$1,000 or less and 97 percent of the impacted vessels (130 vessels) had tilefish gross receipts of \$10,000 or less. Thus indicating that the dependence on tilefish fishing for most of these vessels is very small. The remaining 4 vessels had substantially larger tilefish gross receipts (ranging from \$30,000 - \$200,000), but the monetary contribution of tilefish to the total monetary contribution of all species combined was small enough as to not shift them into the revenue loss of 5 percent or more range. While there are 141 vessels that reported landings of tilefish in fishing year 2013, it is expected that the potential decrease in revenue stated above would affect the 11 vessels that are more dependent on tilefish (IFQ vessel). The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with lower quantity of tilefish quota availability.

Alternative 1 (2016)

The analysis of the commercial quota level under this scenario indicate that the economic impacts from expected revenue losses on the order of 5 percent or less (relative to the *status quo*) for 138 vessels and 5-9 percent for 2 vessels (section 8.11.2.7.1).

¹⁰ The tilefish price presented in section 6.0 of \$3.27/lb was based on information for calendar year 2013 (January 1 - December 31). The price of \$3.44/lb used to derive these calculations was based on the ex-vessel price of tilefish in fishing year 2013 (November 1, 2012 - October 31, 2013).

The Council also analyzed changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives. Assuming an ex-vessel price of \$3.44/lb, the 2016 quota under preferred alternative 1 would decrease tilefish revenues by approximately \$370,983 relative to the *status quo* quota for 2016. On average, IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur in a reduction of revenues of \$32,039 under preferred alternative 1 in 2016 when compared to the *status quo* alternative for 2016; and incidental vessels (130 vessels) would incur a \$143 reduction in revenues.

Of the 138 vessels projected to incur in revenue losses of 5 percent or less, 83 percent (114 vessels) had tilefish gross receipts of \$1,000 or less and 95 percent of the impacted vessels (131 vessels) had tilefish gross receipts of \$10,000 or less. Thus indicating that the dependence on tilefish fishing for most of these vessels is very small. The remaining 7 vessels had substantially larger tilefish gross receipts (ranging from \$30,000 - \$200,000), but the monetary contribution of tilefish to the total monetary contribution of all species combined was small enough as to not shift them into the revenue loss of 5 percent or more range. While there are 141 vessels that reported landings of tilefish in fishing year 2013, it is expected that the potential decrease in revenue stated above would affect the 11 vessels that are more dependent on tilefish (IFQ vessel). The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2016 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with lower quantity of tilefish quota availability.

Alternative 1 (2017)

The expected economic impacts and threshold analysis impacts under preferred alternative 1 for 2017 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical (see above).

Combined Impacts Alternative 1 (2015, 2016, 2017)

Under combined preferred alternative 1 for 2015-2017 it is expected that the number of vessels impacted by revenue losses on the order of 5 percent or less (relative to the *status quo*) would range from 134 (in year 2015) to 138 (in each, year 2016 and 2017). In addition, it is expected that that the number of vessels impacted by revenue losses on the order of 5 percent or more would range from 7 (in year 2015) to 3 (in each, year 2016 and 2017). All vessels with revenue reduction of ≥ 5 percent by home state are from New Jersey and/or New York, with the largest number of impacted vessels homeported in Suffolk County, NY.

Overall, it is expected that preferred alternative 1 for 2015-2017 would result in a combined decrease in revenue of \$1,567,979 relative to the *status quo* quota for 2015-2017. Since the overall dependence on tilefish for most of the vessels projected to incur revenue losses is small (83 to 97 percent of the vessels), it is expected that the potential decrease in revenues stated above would more greatly affect the 11 vessels that are more

dependent on tilefish (IFQ vessel) than the vessels that incidentally catch tilefish. On average, IFQ vessels that landed tilefish in 2013 (11 vessels) would incur a reduction in revenues of \$135,416 under preferred alternative 1 in 2015-2017 combined when compared to the *status quo* alternative for 2015-2017; and incidental vessels (130 vessels) would incur a \$603 reduction in revenues. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015-2017 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with a lower quantity of tilefish quota availability.

Overall, preferred alternative 1 for 2015-2017 would result in the greatest negative impacts on the vessels that land tilefish. However, is consistent with the ABC recommendations of the SSC and/or slightly more restrictive than the SSC recommendations. It is expected that alternative 1 would result in overall biological impacts that range from slight positive to positive (when compared to the *status quo* alternative 2 for 2015-2017) as more tilefish would be left in the water, thus contributing to the long-term productivity of the stock and socioeconomic benefits derived from it. The Council chose alternative 1 as the preferred alternative after taking into consideration industry input and maintained the catch and landings limits in 2017 similar to those for 2016 in order to maintain fishery stability (see section 5.1 for additional details). More specifically, industry members indicated that while alternative 1 (preferred) would result in an overall slight reduction (51,000 pounds) in commercial quota for IFQ vessels for the 2015-2017 period when compared to alternative 3 (non-preferred alternative), it is better for them as it sends a signal of consistency of quota/landings from year to year to the marketplace. This in turn, according to industry members translates into price and supply stability in the fishery.

7.4.2 Alternative 2 - Non-Preferred: *Status Quo*/No Action (2015, 2016, 2017)

Alternative 2 (2015)

Under the 2015 non-preferred alternative 2, aggregate commercial landings for tilefish are expected to be the same relative to 2014 quota. As such, it is not expected that revenue reductions would occur under this alternative when compared to existing conditions (section 8.11.2.7.2).

Alternative 2 (2016)

Under the 2016 non-preferred alternative 2, aggregate commercial landings for tilefish are expected to be the same relative to 2014 quota. As such, it is not expected that revenue changes would occur under this alternative when compared to existing conditions (section 8.11.2.7.2).

Alternative 2 (2017)

Under the 2017 non-preferred alternative 2, aggregate commercial landings for tilefish are expected to be the same relative to 2014 quota. As such, it is not expected that

revenue changes would occur under this alternative when compared to existing conditions (section 8.11.2.7.2).

Combined Impacts Alternative 2 (2015, 2016, 2017)

Under combined non-preferred alternative 2 for 2015-2017, it is expected that there will be no vessels impacted with revenue changes when compared to existing conditions. Overall, this alternative would allow fishermen to land more tilefish when compared to preferred alternative 1 and non-preferred alternative 3 for 2015-2017. While this alternative would provide the largest positive economic impacts amongst all of the evaluated alternatives, it was not chosen by the Council as the preferred alternative because it is not consistent with the ABC recommendation of the SSC for 2015-2017 and, therefore, not based on the best scientific information available intended to prevent overfishing. This alternative has the potential for negative biological impacts, and overfishing may occur if the catch levels are fully realized in 2015-2017. Thus, potentially resulting in negative long-term impacts on the stock and the socioeconomic benefits derived from it.

7.4.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)

Alternative 3 (2015)

The expected economic impacts under non-preferred alternative 3 for 2015 are identical to those presented under preferred alternative 1 for 2015, because the proposed commercial quotas are identical (see section 7.4.1).

Alternative 3 (2016)

The expected economic impacts under non-preferred alternative 3 for 2016 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical (see section 7.4.1).

Alternative 3 (2017)

The analysis of the commercial quota level under this scenario indicates that the economic impacts from expected revenue losses on the order of 5 percent or less for 141 vessels. No vessels were identified as having economic impacts on the order of 5 percent or more (section 8.11.2.7.3).

In addition to the threshold analysis described above, changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives were analyzed. Assuming an ex-vessel price of \$3.44/lb, the 2017 quota under non-preferred alternative 3 would decrease tilefish revenues by approximately \$196,551 relative to the *status quo* quota for 2017. On average, for IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur a reduction of revenues of \$16,975 under non-preferred alternative 3 in 2017 when compared to the *status quo* alternative for 2017; and incidental vessels (130 vessels) would incur a \$76 reduction in revenues.

Combined Impacts Alternative 3 (2015, 2016, 2017)

Under combined non-preferred alternative 3 for 2015-2017, it is expected that the number of vessels impacted by revenue losses on the order of 5 percent or less (relative to the *status quo*) would range from 138 (in year 2016) to 141 (in 2017). In addition, it is expected that the number of vessels impacted by revenue losses on the order of 5 percent or more would range from 7 (in year 2015) to 3 (in year 2016; no vessels were projected to incur in revenue losses of 5 percent or more in 2017). All vessels with revenue reduction of ≥ 5 percent by home state are from New Jersey and/or New York, with the largest number of impacted vessels homeported in Suffolk County, NY.

Overall, it is expected that non-preferred alternative 3 for 2015-2017 would result in a combined decrease in revenue of \$1,393,547 relative to the *status quo* quota for 2015-2017. Since the overall dependence on tilefish for most of the vessels projected to incur revenue losses is small, it is expected that the potential decrease in revenue stated above would more greatly affect the 11 vessels that are more dependent on tilefish (IFQ vessel) than the vessels that incidentally catch tilefish. On average, IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur a reduction in revenues of \$120,352 under non-preferred alternative 3 in 2015-2017 combined when compared to the *status quo* alternative for 2015-2017; and incidental vessels (130 vessels) would incur a \$536 reduction in revenues. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015-2017 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with lower quantity of tilefish quota availability.

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 as part of an EA under NEPA 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 tilefish fishery.

7.5.1 Consideration of the VECs

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

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

7.5.2 Geographic Boundaries

The analysis of impacts focuses on actions related to the harvest of tilefish. 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 unit (section 6.1). For non-target species, that range 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 tilefish and other non-target species in the Western Atlantic Ocean. The core geographic scope for endangered and protected resources can be considered the overall range of these VECs in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities directly involved in the harvest or processing of the managed resource, which were found to occur in coastal states from Maine through Virginia (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 (2001). For endangered and other protected resources, the scope of past and present actions is on a species-by-species basis (section 6.3) and is largely focused on the 1980s and 1990s through the present, when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ. The temporal scope of future actions for all five VECs extends about three years (2017) into the future, which is the duration of the specifications proposed in this document. This period was chosen because the dynamic nature of resource management for these 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 Amendment

The impacts of each of the alternatives considered in this specifications document are given in section 7.1 through 7.4. Table 16 presents meaningful past (P), present (Pr), or reasonably foreseeable future (RFF) actions to be considered other than those actions being considered in this specifications document. These impacts are described in chronological order and qualitatively, as the actual impacts of these actions are too complex to be quantified in a meaningful way. When any of these abbreviations occur together (i.e., P, Pr, RFF), it indicates that some past actions are still relevant to the present and/or future actions.

Past and Present Actions

The historical management practices of the Council have resulted in positive impacts on the health of the tilefish stock (section 6.1). Numerous actions have been taken to manage this fishery through amendment and framework adjustment actions. In addition, 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 statutory basis for federal fisheries management is the MSA. To the degree with which this regulatory regime is complied, the cumulative impacts of past, present, and reasonably foreseeable future federal fishery management actions on the VECs should generally be associated with positive long-term outcomes. Constraining fishing effort through regulatory actions can often have negative short-term socioeconomic impacts. These impacts are usually necessary to bring about long-term sustainability of a given resource, and as such, should, in the long-term, promote positive effects on human communities, especially those that are economically dependent upon the tilefish stock.

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 neutral to low negative, since a large portion of this species have a limited or minor exposure to these local non-fishing perturbations.

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

Reasonably Foreseeable Future Actions

In fishing year 2013, ACLs and AMs were first implemented for tilefish (as well as other Council managed species in 2012) to ensure that catch and landings limits are not exceeded and overfishing does not occur. In 2014, catch and landings information will

be available to be compared to ACLs to evaluate the performance of this new system. As a result, the Reasonably Foreseeable Future Actions over the next three years may include the implementation of accountability measures and other Council recommended adaptive adjustments under this new system of catch limits and accountability measures.

The development of Framework 2 to the Tilefish FMP is likely to occur in the next three years and would consider modifying the tilefish catch and landings flowchart to deduct discards after the ACT is divided between the IFQ and incidental categories as this would allow for commercial sector specific adjustments, make technical modifications to the regulation to deleted the language regarding the rebuilding program as this has been achieved, conduct an evaluation of the recreational possession limit accounting process for tilefish onboard charter and party vessels (for-hire) to accommodate multiday trips, and adjust monitoring and reporting requirements. As a result, this Reasonably Foreseeable Future Action over the next three years will address outstanding issues for the management of tilefish.

The development of the ABC Omnibus Framework is likely to be completed in the next three years and would consider adopting automatic incorporation of new accepted/approved biological reference points status determination for tilefish and develop consistency with the Council's risk policy for the SSC to specify constant multi-year ABCs if the average of overfishing equal the appropriate goal depending on current procedures. As a result, this Reasonably Foreseeable Future Action over the next three years will address outstanding issues for the management of tilefish and other Council managed species.

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

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

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

Non Fishing Impacts - Global Climate Change

Global climate change will affect all components of marine ecosystems, including human communities. Physical changes that are occurring and will continue to occur to these systems include sea-level rise, changes in sediment deposition, changes in water circulation, increased frequency, intensity and duration of extreme climate events, changing water chemistry, and warming ocean temperatures. Emerging evidence demonstrates that these physical changes are resulting in direct and indirect ecological responses within marine ecosystems which may alter the fundamental production characteristics of marine systems (Stenseth et. al. 2002). Climate change will potentially exacerbate the stresses imposed by harvesting (fishing) and other non-fishing human activities and stressors (described in this section). Overall, climate change is expected to have negative impacts on all VECs. However, future mitigation and adaptation strategies to climate change may mitigate some of these impacts as the science surrounding predicting, evaluating, monitoring and categorizing these changes evolves.

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

Action	Description	Impacts on Managed Resource	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
^{P, Pr} Original FMP and subsequent Amendments and Frameworks to the FMP	Established 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
^{Pr} Tilefish Specifications	Establish quotas, other fishery regulations	Indirect Positive Regulatory tool to specify catch limits, and other regulation; allows response to annual stock updates	Indirect Positive Reduced effort levels and gear requirements	Indirect Positive Reduced effort levels and gear requirements	Indirect Positive Reduced effort levels and gear requirements	Indirect Positive Benefited domestic businesses
^{P, Pr, 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	Potentially 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
^{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

Table 16 (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 Installation of pipelines, utility lines and cables	Transportation of oil, gas and energy through pipelines, utility lines and cables	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Uncertain – Likely Direct Negative Reduced habitat quality	Potentially Direct Negative Dependent on mitigation effects	Uncertain – Likely Mixed Dependent on mitigation effects
P, Pr, RFF National Offshore Aquaculture Act of 2007	Bill that grants DOC authority to issue permits for offshore aquaculture in federal waters	Potentially Indirect Negative Localized decreases in habitat quality possible	Potentially Indirect Negative Localized decreases in habitat quality possible	Direct Negative Localized decreases in habitat quality possible	Potentially Indirect Negative Localized decreases in habitat quality possible	Uncertain – Likely Mixed Costs/benefits remain unanalyzed
RFF Offshore Wind Energy Facilities (within 3 years)	Construction of wind turbines to harness electrical power (Several proposed from ME through NC, including NY/NJ, DE, and VA)	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Potentially Direct Negative Localized decreases in habitat quality possible	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Uncertain – Likely Mixed Dependent on mitigation effects

Table 16 (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
Pr, RFF Liquefied Natural Gas (LNG) terminals (within 3 years)	Transport natural gas via tanker to terminals offshore and onshore (1 terminal built in MA; 1 under construction; proposed in RI, NY, NJ and DE)	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Potentially Direct Negative Localized decreases in habitat quality possible	Uncertain – Likely Indirect Negative Dependent on mitigation effects	Uncertain – Likely Mixed Dependent on mitigation effects
RFF Convening of Gear Take Reduction Teams (within next 3 years)	Recommend measures to reduce mortality and injury to marine mammals	Indirect Positive Will improve data quality for monitoring total removals	Indirect Positive Reducing availability of gear could reduce bycatch	Indirect Positive Reducing availability of gear could reduce gear impacts	Indirect Positive Reducing availability of gear could reduce encounters	Indirect Negative Reducing availability of gear could reduce revenues
RFF Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (w/in next 3 years)	May recommend strategies to prevent the bycatch of sea turtles in commercial fisheries operations	Indirect Positive Will improve data quality for monitoring total removals	Indirect Positive Reducing availability of gear could reduce bycatch	Indirect Positive Reducing availability of gear could reduce gear impacts	Indirect Positive Reducing availability of gear could reduce encounters	Indirect Negative Reducing availability of gear could reduce revenues
RFF Adjustment to the tilefish management system (within next 3 years)	Adjust catch and landings flowchart for tilefish to allow sector specific discards adjustments (IFQ/incidental vessels). Adjust reporting requirements	Neutral Administrative - no direct or indirect impacts	Neutral Administrative - no direct or indirect impacts	Neutral Administrative - no direct or indirect impacts	Neutral Administrative - no direct or indirect impacts	Indirect Positive Quotas would be adjusted by deducting discards from fishing sector producing them. Revise reporting requirements and delete requirements no longer needed

Table 16 (Continued). Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the five VECs (not including those actions considered in this specifications document).

Action	Description	Impacts on Managed Resource	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
RFF Protection for Deep Sea Corals in the Mid-Atlantic (within next 3 years)	Minimize the impacts of fishing gear on deep sea corals in the Mid-Atlantic	Uncertain – Likely Indirect Positive Dependent on mitigation effects	Uncertain – Likely Indirect Positive Dependent on mitigation effects	Uncertain – Likely Indirect Positive Dependent on mitigation effects	Uncertain – Likely Indirect Positive Dependent on mitigation effects	Uncertain – Likely Mixed Dependent on mitigation effects
RFF ABC Omnibus Framework	Automatic incorporation of new accepted / approved biological reference points status determination. Addresses constant multi-year ABCs specifications	Neutral Administrative - no direct or indirect impacts	Neutral Administrative - no direct or indirect impacts	Neutral Administrative - no direct or indirect impacts	Neutral Administrative - no direct or indirect impacts	Uncertain – Likely Mixed Dependent on mitigation effects

7.5.5.1 Managed Resources

Those past, present, and reasonably foreseeable future actions, whose effects may impact the managed resource and the direction of those potential impacts, are summarized in Table 16. The indirectly negative actions described in Table 16 are mainly localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on the managed resource is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on productivity of the managed resource is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP have had a positive cumulative effect on the managed resource. It is anticipated that the future management actions, described in Table 17, will result in additional indirect positive effects on the managed resource through actions which reduce and monitor bycatch, protect habitat, and protect ecosystem services on which tilefish productivity depends. The 2012 fishing year was the first year of implementation for an Amendment which requires specification of ACLs and ACTs, and this process has been carried forward into the 2015-2017 proposed measures. This represents a major change to the current management program and is expected to lead to improvements in resource sustainability over the long-term. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to tilefish have had a positive cumulative effect.

Catch limits and commercial quotas for the managed resource has been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts of management measures established in previous years on the managed resource are largely dependent on how effective those measures were in meeting their intended objectives (i.e., preventing overfishing, achieve OY) and the extent to which mitigating measures were effective. The proposed action in this document would positively reinforce the past and anticipated positive cumulative effects on the tilefish stock, by achieving the objectives specified in the FMP. Therefore, the proposed action would not have any significant effect on the managed resources individually or in conjunction with other anthropogenic activities (see Table 17).

Table 17. Summary of the effects of past, present, and reasonably foreseeable future actions on the managed resource.

Action	Past to the Present		Reasonably Foreseeable Future
Original FMP and subsequent Amendments and Frameworks to the FMP	Indirect Positive		
Tilefish Specifications		Indirect Positive	
Developed, Apply, and Redo Standardized Bycatch Reporting Methodology	Neutral		
Agricultural runoff	Indirect Negative		
Port maintenance	Uncertain – Likely Indirect Negative		
Offshore disposal of dredged materials	Indirect Negative		
Beach nourishment – Offshore mining	Indirect Negative		
Beach nourishment – Sand placement	Indirect Negative		
Marine transportation	Indirect Negative		
Installation of pipelines, utility lines and cables	Uncertain – Likely Indirect Negative		
National Offshore Aquaculture Act of 2007	Potentially Indirect Negative		
Offshore Wind Energy Facilities (within 3 years)			Uncertain – Likely Indirect Negative
Liquefied Natural Gas (LNG) terminals (within 3 years)		Uncertain – Likely Indirect Negative	
Convening Gear Take Reduction Teams (within 3 years)			Indirect Positive
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years)			Indirect Positive
Framework 2 Discard adjustment, reporting requirements, evaluate recreational possession limit for-hire sector			Neutral
Protection for Deep Sea Corals in the Mid-Atlantic			Uncertain – Likely Indirect Positive
ABC Omnibus Framework			Neutral
Summary of past, present, and future actions excluding those proposed in this specifications document	Overall, actions have had, or will have, positive impacts on the managed resources. * See section 7.5.5.1 for explanation.		

7.5.5.2 Non-Target Species or Bycatch

Those past, present, and reasonably foreseeable future actions, whose effects may impact non-target species and the direction of those potential impacts, are summarized in Table 16. The effects of indirectly negative actions described in Table 16 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on non-target species is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on productivity of non-target resources and the oceanic ecosystem is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources prior to permitting or implementation of those projects. At this time, NMFS can consider impacts to non-target species (federally-managed or otherwise) and comment on potential impacts. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on resources within NMFS' jurisdiction.

Past fishery management actions taken through the FMP 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 redevelopment of the SBRM will result in better assessment of potential bycatch issues and allow more effective and specific management measures to be developed to address a bycatch problem. It is anticipated that future management actions, described in Table 18, will result in additional indirect positive effects on non-target species through actions which reduce and monitor bycatch, protect habitat, and protect ecosystem services on which the productivity of many of these non-target resources depend. The impacts of these future actions could be broad in scope, and it should be noted the managed resource and non-target species are often coupled in that they utilize similar habitat areas and ecosystem resources on which they depend. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful have had a positive cumulative effect on non-target species.

Catch limits and commercial quotas for the managed resources have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document have impacts that range from neutral to positive 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 18).

Table 18. Summary of the effects of past, present, and reasonably foreseeable future actions on the non-target species.

Action	Past to the Present		Reasonably Foreseeable Future
Original FMP and subsequent Amendments and Frameworks to the FMP	Indirect Positive		
Tilefish Specifications		Indirect Positive	
Developed, Apply, and Redo Standardized Bycatch Reporting Methodology	Neutral		
Agricultural runoff	Indirect Negative		
Port maintenance	Uncertain – Likely Indirect Negative		
Offshore disposal of dredged materials	Indirect Negative		
Beach nourishment – Offshore mining	Indirect Negative		
Beach nourishment – Sand placement	Indirect Negative		
Marine transportation	Indirect Negative		
Installation of pipelines, utility lines and cables	Uncertain – Likely Indirect Negative		
National Offshore Aquaculture Act of 2007	Potentially Indirect Negative		
Offshore Wind Energy Facilities (within 3 years)			Uncertain – Likely Indirect Negative
Liquefied Natural Gas (LNG) terminals (within 3 years)		Uncertain – Likely Indirect Negative	
Convening Gear Take Reduction Teams (within 3 years)			Indirect Positive
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years)			Indirect Positive
Framework 2 Discard adjustment, reporting requirements, evaluate recreational possession limit for-hire sector			Neutral
Protection for Deep Sea Corals in the Mid-Atlantic			Uncertain – Likely Indirect Positive
ABC Omnibus Framework			Neutral
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 16. The direct and indirect negative actions described in Table 16 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on habitat is expected to be limited due to a lack of exposure to habitat at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on habitat and EFH is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' managed resources and the habitat on which they rely prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of direct and indirect negative impacts those actions could have on habitat utilized by resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP 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 (HAPCs) were designated for the managed resource. It is anticipated that the future management actions, described in Table 19, will result in additional direct or indirect positive effects on habitat through actions which protect EFH for federally-managed species and protect ecosystem services on which these species' productivity depends. These impacts could be broad in scope. All of the VECs are interrelated; therefore, the linkages among habitat quality and EFH, managed resources and non-target species productivity, and associated fishery yields should be considered. For habitat and EFH, there are direct and indirect negative effects from actions which may be localized or broad in scope; however, positive actions that have broad implications have been, and it is anticipated will continue to be, taken to improve the condition of habitat. There are some actions, which are beyond the scope of NMFS and Council management such as coastal population growth and climate changes, which may indirectly impact habitat and ecosystem productivity. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to habitat have had a neutral to positive cumulative effect.

Catch limits and commercial quotas for the managed resources have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on habitat and thus, would not have any significant effect on habitat individually or in conjunction with other anthropogenic activities (Table 19).

Table 19. Summary of the effects of past, present, and reasonably foreseeable future actions on the habitat.

Action	Past to the Present		Reasonably Foreseeable Future
Original FMP and subsequent Amendments and Frameworks to the FMP	Indirect Positive		
Tilefish Specifications		Indirect Positive	
Developed, Apply, and Redo Standardized Bycatch Reporting Methodology	Neutral		
Agricultural runoff	Direct Negative		
Port maintenance	Uncertain – Likely Direct Negative		
Offshore disposal of dredged materials	Direct Negative		
Beach nourishment – Offshore mining	Direct Negative		
Beach nourishment – Sand placement	Direct Negative		
Marine transportation	Direct Negative		
Installation of pipelines, utility lines and cables	Uncertain – Likely Direct Negative		
National Offshore Aquaculture Act of 2007	Direct Negative		
Offshore Wind Energy Facilities (within 3 years)			Potentially Direct Negative
Liquefied Natural Gas (LNG) terminals (within 3 years)		Potentially Direct Negative	
Convening Gear Take Reduction Teams (within 3 years)			Indirect Positive
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years)			Indirect Positive
Framework 2 Discard adjustment, reporting requirements, evaluate recreational possession limit for-hire sector			Neutral
Protection for Deep Sea Corals in the Mid-Atlantic			Uncertain – Likely Indirect Positive
ABC Omnibus Framework			Neutral
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 16. The indirectly negative actions described in Table 16 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on protected resources, relative to the range of many of the protected resources, is expected to be limited due to a lack of exposure to the population at large. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude, although the impact on protected resources either directly or indirectly is unquantifiable. As described above (section 7.5.4), NMFS has several means, including ESA, under which it can review non-fishing actions of other federal or state agencies that may impact NMFS' protected resources prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on protected resources under NMFS' jurisdiction.

Past fishery management actions taken through the FMP and annual specification process have had a positive cumulative effect on ESA-listed and MMPA protected species through the reduction of fishing effort (potential interactions) and implementation of gear requirements. It is anticipated that the future management actions, specifically those recommended by the Atlantic Large Whale Take Reduction Plan (ALWTRT) and the development of strategies for sea turtle conservation described in Table 20, will result in additional indirect positive effects on 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 and commercial quotas for managed resources have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA. The proposed actions in this document would not change the past and anticipated cumulative effects on ESA-listed and MMPA protected species and thus, would not have any significant effect on protected resources individually or in conjunction with other anthropogenic activities (Table 20).

Table 20. Summary of the effects of past, present, and reasonably foreseeable future actions on the protected resources.

Action	Past to the Present		Reasonably Foreseeable Future
Original FMP and subsequent Amendments and Frameworks to the FMP	Indirect Positive		
Tilefish Specifications		Neutral	
Developed, Apply, and Redo Standardized Bycatch Reporting Methodology	Neutral		
Agricultural runoff	Indirect Negative		
Port maintenance	Uncertain – Likely Indirect Negative		
Offshore disposal of dredged materials	Indirect Negative		
Beach nourishment – Offshore mining	Indirect Negative		
Beach nourishment – Sand placement	Indirect Negative		
Marine transportation	Indirect Negative		
Installation of pipelines, utility lines and cables	Potentially Direct Negative		
National Offshore Aquaculture Act of 2007	Potentially Indirect Negative		
Offshore Wind Energy Facilities (within 3 years)			Uncertain – Likely Indirect Negative
Liquefied Natural Gas (LNG) terminals (within 3 years)		Uncertain – Likely Indirect Negative	
Convening Gear Take Reduction Teams (within 3 years)			Indirect Positive
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years)			Indirect Positive
Framework 2 Discard adjustment, reporting requirements, evaluate recreational possession limit for-hire sector			Neutral
Protection for Deep Sea Corals in the Mid-Atlantic			Uncertain – Likely Indirect Positive
ABC Omnibus Framework			Neutral
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 16. The indirectly negative actions described in Table 16 are localized in nearshore areas and marine project areas where they occur. Therefore, the magnitude of those impacts on human communities is expected to be limited in scope. It may, however, displace fishermen from project areas. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal system may be of a larger magnitude. This may result in indirect negative impacts on human communities by reducing resource availability; however, this effect is unquantifiable. As described above (section 7.5.4), NMFS has several means under which it can review non-fishing actions of other federal or state agencies prior to permitting or implementation of those projects. This serves to minimize the extent and magnitude of indirect negative impacts those actions could have on human communities.

Past fishery management actions taken through the FMP 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 21, will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on the human communities could occur through management actions that may implement gear requirements or area closures and thus, reduce revenues. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had an overall positive cumulative effect.

Catch limits and commercial quotas for the managed resources have been specified to ensure the stock is managed in a sustainable manner, and measures are consistent with the objectives of the FMP under the guidance of the MSA.

Despite the potential for negative short-term effects on human communities, the expectation is that there would be a positive long-term effect on human communities due to the long-term sustainability of tilefish. 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 21).

Table 21. 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	
Tilefish Specifications	Indirect Positive	
Developed, Apply, and Redo Standardized Bycatch Reporting Methodology	Potentially Indirect Negative	
Agricultural runoff	Indirect Negative	
Port maintenance	Uncertain – Likely Mixed	
Offshore disposal of dredged materials	Indirect Negative	
Beach nourishment – Offshore mining	Mixed	
Beach nourishment – Sand placement	Positive	
Marine transportation	Mixed	
Installation of pipelines, utility lines and cables	Uncertain – Likely Mixed	
National Offshore Aquaculture Act of 2007	Uncertain – Likely Mixed	
Offshore Wind Energy Facilities (within 3 years)		Uncertain – Likely Mixed
Liquefied Natural Gas (LNG) terminals (within 3 years)		Uncertain – Likely Mixed
Convening Gear Take Reduction Teams (within 3 years)		Indirect Negative
Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (within next 3 years)		Indirect Negative
Framework 2 Discard adjustment, reporting requirements, evaluate recreational possession limit for-hire sector		Indirect Positive
Protection for Deep Sea Corals in the Mid-Atlantic		Uncertain – Likely Indirect Positive
ABC Omnibus Framework		Neutral
Summary of past, present, and future actions excluding those proposed in this specifications document	Overall, actions have had, or will have, positive impacts on human communities * See section 7.5.5.5 for explanation.	

7.5.6 Preferred Action on all the VECS

The Council has identified its preferred action alternatives in section 5.0. The cumulative effects of the range of actions considered in this document can be considered to make a determination if significant cumulative effects are anticipated from the preferred action. 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, which include the additive and synergistic effects of the proposed action, as well as past, present, and future actions, have been taken into account throughout this section 7.5. The action proposed in this annual specifications document builds off action taken in the original FMP and subsequent amendments and framework documents. When this action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future actions, it is not expected to result in any significant impacts, positive or negative. Based on the information and analyses presented in these past FMP documents and this document, there are no significant cumulative effects associated with the action proposed in this document (Table 22).

Table 22. Magnitude and significance of the cumulative effects; the additive and synergistic effects of the 2015-2017 preferred action, as well as past, present, and future actions.

VEC	Status in 2014	Net Impact of P, Pr, and RFF Actions	Impact of the Preferred Action for 2015-2017	Significant Cumulative Effects
Managed Resource	Complex and variable (Section 6.1)	Positive (Sections 7.5.4 and 7.5.5.1)	2015 positive; 2016 slight positive; 2017 slight positive; overall slight positive to positive (Section 7.1.1)	None
Non-target Species	Complex and variable (Section 6.1)	Positive (Sections 7.5.4 and 7.5.5.2)	2015 positive; 2016 slight positive; 2017 positive; overall slight positive to positive (Section 7.1.1)	None
Habitat	Complex and variable (Section 6.2)	Neutral to positive (Sections 7.5.4 and 7.5.5.3)	2015 positive; 2016 slight positive; 2017 positive; overall slight positive to positive (Section 7.2.1)	None
Protected Resources	Complex and variable (Section 6.3)	Positive (Sections 7.5.4 and 7.5.5.4)	neutral (Section 7.3.1)	None
Human Communities	Complex and variable (Section 6.4)	Positive (Sections 7.5.4 and 7.5.5.5)	negative (Section 7.4.1)	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 amendment addresses how the management actions implemented comply with the National Standards. First and foremost, 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 for tilefish and the U.S. fishing industry. To achieve OY, both scientific and management uncertainty need to be addressed when establishing catch limits that are less than the OFL; therefore, the Council has developed recommendations that do not exceed the ABC recommendations of the SSC which have been developed to 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 the managed resource. The Council uses the best scientific information available (National Standard 2) and manages the species throughout the range (National Standard 3). These management measures do not discriminate among residents of different states (National Standard 4), they do not have economic allocation as their sole purpose (National Standard 5), the measures account for variations in the fishery (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). Finally, actions taken are consistent with National Standard 9, which addresses bycatch in fisheries. The Council has implemented many regulations that have indirectly acted to reduce fishing gear impacts on EFH. By continuing to meet the National Standards requirements of the 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 ports and communities that depend on these fisheries, the Nation as a whole, and certainly for the resources.

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 is expected to jeopardize the sustainability of the target species affected by the action. The preferred alternative to establish catch and landing limits for tilefish 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 tilefish stock.

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 is expected to jeopardize the sustainability of any non-target species, including ESA-listed and MMPA protected species. The proposed measures are not expected to alter fishing methods or activities.

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

The proposed action as described in section 7.0 of the EA is not expected to cause substantial damage to the ocean, coastal habitats, and/or EFH as defined under the MSA and identified in the FMP. The tilefish fishery is primarily a commercial fishery. Based on dealer data from 2009-2013, the bulk of the tilefish landings are taken by the directed tilefish fishery which uses bottom longline gear (98%) followed by the incidental fishery using bottom trawl gear (2%; section 6.2). Bottom otter trawls, which catch very small amounts of tilefish incidentally have the potential to impact bottom habitat. The quota-setting measures proposed in this action could, under certain conditions, decrease fishing effort and the amount of time that bottom longline gear vessels spend fishing for tilefish, but the positive impacts of this decrease level of fishing on benthic habitats would not be expected to be significant. Neither these, nor any of the other measures included in the proposed action will have any adverse habitat impact.

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

None of the measures 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 this fishery, including the communities in which they operate, will not impact adversely 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 is 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 (see section 7.0). Therefore, this action is not expected to affect ESA-listed or MMPA protected species or critical habitat in any manner not considered in previous consultations on the fisheries.

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

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. This action merely establishes catch and landings limits in 2014-2017 for the tilefish fishery. None of the proposed specifications is 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.

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 tilefish occurs predominately in the Mid-Atlantic using bottom longline gear which causes some low degree impacts in mud, sand, and gravel habitats. Bottom otter trawls, which catch very small amounts of tilefish incidentally have the potential to impact bottom habitat. However, none of the proposed specifications is expected to alter fishing methods or activities or is expected 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.

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

The impacts of the proposed measures on the human environment are described in section 7.0 of the EA. This action merely establishes catch and landings limits in 2015-2017 for the tilefish fishery. The proposed action is based on measures contained in the FMP, which have been in place for many years. In addition, the scientific information upon which the annual quotas are based has been peer reviewed and is the most recent information available. 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 establishes catch and landings limits in 2015-2017 for the tilefish fishery. 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 the possible loss or damage to 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 7.0 of the EA. This action merely establishes catch and landings limits in 2015-2017 for the tilefish fishery. None of the proposed specifications is expected to alter fishing methods or activities or is expected 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 significant cumulative impacts on the biological, physical, and human components of the environment.

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

The impacts of the proposed measures on the human environment are described in section 7.0 of the EA. This action merely establishes catch and landings limits in 2015-2017 for the tilefish fishery. Although there are shipwrecks present in the area where fishing may occur, including some registered on the National Register of Historic Places, vessels typically avoid fishing too close to wrecks due to the 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 establishes catch and landings limits in 2015-2017 for the tilefish fishery. There is no evidence or indication that this fishery has ever resulted in the introduction or spread of nonindigenous species. None of the proposed specifications is 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. Therefore, it is highly unlikely that the proposed action would be expected to result in the introduction or spread of a non-indigenous species.

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

This action merely establishes catch and landings limits in 2015-2017 for the tilefish. None of the proposed specifications is expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. When a new stock assessment or other biological information about this species becomes 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?*

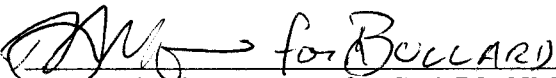
This action merely establishes catch and landings limits in 2015-2017 for the tilefish fishery. None of the proposed specifications is expected to alter fishing methods or activities such that they threaten a violation of federal, State, or local law or requirements imposed for the protection of the environment. In fact, the proposed measures have been found to be consistent with other applicable laws (see sections 8.3-8.11 below).

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

The impacts of the proposed alternatives on the biological, physical, and human environment are described in section 7.0. The cumulative effects of the proposed action on target and non-target species, including ESA-listed and MMPA protected species, are detailed in section 7.5 of the EA. None of the proposed specifications is 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 2015-2017 tilefish fishery, 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.


Regional Administrator for GARFO, NMFS, NOAA

10/6/14
Date

8.3 Endangered Species Act

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

8.4 Marine Mammal Protection Act

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

8.5 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972, as amended, provides measures for ensuring stability of productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. It is recognized that responsible management of both coastal zones and fish stocks must involve mutually supportive goals. The Council has developed this specifications document and will submit it to NMFS; NMFS must determine whether this action is consistent to the maximum extent practicable with the CZM programs for each state (Maine through Virginia).

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 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 amendment and framework adjustment. Development of this specifications document provided many opportunities for public review, input, and access to the rulemaking process. This action and the proposed specifications document was developed through a multi-stage process that was open to review by affected members of the public. The public had the opportunity to review and comment on management measures during the SSC and Tilefish MC Meetings held on March 12, 2014, in Baltimore, MD, and during the MAFMC meeting held on April 8-10, 2014 in Montauk, NY. In addition, the public will have further opportunity to comment on this specifications document once NMFS publishes a request for comments notice in the Federal Register (FR).

8.7 Section 515 (Data Quality Act)

Utility of Information Product

This action proposes commercial quotas in 2015, 2016, and 2017 for the tilefish fishery. 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 (if applicable). 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 (see section 8.6). In addition, the public will have further opportunity to comment on this specifications document once NMFS publishes a request for comments notice in the FR.

Integrity of Information Product

The information product meets the standards for integrity under the following types of documents: Other/Discussion (e.g., Confidentiality of Statistics of the 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.” This section (section 8.0) describes how this document was developed to be consistent with any applicable laws, including MSA with any of the applicable National Standards. The analyses used to develop the alternatives (i.e., policy choices) are based upon the best scientific information available and the most up to date information is used to develop the EA which evaluates the impacts of those alternatives (see section 7.0 of this document for additional details). 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 tilefish fishery.

The review process for this specifications document involves MAFMC, NEFSC, GARFO, and NMFS headquarters. The NEFSC 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 MAFMC review process involves public meetings at which affected stakeholders have the opportunity to comments 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/EO 13132

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

8.10 Environmental Justice/EO 12898

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

The proposed actions are not expected to affect participation in the tilefish fishery. Since the proposed action represents no changes relative to the current levels of participation in this fishery, 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 Impact Review / Initial Regulatory Flexibility Analysis

NMFS requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement or significantly amend an FMP. The RIR presented in section 8.11.1 provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. This analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and evaluates the alternatives presented as a solution. This analysis ensures that the regulatory

agency systematically and comprehensively considers all available alternatives so public welfare can be enhanced in the most efficient and cost-effective way. The RIR addresses multiple items in the regulatory philosophy and principles of EO 12866.

The Regulatory Flexibility Act (RFA) requires the Federal rulemaker to examine the impacts of proposed and existing rules on small businesses, small organizations, and small governmental jurisdictions. In reviewing the potential impacts of proposed regulations, the agency must either certify that the rule “will not, if promulgated, have a significant economic impact on a substantial number of small entities.” A determination of substantial depends on the context of the proposed action, the problem to be addressed, and the structure of the regulated industry. Standards for determining significance are discussed below. Also included under section 8.11.2 is an Initial Regulatory Flexibility Analysis (IRFA) which evaluates the economic impacts of the alternatives on small business entities.

The proposed actions in this specifications document only consider modifications of the tilefish commercial quotas for 2015, 2016, and 2017. The Council did not recommend changes to other regulations in place for this fishery. Therefore, any other fishery management measures in place will remain unchanged (*status quo*) for the 2015-2017 fishing years. The economic analyses presented for the various alternatives are for the commercial fishery. Currently there are no catch and landings limits associated with the recreational fishery. Recreational catches appear to be a minor component of total removals (section 6.1.1) and the only management measure for the recreational fishery in the FMP is a recreational bag-limit of 8 fish per angler per trip which is not being revised under this specifications package. The Council will develop a framework document (Framework 2) to address various issues in the tilefish fishery including an evaluation of the recreational possession limit accounting process for tilefish onboard charter and party vessels (for-hire) to accommodate multiday trips (section 7.5.4). A detail impact analysis of the recreational fishery will be conducted when Framework 2 to the Tilefish FMP is developed. The proposed catch and landing limits for the commercial fishery are not expected to affect recent trends in recreational catches or recreational trips for tilefish. As such, no economic changes to that small component of the fishery are expected.

8.11.1 Evaluation of EO 12866 Significance

8.11.1.1 Description of the Management Objectives

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

8.11.1.2 Description of the Fishery

A description of the tilefish fishery is presented in section 6.0. A description of ports and communities that are dependent on tilefish is found in section 6.5 of Amendment 1 to the

FMP (MAFMC 2009). Recent landing patterns among ports are examined in section 6.4.3. An analysis of permit data is found in section 6.4.4.

8.11.1.3 A Statement of the Problem

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

8.11.1.4 A Description of Each Alternative

A full description of the alternatives analyzed in this section and the catch and landings limit derivation process is presented in sections 4.0 and 5.0. In addition, a brief description of each alternative is presented below for reference purposes.

Alternative 1 for 2015-2017 is the preferred alternative and includes the commercial quota levels recommended for tilefish on vessels that are permitted to catch this species. This alternative contains recommended harvest to prevent overfishing in 2015-2016 and contains the catch and landings limits recommendations made by the SSC and MC. The catch and landings limits under this alternative for 2017 are slightly lower than those recommended by the SSC and MC for 2017. For 2017, the Council endorsed the OFL of 2,405 M lb (1,091 mt) as recommended by the SSC. However, all the other catch and landings components recommended by the Council for 2017 are equal to those recommended by the SSC and MC for 2016. The Council took into consideration industry input and maintained the 2016 ABC, ACL, ACT, TAL, total IFQ amount, and incidental category quota amount in 2017 in order to maintain fishery stability. Therefore, the catch and landings component for 2017 under the preferred alternative 1 are slightly lower than those recommended by the SSC and MC for 2017. More specifically, industry members indicated that while alternative 1 (preferred) would result in an overall slight reduction (51,000 pounds) in commercial quota for IFQ vessels for the 2015-2017 period when compared to alternative 3 (non-preferred alternative), it is better for them as it sends a signal of consistency of quota/landings from year to year to the marketplace. This in turn, according to industry members translates into price and supply stability in the fishery.

Alternative 2 (non-preferred/no action) for 2015-2017 includes the *status quo* catch limits and commercial quota levels, i.e., those that would result in a similar commercial quota when compared to 2014. This alternative would result in the greatest amount of landings when compared to preferred alternative 1 for 2015-2017 and non-preferred alternative 3 for 2015-2017.

Alternative 3 (non-preferred) for 2015-2017 contains recommended commercial quota levels to prevent overfishing in 2015-2017 and contains the catch and landings limits recommendations made by the SSC and MC. This alternative differs from alternative 1 for 2015-2017 in that the catch and landing limits in year 2017 are slightly lower than those for year 2017 under alternative 1 for 2015-2017.

8.11.1.5 The Economic Effects of Tilefish Effort Reductions

The economic benefits of the FMP have been reevaluated periodically. These analyses were conducted at the time major documents were developed and may be presumed to leave the conclusions reached in the initial FMP benefit-cost analyses unchanged, provided the original conservation and economic objectives of the plan are being met. The objectives of the FMP are detailed in section 4.3 of Amendment 1 (MAFMC 2009). More specifically, the overall goal of this FMP is to rebuild tilefish so that the optimum yield can be obtained from this resource. To meet the overall goal, the following objectives are adopted: 1) Prevent overfishing and rebuild the resource to the biomass that would support MSY; 2) Prevent overcapitalization and limit new entrants; 3) Identify and describe essential tilefish habitat; and 4) Collect necessary data to develop, monitor, and assess biological, economic, and social impacts of management measures designed to prevent overfishing and to reduce bycatch of tilefish in all fisheries. The tilefish resource is not overfished and overfishing is not occurring in 2012. In addition, according to the latest benchmark stock assessment the stock is rebuilt.¹¹ Detailed description of stock status is provided in section 6.1.2. Commercial quotas (based on overall catch and landings limits) are proposed through this specifications document to ensure overfishing does not occur and this stock remains at its rebuilding target. A fully rebuilt stock should provide the maximum economic benefits to participants of this fishery while ensuring sustainability. For tilefish, commercial quotas have been implemented since 2002 fishing year (section 6.1.1). While in fishing years 2004-2005 overages occurred in the commercial fishery, these were due to the result of the decision of the Hadaja v. Evans lawsuit. During that time period, the permitting and reporting requirements for the FMP were postponed for close to a year (May 15, 2003 through May 31, 2004) and it was not mandatory for permitted tilefish vessels to report their landings. In addition, during that time period, vessels that were not part of the tilefish limited entry program also landed tilefish. An IFQ system was implemented in the tilefish fishery in 2009 and landings are closely monitored to maintain overall landings within the quota specifications and continue to meet the objectives of the FMP.

8.11.1.6 Analysis of Alternatives

The overall commercial tilefish quota for 2015 under preferred alternative 1 is lower (12.0 percent) than the tilefish commercial quota for 2014 and approximately 3.4 percent below the commercial landings for 2013. This commercial quota would allow fishermen lower fishing opportunities for tilefish in 2015 compared to the 2014 quota. The commercial quota associated with preferred alternative 1 for 2016 is lower (5.4 percent) than the non-preferred *status quo* alternative for 2016 and would allow fishermen slightly lower fishing opportunities in 2016, when compared to non-preferred *status quo* alternative for 2016. The commercial quota associated with preferred alternative 1 for 2017 is lower (5.4 percent) than the non-preferred *status quo* alternative for 2017 and would allow fishermen slightly lower fishing opportunities in 2017, when compared to non-preferred *status quo* alternative for 2017. Both the 2016 and 2017 commercial quotas

¹¹NMFS has notified Council that tilefish is rebuilt.

under preferred alternative 1 are approximately 3.9 percent above the landings for 2013 (Table 14).

For each alternative, potential impacts on several areas of interest are discussed such that the economic effects of the various alternatives are comprehensively evaluated. The types of effects that should be considered include the following changes in landings, prices, consumer and producer benefits, harvesting costs, enforcement costs, and distributional effects. Due to the lack of an empirical model for this fishery and knowledge of elasticities of supply and demand, a qualitative approach to the economic assessment was adopted. Nevertheless, quantitative measures are provided whenever possible. A more detailed description of the economic concepts involved can be found in "Guidelines for Economic Review of National Marine Fisheries Service Regulatory Actions" (NMFS 2007), as only a brief summary of key concepts will be presented here.

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

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

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

Methodology

For purposes of this analysis, all alternatives are evaluated assuming the primary measure for achieving the conservation objectives will be through changes in quota levels. All

alternatives will be evaluated against a baseline. The baseline condition provides the standard against which all other alternative actions are compared. For purposes of impact evaluation, it is assumed that the baseline condition for the *status quo* alternatives for 2015, 2016, and 2017 is the 2014 quota. The baseline conditions for all other alternatives is the *status quo* (no action) alternative. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative versus the baseline condition. Aggregate changes in fishing opportunities associated with each alternative evaluated are shown in Table 14. A detailed description of the process to derive the tilefish quotas is presented in sections 4.0 and 5.0. The information presented in Table 14 was used to determine potential changes in landings (i.e., fishing opportunities) associated with the proposed quota levels for each of the alternatives evaluated in this analysis.

8.11.1.6.1 Alternative 1 - Preferred (2015, 2016, 2017)

Alternative 1 - Preferred (2015)

Landings - Under the 2015 preferred alternative, aggregate commercial landings for tilefish is expected to be approximately 12.0 percent lower relative to 2015 *status quo* alternative 2.

Prices - It is possible that given the potential decrease in tilefish landings, price for this species may increase if all other factors are held constant.

Consumer Surplus - Assuming a potential increase in the price of tilefish, it is possible that CS associated with this fishery may decrease.

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

Producer Surplus - If there is a change in the price of tilefish there will be associated changes in PS. The magnitude of the PS change will be associated with the price elasticity of demand for the species in question.

The law of demand states that price and quantity demanded is inversely related. Given a demand curve for a commodity (good or service), the elasticity of demand is a measure of the responsiveness of the quantity that will be taken by consumers giving changes in the price of that commodity (while holding other variables constant). There are several major factors that influence the elasticity for a specific commodity. These factors largely determine whether demand for a commodity is price elastic or inelastic¹²: 1) the number and closeness of substitutes for the commodity under consideration, 2) the number of uses to which the commodity can be put; and 3) the price of the commodity relative to the

¹² Price elasticity of demand is elastic when a change in quantity demanded is large relative to the change in price. Price elasticity of demand is inelastic when a change in quantity demanded is small relative to the change in price. Price elasticity of demand is unitary when a change in quantity demanded and price are the same.

consumer's purchasing power (income). There are other factors that may also determine the elasticity of demand but they are not mentioned here because they are beyond the scope of this discussion. As the number and closeness of substitutes and/or the number of uses for a specific commodity increase, the demand for the specific commodity will tend to be more elastic. Demand for commodities that take a large amount of the consumer's income are likely to be elastic compared to services with lower prices relative to the consumer's income. It has been argued that the availability of substitutes is the most important of the factors listed in determining the elasticity of demand for a specific commodity (Leftwich 1973; Awk 1988). Seafood demand in general appears to be elastic. In fact, for most species, product groups, and product forms, demand is elastic (Asche and Bjørndal 2003). For example, an increase in the ex-vessel price of tilefish may increase PS. A decrease in the ex-vessel price of tilefish may also increase PS if we assumed that the demand for tilefish is moderate to highly elastic. However, the magnitude of these changes cannot be fully assessed without knowledge of the exact shape of the market demand curve for this species.

Enforcement Costs - Properly defined, enforcement costs are not equivalent to the budgetary expense of dockside or at-sea inspection of vessels. Rather, enforcement costs from an economic perspective are measured by opportunity cost in terms of foregone enforcement services that must be diverted to enforcing tilefish. The proposed measures are not expected to change enforcement costs. However, it is possible that decreasing quotas in this fully utilized fishery could increase the incentive for misreporting of landings. If this were to occur, some additional enforcement cost (i.e., effort) would be expected, and it would be higher under preferred alternative 1 when compared to non-preferred alternative 3, which would be higher than under non-preferred alternative 2 (*status quo*). However, the magnitude of any additional enforcement cost under this hypothetical scenario is uncertain.

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

Alternative 1 - Preferred (2016)

Landings - Under the 2016 preferred alternative, aggregate commercial landings for tilefish are expected to be approximately 5.4 percent lower relative to the quota under the 2016 *status quo* alternative 2.

Prices - It is possible that given the potential decrease in tilefish landings, price for this species may increase if all other factors are held constant.

Consumer Surplus - Assuming a potential increase in the price of tilefish, it is possible that CS associated with this fishery may decrease.

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

Producer Surplus - The discussion regarding the effects of elasticity of demand on PS given price changes presented under preferred alternative 1 for 2015 also apply here (see prior section).

Enforcement Costs - The same definitions and assumptions regarding enforcement costs presented in preferred alternative 1 for 2015 also apply here. The proposed measures are not expected to change enforcement costs.

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

Alternative 1 - Preferred (2017)

The expected economic impacts under preferred alternative 1 for 2017 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical.

8.11.1.6.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)

Alternative 2 - Non-Preferred: Status Quo/No Action (2015)

Landings - Under the 2015 non-preferred alternative 2, aggregate commercial landings for tilefish are expected to be the same relative to 2014 quota.

Prices - Given the likelihood that this alternative will result in no change in landings of tilefish, it is assumed that the price for this species will not change, if all other factors are held constant.

Consumer Surplus - Assuming the price for tilefish behaves as stated above, it is expected that there will be no change in CS associated with the tilefish fishery.

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

Producer Surplus - The discussion regarding the effects of elasticity of demand on PS given price changes presented under preferred alternative 1 for 2015 also apply here (section 8.11.1.6.1). Assuming that prices behave as stated above, it is expected that there will be no change in the PS associated with the tilefish fishery.

Enforcement Costs - The same definitions and assumptions regarding enforcement costs presented in alternative 1 for 2015 also apply here (section 8.11.1.6.1). The proposed measures are not expected to change enforcement costs.

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

Alternative 2 - Non-Preferred: Status Quo/No Action (2016)

The expected economic impacts under each non-preferred alternative 2 for 2016 are identical to those presented under non-preferred alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

Alternative 2 - Non-Preferred: Status Quo/No Action (2016, 2017)

The expected economic impacts under each non-preferred alternative 2 for 2017 are identical to those presented under non-preferred alternative 2 for 2015, because the proposed commercial quotas are identical (see above).

8.11.1.6.3 Alternative 3 - Non-Preferred: SSC and MC recommended (2015, 2016, 2017)

Alternative 3 - Non-Preferred: SSC and MC recommended (2015)

The expected economic impacts under non-alternative 3 for 2015 are identical to those presented under preferred alternative 1 for 2015, because the proposed commercial quotas are identical (see section 8.11.1.6.1).

Alternative 3 - Non-Preferred: SSC and MC recommended (2016)

The expected economic impacts under non-alternative 3 for 2016 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical (see section 8.11.1.6.1).

Alternative 3 - Non-Preferred: SSC and MC recommended (2017)

Landings - Under the 2017 non-preferred alternative 3, aggregate commercial landings for tilefish are expected to be approximately 2.9 percent lower relative to the 2017 *status quo* alternative 2.

Prices - It is possible that given the potential decrease in tilefish landings, price for this species may increase if all other factors are held constant.

Consumer Surplus - Assuming a potential increase in the price of tilefish, it is possible that CS associated with this fishery may decrease.

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

Producer Surplus - The discussion regarding the effects of elasticity of demand on PS given price changes presented under preferred alternative 1 for 2015 also apply here.

Enforcement Costs - The same definitions and assumptions regarding enforcement costs presented in preferred alternative 1 for 2015 also apply here. The proposed measures are not expected to change enforcement costs.

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

8.11.1.6.4 Summary of Impacts

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

The impact of each of the regulatory quota alternatives relative to the base year is summarized in Table 23. A “-1” indicates that the level the feature would be reduced given the action when compared to the base year. A “+1” indicates that the level a given feature would increase relative to the base year and a “0” indicates no change. In this analysis, the baseline condition for the *status quo* alternatives for 2015, 2016, and 2017 is the 2014 quota. The baseline conditions for all other alternatives is the *status quo* (no action) alternative. This comparison will allow for the evaluation of the potential fishing opportunities associated with each alternative versus the baseline condition. When comparing across alternatives each year (versus the baseline period), it is expected that preferred alternative 1 and non-preferred alternative 3 would have similar impacts (direction and magnitude) on landings, prices, consumer surplus and producer surplus in year 2015. These alternatives show a decrease in tilefish landings, a potential increase in the ex-vessel price for tilefish, and thus potential decrease in consumer surplus in 2015 relative to the baseline. No changes in tilefish landings are expected under non-preferred alternative 2 in 2015, when compared to 2014. Thus, no changes in prices, producer surplus or consumer surplus are expected under non-preferred alternative 2 in 2015.

In 2016, preferred alternative 1 and non-preferred alternative 3 would have similar impacts (direction and magnitude) on landings, prices, consumer surplus and producer surplus. These alternatives show a decrease in tilefish landings, a potential increase in the ex-vessel price for tilefish, and thus potential decrease in consumer surplus in 2016 relative to the baseline. Overall, the impacts on landings, prices, consumer surplus, and producer surplus under preferred alternative 1 and non-preferred alternative 3 for 2016 are expected to have the same directional impacts as those under preferred alternative 1 and non-preferred alternative 3 for 2015, respectively. However, the magnitude of impacts in 2016 under preferred alternative 1 and non-preferred alternative 3 are expected to be smaller in magnitude than those under preferred alternative 1 and non-preferred alternative 3 for 2015, respectively, as the change in landings associated with the 2016 quotas for these two alternative are smaller than those associated with the 2015 quotas. No changes in tilefish landings are expected under non-preferred alternative 2 in 2016, when compared to 2014. Thus, no changes in prices, producer surplus or consumer surplus are expected under non-preferred alternative 2 in 2016.

In 2017, preferred alternative 1 would have similar impacts (direction and magnitude) on landings, prices, consumer surplus and producer surplus as those under preferred alternative 1 in 2016. This alternative shows a decrease in tilefish landings, a potential increase in the ex-vessel price for tilefish, and thus potential decrease in consumer surplus in 2017 relative to the baseline. Non-preferred alternative 3 in 2017 would also result in similar directional impacts as those under non-preferred alternative 3 in 2016 but smaller in magnitude (decrease in tilefish landings, a potential increase in the ex-vessel price for tilefish, and thus potential decrease in consumer surplus). No changes in tilefish landings are expected under non-preferred alternative 2 in 2017, when compared to 2014. Thus, no changes in prices, producer surplus or consumer surplus are expected under non-preferred alternative 2 in 2017.

Overall, no changes in the competitive nature of this fishery are expected to occur if any of these management measures are implemented in 2015-2017. All the alternatives would maintain the competitive structure of the fishery, that is, there are no changes in the manner the quotas are allocated by sector (IFQ vessels, incidental vessels) or IFQ shareholder from the base year. However, large reductions in quota levels from year to year may affect vessels differently due to their capability to adjust to quota changes. No changes in enforcement costs or harvest costs have been identified for any of the evaluated alternatives.

Table 23. Qualitative comparison summary of economic effects on the 2015, 2016, and 2017 regulatory alternatives relative to the baseline.

Alternative	Feature	2015 quotas	2016 quotas	2017 quotas
Alternative 1 (Preferred)	Landings	-1	-1	-1
	Prices	+1	+1	+1
	Consumer Surplus	-1	-1	-1
	Harvest Cost	0	0	0
	Producer Surplus	+1(?)	+1(?)	+1(?)
	Enforcement Cost	0	0	0
	Distributed Impacts	0	0	0
Alternative 2 (Non-Preferred: Status Quo/No Action)	Landings	0	0	0
	Prices	0	0	0
	Consumer Surplus	0	0	0
	Harvest Cost	0	0	0
	Producer Surplus	0	0	0
	Enforcement Cost	0	0	0
	Distributed Impacts	0	0	0
Alternative 3 (Non-Preferred: SSC and MC Recommended)	Landings	-1	-1	-1
	Prices	+1	+1	+1
	Consumer Surplus	-1	-1	-1
	Harvest Cost	0	0	0
	Producer Surplus	+1(?)	+1(?)	+1(?)
	Enforcement Cost	0	0	0
	Distributed Impacts	0	0	0

Combined Impacts of the Alternatives (2015, 2016, 2017)

Overall, it is expected that the preferred alternative 1 for 2015-2017 would result in a combined lower quota when compared to *status quo* non-preferred alternative 2 for 2015-2017. Preferred alternative 1 shows a decrease in tilefish landings, a potential increase in the ex-vessel price for tilefish, and thus potential decrease in consumer surplus in 2015-2017 relative to the *status quo* alternative 2 for 2015-2017.

Under alternative 2 (*status quo*) for 2015-2017, it is expected that no change in landings will occur when compared to 2014. Thus, no changes in prices, producer surplus or consumer surplus are expected under non-preferred alternative 2 in 2015-2017. Lastly, under non-preferred alternative 3 for 2015-2017, it is expected that similar directional impacts as those under preferred alternative 1 for 2015-2017 would occur but smaller in magnitude as more tilefish would be landed under non-preferred alternative 3 for 2015-2017 than under preferred alternative 1 for 2015-2017.

In order to further assess the economic impact of the proposed management measures for 2015-2017, the potential net benefits of each of the combined quota alternatives were evaluated by calculating changes in ex-vessel gross revenues associated with each evaluated alternative. When comparing across each of the three alternatives for years 2015-2017 combined, alternative 2 (*status quo*) would result in the highest cumulative landings (for the 2015-2017 period) with 5,985,000 lb, followed by non-preferred alternative 3 with 5,579,899 lb and preferred alternative 1 with 5,529,192 lb (Table 13). Assuming the ex-vessel price of tilefish in fishing year 2013 (November 1, 2012 - October 31, 2013) of \$3.44/lb,¹³ non-preferred alternative 2 would generate revenues of \$20,588,400 for the 2015-2017 fishing period combined, followed by non-preferred alternative 3 (\$19,194,853) and preferred alternative 1 (\$19,020,420). As such, the largest benefit gain in terms of revenues when comparing across each of the three alternatives for years 2015-2017 combined would result under alternative 2 followed by alternatives 3 and 1. Preferred alternative 1 and non-preferred alternative 3 for 2015-2017 period combined would result in a revenue reduction of \$1,567,979 and \$1,393,547, respectively, when compared against the *status quo* alternative. Revenue changes on a fishing year basis across all three alternatives are shown in Table 24. The revenue comparisons made above assumes constant ex-vessel price (static price) for tilefish and that the overall tilefish quotas would be taken in 2014-2017. However, if prices for this species decrease or increase as a consequence of changes in landings, then the associated revenue increases and decreases could be different than those estimated.

¹³ The tilefish price presented in section 6.0 of \$3.27/lb was based on information for calendar year 2013 (January 1 - December 31).

Table 24. Change in landings and revenues associated with each proposed commercial quota for the 2015-2017 fishing years compared to the baseline period.

Alternatives	Feature	2015 quotas	2016 quotas	2017 quotas
Alternative 1 (Preferred)	Change in pounds landed	-240,120	-107,844	-107,844
	Change in revenues (\$)	-826,013	-370,983	-370,983
Alternative 2 (Non-Preferred: <i>Status Quo/No Action</i>)	Change in pounds landed	0	0	0
	Change in revenues	0	0	0
Alternative 3 (Non-Preferred: SSC and MC Recommended)	Change in pounds landed	-240,120	-107,844	-57,137
	Change in revenues	-826,013	-370,983	-196,551

When comparing across all the alternatives, the largest positive economic impacts of the proposed 2015-2017 combined commercial quotas are associated with alternative 2 (*status quo*), as this allows for the largest amount of fish to be landed compared to alternatives 1 (preferred) and 3 (non-preferred). However, the *status quo* alternative was not chosen by the Council as it is not consistent with the ABC recommendation of the SSC for 2015-2017 and, therefore, not based on the best scientific information available intended to prevent overfishing. This alternative has the potential for negative biological impacts, and overfishing may occur if the catch levels are fully realized in 2015-2017. Both alternative 1 and 3 for 2015-2017 combined are expected to allow for less fish to be landed and decreased revenues, with alternative 1 containing slight higher negative economic impacts than alternative 3 due to slight lower landings in 2017 (50,707 lb lower). The Council chose alternative 1 as their preferred alternative, after taking into consideration industry input, and maintained the catch and landings limits in 2017 similar to those for 2016 in order to maintain fishery stability (see section 5.1 for additional details).

This action does not constitute a significant regulatory action under EO 12866 for the following reasons. First, it will not have an annual effect on the economy of more than \$100 million. The measures considered in this tilefish analysis will not affect total revenues generated by the commercial sector to the extent that a \$100 million annual economic impact will occur in the tilefish fishery. Based on NMFS preliminary dealer data, the total commercial value in 2013 was estimated at approximately \$5.5 million for tilefish. As estimated above, assuming 2013 ex-vessel price for tilefish and the potential change in landings due to the proposed quotas in 2015-2017 (relative to baseline quotas),

the overall reduction in gross revenue under the preferred alternative would be \$1.49 million for the 2015-2017 period combined when compared to the *status quo* alternative for 2015-2017. The preferred alternatives being considered by this action are necessary to maintain the tilefish stock at sustainable harvest levels. The action benefits in a material way the economy, productivity, competition and jobs. The action will not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. In addition, this action will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the tilefish fishery in the EEZ. Further, this action will not materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of their participants. And, finally, the proposed action do not raise novel, legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in EO 12866.

8.11.2 Initial Regulatory Flexibility Analysis

As indicated in section 4.0, the proposed actions in this specifications document would establish annual quotas in the tilefish fishery for 2015-2017 which are necessary to maintain the harvest of tilefish at sustainable levels. The proposed tilefish quota for 2015 is 1,754,884 lb, and 1,887,156 lb for each 2016 and 2017. The preferred quotas for 2015, 2016, and 2017 are lower than the 2014 quota and as such the preferred alternative offers lower fishing opportunities when compared to current quota condition (*status quo*). The preferred quota alternative for 2015-2017 proposed in this rule making would have adverse economic impact when compared to the *status quo* due to the decrease in commercial quota levels or revenues relative to those currently experienced. However, alternative 2 (*status quo*) has the potential for negative biological impacts, and overfishing may occur if the catch levels are fully realized in 2015-2017 which could potentially affect the long-term sustainability of the fishery. Lastly, non-preferred alternative 3 would also result in negative economic impacts when compared to the *status quo* but slightly smaller in magnitude than those under preferred alternative 1.

As previously indicated, an 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 2015, 2016, and 2017 tilefish fishery.

The proposed actions in this specifications document only consider modifications of the tilefish commercial quotas for 2015, 2016, and 2017. The Council did not recommend changes to other regulations in place for this fishery. Therefore, any other fishery management measures in place will remain unchanged (*status quo*) for the 2015-2017 fishing years. The economic analyses presented for the various alternatives are for the commercial fishery. Currently there are no catch and landings limits associated with the recreational fishery. Recreational catches appear to be a minor component of total removals (section 6.1.1) and the only management measure for the recreational fishery in the FMP is a recreational bag-limit of 8 fish per angler per trip which is not being revised

under this specifications package. The proposed catch and landing limits for the commercial fishery are not expected to affect recent trends in recreational catches or recreational trips for tilefish. As such, no economic changes to that small component of the fishery are expected.

8.11.2.1 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.

There is only one regulatory actions contemplated in this document, specifying a maximum landings limit (quota) for tilefish in federal waters for the years 2015, 2016, and 2017. The proposed action is a critical component of the management program developed for tilefish in federal waters.

The tilefish fishery has a successfully implement IFQ management program, which provides substantial benefits to fishery participants. The monitoring the status of this living resource and determination of the maximum quantity that can be safely removed from it each year, without damaging the health or the health of the ecosystem in which it resides, is an ongoing process.

The privileges to harvest the annual quotas are assigned to allocation holders at the outset of each fishing year, with each receiving a specific number of quota pounds that equates to their percentage share of the quota for that year. They are then free to harvest the allocation themselves, or lease it to others if they choose. Market forces will tend to steer these allocations to the best captains and most efficient vessels, since they will be able to generate the highest profits and offer the highest leasing prices to allocation owners.

This system could not function without the annual specification of quotas, and is a primary reason for the regulatory action proposed in this document. A second critical function of annual quotas is to prevent overfishing and obtain the optimal yield from a fishery.

8.11.2.2 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.

8.11.2.3 Estimate of the Number of Small Entities

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 measures regarding the 2015, 2016, and 2017 tilefish quotas could affect any vessel holding an active Federal

permit for tilefish. Data from the Greater Atlantic permit application database shows that in 2013 there were 1,827 vessels that held a valid commercial tilefish permit and 393 vessels held a valid party/charter tilefish permit. However, not all of those vessels are active participants in the fishery. According to the dealer data, 141 vessels landed tilefish in fishing year 2013.¹⁴ In addition, according to VTR data, 25 party/charter vessels reported catching tilefish in 2013.

Some of the vessels with tilefish permits may be considered to be part of the same firm, because they may have the same owners. Firms are classified as finfish, shellfish, or for-hire firms based on the activity which they derive the most revenue.

Using the \$20.5 million cutoff for finfish firms, there are 190 entities that are small and 4 that are large assuming average revenues for the 2010-2012 period. The majority of the permitted vessels readily fall within the definition of small business.

Table 25 describes the number of small firms that are active in the tilefish fishery, their average revenues, and their average tilefish revenues.¹⁵ In order to identify firms, new vessel ownership data¹⁶, which have been added to the permit database, was used to identify all the individuals who own fishing vessels. With this information, vessels were grouped together according to common owners. The resulting groupings were then treated as a fishing business, for purposes of identifying small and large firms. In general terms, the active tilefish fishery participants derive a small share of gross receipts from the tilefish fishery. However, for small firms generating on average \$10,000 or more of their total revenues from tilefish revenues, a large number of the active participants generate a large share of gross receipts from the tilefish fishery (Table 26). The category of small entities likely to be affected by the proposed actions is that of IFQ holders and fishermen in the commercial fishery. As previously stated, the overall commercial tilefish quota is allocated to IFQ holders which are allocated 95% of the overall quota and incidental fishery vessels which are allocated 5% of the overall quota. IFQ vessels directly target tilefish using bottom longline gear, and incidental vessel land tilefish incidentally when targeting other species. Most of the incidental landings occur with bottom trawl gear. However, for the incidental fishery, changes in quotas are not expected to affect the effort of vessels that land tilefish incidentally (e.g., otter trawl vessels) as the catch and/or landings of tilefish incidentally occur as these vessels target other species and their fishing behavior is not expected to be driven by the level of the incidental tilefish quota. The following discussion of impacts centers on the effects of the proposed action on the mentioned small business entities.

¹⁴ The 144 vessels that landed tilefish presented in section 6.0 was based on information for calendar year 2013 (January 1 - December 31).

¹⁵ While all of the for-hire (party/charter) firms fall within the definition of a small business according to the 2010-2012 average revenues, some of the for-hire firms also landed tilefish commercially in the 2010-2012 period. If the contribution of tilefish commercial receipts is more than 50 percent of the total, the for-hire firm is considered a commercial operation and is included in Table 25.

¹⁶ Affiliate data set for 2010-2012 was provided by Andrew Kitts, NMFS, NEFSC, SSB.

Table 25: Small entities average revenues and tilefish revenues, 2010-2012.

Revenue (millions of dollars(M))	Count of Firms*	Average Gross Receipts	Average Tilefish Receipts	Tilefish Receipts as a Proportion of Gross Receipts
<0.5M	112	\$25,019,688	\$98,033	0.39%
0.5-1M	40	\$27,474,103	\$1,967,247	7.16%
1-2M	23	\$31,180,110	\$1,779,773	5.71%
2-4M	7	\$22,075,431	\$1,434,521	6.50%
4-20.5M	8	\$52,136,159	\$137,882	0.26%
>20.5M	4	\$87,577,233	\$1,789	<0.01%
Total	194	\$245,462,724	\$5,419,244	2.21%

*At the ownership level as described above.

Table 26: Small entities average revenues and tilefish revenues for entities generating on average \$10,000 or more of their total revenues from tilefish revenues, 2010-2012.

Revenue (millions of dollars(M))	Count of Firms*	Average Gross Receipts	Average Tilefish Receipts	Tilefish Receipts as a Proportion of Gross Receipts
<1M	7	\$4,077,854	\$2,007,595	49.23%
1-6M	4	\$11,998,359	\$3,324,346	27.71%
Total	11	\$16,076,213	\$5,331,941	33.17%

*At the ownership level as described above.

Since all permit holders may not be actively fishing and landing tilefish, the more immediate impact of the rule may be felt by the 141 commercial vessels that are active participants. An active participant was defined as being any vessel that reported having landed one or more pounds of tilefish in the Greater Atlantic dealer data during calendar year 2013.

8.11.2.4 Reporting Requirements

There are no reporting or record-keeping requirements associated with the proposed actions discussed in this document. This action does not contain a collection-of-information requirement for purposes of the PRA (see section 8.8). The actions relate solely to maximum commercial quota levels for tilefish in federal waters. Proposed and final rules on these actions will be published in the Federal Register.

8.11.2.5 Conflict with Other Federal Rules

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

8.11.2.6 Analysis of Economic Impacts

As previously indicated, a description of the tilefish fishery is presented in section 6.0. A description of ports and communities that are dependent on tilefish is found in section 6.5 of Amendment 1 to the FMP (MAFMC 2009). Recent landing patterns among ports are examined in section 6.4.3. An analysis of permit data is found in section 6.4.4. A full description of the alternatives analyzed in this section and the catch and landings limit derivation process is presented in sections 4.0 and 5.0. In addition, a brief description of each alternative is presented in section 8.11.1.4 for and below for reference purposes.

The IFQ system implemented for this fishery allows industry participants to benefit from a high degree of flexibility in their fishing operations, as government regulation is basically reduced to quota holders not exceeding their individual allowances. Industry members are free to trade quota amongst themselves as best suits their individual business needs. Costs to society are reduced and efficiency greatly enhanced when the use of effort limitation and closed seasons to limit total annual harvests can be avoided. The ability to avoid use of input controls to limit total annual harvest, such as effort restrictions and seasonal closures, reduces costs to society and greatly enhances efficiency. Input control tools often have the effect of overcapitalizing fisheries with unneeded vessels that are obliged to operate inefficiently, reducing socioeconomic benefits derived from these fishery resources.

In this IRFA, the primary unit of observation when performing a threshold analysis is the entity that participated in the tilefish fishery during calendar year 2013, irrespective of their current permit status.

The effects of actions were analyzed by employing quantitative approaches to the extent possible. Where quantitative data were not available, qualitative analyses were conducted. In the current analysis, effects on profitability associated with the proposed management measures should be evaluated by looking at the impact the proposed measures on individual vessel costs and revenues. However, in the absence of cost data for individual vessels engaged in this fishery, changes in gross revenues are used a proxy for profitability.

Procedurally, the economic effects of the quota alternatives were estimated using four steps. First, the Greater Atlantic dealer data were queried to identify all vessels that landed at least one or more pounds of tilefish in fishing year 2013 (November 1, 2012 - October 31, 2013). The second step was to estimate total revenues from all species landed by each vessel during fishing year 2013. This estimate provides the base from which subsequent quota changes and their associated effects on vessel revenues were compared. Since fishing year 2013 is the last full year of data available (complete year data from 2014 is not available), it was chosen as the base year for the analysis. As such, 2013 data were used as a proxy for 2014.

The third step was to deduct or add, as appropriate, the expected change in vessel revenues depending upon which of the quota scenarios were evaluated. This was accomplished by estimating proportional reductions or increases in the quota scenarios for 2015 versus the base quota year 2014. For 2016 and 2017, proportional reductions

between the 2016-2017 measures and the *status quo* (no action) alternative for 2016-2017 was used to assess revenue changes.¹⁷ For the purpose of estimating the 2015, 2016, and 2017 quotas and revenue changes, the following assumptions were made: a) the industry will fully harvest, and not exceed the 2014 quota; and b) the entire tilefish quota allocations will be taken in 2015, 2016, and 2017. The fourth step was to compare the estimated 2015, 2016, and 2017 base revenues for every vessel to assess potential changes. For each quota alternative, a summary table was constructed that reports the results of the threshold analysis. These results were further summarized by home state as defined by permit application data, when appropriate.

In addition to the impact analysis at the vessel level presented in this section, Council staff conducted an impact analysis at the firm level which is presented in section 8.11.2.7.4.

8.11.2.7 Analyses of Impacts of Alternatives

8.11.2.7.1 Alternative 1 - Preferred (2015, 2016, 2017)

This alternative examines the impacts on industry that would result from the preferred commercial quota levels for tilefish. To analyze the economic effects of this alternative, the total commercial quota levels specified under section 5.0 were employed. Alternative 1 contains commercial quotas of 1,754,880 lb, 1,887,156 lb, and 1,887,156 lb for tilefish for 2015, 2016, and 2017, respectively. Under this alternative, the tilefish specifications would result in an aggregate decrease in commercial landings of 12.0 percent in 2015 and 5.4 percent in each 2016 and 2017 when compared to the *status quo* alternative (Table 14).

Alternative 1 - Preferred (2015)

The results of the threshold analysis are presented in Table 27. The analysis of the commercial quota level under this scenario indicate that the economic impacts from expected revenue losses on the order of 5 percent or less (relative to the *status quo*) for 134 vessels, 5-9 percent for 2 vessels, and 10-19 percent for 5 vessels.

¹⁷ In other words, for purposes of impact evaluation, *status quo* alternatives for 2014, 2015, and 2016 are compared to 2014 baseline condition, while all other alternatives are compared to the *status quo* (no action) baseline alternative.

Table 27. Threshold analysis of revenue impacts for participating vessels associated with the preferred alternative 1 for 2015.

Quota Alternative 1 (Preferred) for 2015		Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	≥ 50
141	7	0	0	134	2	5	0	0	0	0

Impacts of the quotas provisions were examined relative to a vessel’s home state as reported on the vessel’s permit application (Table 28). “Home state” indicates the state where a vessel is based and primarily ported, and is presumed to reflect where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of ≥ 5 percent by home state ranged from 2 in New Jersey to 5 in New York, with most states showing no impacted vessels (Table 28).

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

Table 28. Review of revenue impacts under preferred alternative 1 for 2015, by home port state.

State	Participating Vessels	Number of Vessels Impacted ≥ 5 percent	Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (percent)						
					<5	5-9	10-19	20-29	30-39	40-49	≥ 50
CT	5	0	0	0	5	0	0	0	0	0	0
MA	16	0	0	0	16	0	0	0	0	0	0
MD	1	0	0	0	1	0	0	0	0	0	0
NC	19	0	0	0	19	0	0	0	0	0	0
NJ	28	2	0	0	26	1	1	0	0	0	0
NY	21	5	0	0	16	1	4	0	0	0	0
RI	41	0	0	0	41	0	0	0	0	0	0
VA	9	0	0	0	9	0	0	0	0	0	0

Of the 7 vessels showing revenue reduction of ≥ 5 percent, all are identified as holders of federal tilefish permits. Many of the vessels projected to have revenue reductions of ≥ 5 percent hold permits in other fisheries (Table 29). In particular, most vessels have multispecies (open access), squid-mackerel-butterfish (commercial), bluefish

(commercial), dogfish, skates, and monkfish (open access). In general terms, vessels that participate in the directed tilefish fishery generate the bulk of their revenues from tilefish landings. However, incidental takes of other species do occur and as such these vessels tend to have permits for other fisheries that would allow them to land other species caught. While these vessels have access to some alternative fisheries by virtue of holding other Federal fishing permits (e.g., multispecies), many of these are already under heavy regulation and likely to have increasingly stringent catch limits for the near future. Furthermore, the directed tilefish fishery is specialized in terms of fishing gear and fishing techniques that may not be easily transferred to other fisheries.

The majority of the impacted vessels (with revenue reductions of 5 percent or more) with federal permits for tilefish have home ports in New York. The principal ports of landing for these vessels are mainly located in New York as well (Table 30). Within that state, the most impacted county (largest number of impacted vessels) is Suffolk (Table 31).

To further characterize the potential impacts on indirectly impacted entities and the larger communities within which owners of impacted vessels reside, selected county profiles were constructed. The profile is based on impacts under the most restrictive possible quota scenario (preferred alternative 1 for 2015-2017). The most restrictive scenario is chosen to identify impacted counties because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. Reported statistics including demographic statistics, employment, and wages for these counties is presented in section 8.11.3 below.

In addition to the threshold analysis described above, changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives were analyzed. Assuming an ex-vessel price of \$3.44/lb, the 2015 quota under preferred alternative 1 would decrease tilefish revenues by approximately \$826,013 relative to the *status quo* quota for 2015 (Table 24). On average, IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur in a reduction of revenues of \$71,337 under preferred alternative 1 in 2015 when compared to the *status quo* alternative for 2015; and incidental vessels (130 vessels) would incur a \$318 reduction in revenues.¹⁸

¹⁸ However, as previously indicated, most of the catch and/or landings of tilefish incidentally occur as vessels that catch and/or land tilefish incidentally target other species. While it is expected that changes in quota levels or fishing opportunity would result in changes in fishing effort for the tilefish directed fishery, for the incidental fishery, changes in quotas are not likely to affect the effort of vessels that land tilefish incidentally (e.g., otter trawl vessels). As such, the reduction in revenues for incidental vessels under this alternative as a consequence of the proposed quota is likely to be smaller than indicated here. Furthermore, in the last 5 years only about 40-50 percent of the incidental quota has been landed.

Table 29. Other 2013 permits held by the 7 vessels holding tilefish permits projected to have revenue reductions in the 5 percent or more range under preferred alternative 1 in 2015.

	Greater Atlantic Region Permit Status	Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	2	29
	Multispecies - Open access other than P/C Multispecies	3	43
	Surfclam	1	14
	Quahog	1	14
	Lobster, trap gear	1	14
	Lobster, non-trap gear	2	29
	Squid/Mackerel/Butterfish	3	43
	Tilefish	7	100
	Summer Flounder	1	14
	Black Sea Bass	1	14
	Bluefish	6	86
	Dogfish	6	86
	Atl. Deep-Sea Red Crab - Incidental (Open Access)	3	43
	Skate	4	57
	Monkfish - Limited Access	1	14
Monkfish - Incidental (Open Access)	4	57	
Recreational	Summer Flounder	1	14
	Scup	1	14
	Black Sea Bass	1	14
	Bluefish	1	14
	Tilefish	1	14

Table 30. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2015) based on 2013 descriptive data from NMFS permit files under preferred alternative 1 for 2015. No vessel characteristics data are reported for states with fewer than 3 permits.

	NJ	NY
# Permits by Home Port State	2	5
# Permits by Principal Port State	2	5
# Permits by Mailing Address State	2	5
Avg. Length in Feet by Principal Port	--	57
Avg. GRT by Principal Port	--	58
Avg. Vessel Horsepower	--	417
% of Vessels where Home Port State = Principal Port State	--	100

Of the 134 vessels projected to incur in revenue losses of 5 percent or less, 85 percent (114 vessels) had tilefish gross receipts of \$1,000 or less and 97 percent of the impacted vessels (130 vessels) had tilefish gross receipts of \$10,000 or less. Thus indicating that the dependence on tilefish fishing for most of these vessels is very small. The remaining 4 vessels had substantially larger tilefish gross receipts (ranging from \$30,000 - \$200,000), but the monetary contribution of tilefish to the total monetary contribution of all species combined was small enough as to not shift them into the revenue loss of 5 percent or more range. While there are 141 vessels that reported landings of tilefish in fishing year 2013, it is expected that the potential decrease in revenue stated above would likely affect more the 11 vessels that are more dependent on tilefish (IFQ vessel). The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with lower quantity of tilefish quota availability.

Furthermore, as indicated in section 8.11.2.6, in the current analysis of all the alternatives in this document, 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 may be taken by commercial vessels and the decline in gross revenues 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.

Table 31. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under preferred alternative 1 for 2015 (holding permits for tilefish) by state, county and home port, from 2013 NMFS permit files.

State	County	Home port	Number of Vessels
New York	Suffolk	Montauk	3
		Shinnecock	5

Note: Home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

Alternative 1 - Preferred (2016)

The results of the threshold analysis are presented in Table 32. The analysis of the commercial quota level under this scenario indicates that the economic impacts from expected revenue losses on the order of 5 percent or less (relative to the *status quo*) for 138 vessels and 5-9 percent for 3 vessels.

Table 32. Threshold analysis of revenue impacts for participating vessels associated with the preferred alternative 1 for 2016.

Quota Alternative 1 (Preferred) for 2016		Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	≥ 50
141	3	0	0	138	3	0	0	0	0	0

Impacts of the quotas provisions were examined relative to a vessel’s home state as reported on the vessel’s permit application (Table 33). “Home state” indicates the state where a vessel is based and primarily ported, and is presumed to reflect where the costs and benefits of management actions return. However, home state is self-reported at the time an individual applies for a federal permit and may not necessarily indicate where the vessel subsequently conducts most of its activity. The number of vessels with revenue reduction of ≥ 5 percent by home state is 3 in New York (Table 33).

Table 33. Review of revenue impacts under preferred alternative 1 for 2016, by home port state.

State	Participating Vessels	Number of Vessels Impacted ≥ 5 percent	Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (percent)						
					<5	5-9	10-19	20-29	30-39	40-49	≥ 50
CT	5	0	0	0	5	0	0	0	0	0	0
MA	16	0	0	0	16	0	0	0	0	0	0
MD	1	0	0	0	1	0	0	0	0	0	0
NC	19	0	0	0	19	0	0	0	0	0	0
NJ	28	2	0	0	28	0	0	0	0	0	0
NY	21	5	0	0	18	3	0	0	0	0	0
RI	41	0	0	0	41	0	0	0	0	0	0
VA	9	0	0	0	9	0	0	0	0	0	0

Of the 3 vessels showing revenue reduction of ≥ 5 percent, all are identified as holders of federal tilefish permits. Many of the vessels projected to have revenue reductions of ≥ 5 percent hold permits in other fisheries (Table 34). In particular, most vessels have multispecies (open access), squid-mackerel-butterfish (commercial), bluefish (commercial), dogfish, and monkfish (open access). In general terms, vessels that participate in the directed tilefish fishery generate the bulk of their revenues from tilefish landings. However, incidental takes of other species do occur and as such these vessels tend to have permits for other fisheries that would allow them to land other species caught. While these vessels have access to some alternative fisheries by virtue of holding other Federal fishing permits (e.g., multispecies), many of these are already under heavy regulation and likely to have increasingly stringent catch limits for the near future. Furthermore, the directed tilefish fishery is specialized in terms of fishing gear and fishing techniques that may not be easily transferred to other fisheries.

All of the impacted vessels (with revenue reductions of 5 percent or more) with federal permits for tilefish have home ports in New York. The principal ports of landing for these vessels are mainly located in New York as well (Table 35). Within that state, the most impacted county (largest number of impacted vessels) is Suffolk (Table 36).

Table 34. Other 2013 permits held by the 7 vessels holding tilefish permits projected to have revenue reductions in the 5 percent or more range under preferred alternative 1 in 2016.

	Greater Atlantic Region Permit Status	Number of Vessels	Percent of Permitted Vessels
Commercial	Multispecies	1	33
	Multispecies - Open access other than P/C Multispecies	2	67
	Lobster, non-trap gear	1	33
	Squid/Mackerel/Butterfish	3	100
	Tilefish	3	100
	Black Sea Bass	1	33
	Bluefish	2	67
	Dogfish	3	100
	Skate	1	33
	Monkfish - Incidental (Open Access)	1	33

Table 35. Descriptive information for the commercial vessels showing revenue reductions in the 5 percent or more range (in 2016 based on 2013 descriptive data from NMFS permit files under preferred alternative 1 for 2016).

	NY
# Permits by Home Port State	3
# Permits by Principal Port State	3
# Permits by Mailing Address State	3
Avg. Length in Feet by Principal Port	67
Avg. GRT by Principal Port	73
Avg. Vessel Horsepower	444
% of Vessels where Home Port State = Principal Port State	100

Note: No vessel characteristics data are reported for states with fewer than 3 permits.

In addition to the threshold analysis described above, changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives were analyzed. Assuming an ex-vessel price of \$3.44/lb, the 2016 quota under preferred alternative 1 would decrease tilefish revenues by approximately \$370,983 relative to the *status quo* quota for 2016. On average, for IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur in a reduction of revenues of \$32,039 under preferred alternative 1 in 2016 when compared to the *status quo* alternative for 2016; and incidental vessels (130 vessels) would incur a \$143 reduction in revenues.

Of the 138 vessels projected to incur in revenue losses of 5 percent or less, 83 percent (114 vessels) had tilefish gross receipts of \$1,000 or less and 95 percent of the impacted vessels (131 vessels) had tilefish gross receipts of \$10,000 or less. Thus indicating that the dependence on tilefish fishing for most of these vessels is very small. The remaining 7 vessels had substantially larger tilefish gross receipts (ranging from \$30,000 - \$200,000), but the monetary contribution of tilefish to the total monetary contribution of all species combined was small enough as to not shift them into the revenue loss of 5 percent or more range. While there are 141 vessels that reported landings of tilefish in fishing year 2013, it is expected that the potential decrease in revenue stated above would likely affect more the 11 vessels that are more dependent on tilefish (IFQ vessel). The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2016 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with lower quantity of tilefish quota availability.

Table 36. Distribution of commercial vessels showing revenue reductions in the 5 percent or more range under preferred alternative 1 for 2016 (holding permits for tilefish) by state, county and home port, from 2013 NMFS permit files.

State	County	Home port	Number of Vessels
New York	Suffolk	Montauk	3

Note: Home ports with fewer than three vessels are not reported - only county-level data supplied; counties with fewer than three vessels are not reported.

Alternative 1 - Preferred (2017)

The expected economic impacts and threshold analysis impacts under preferred alternative 1 for 2017 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical (see discussion above).

Combined Impacts of Preferred Alternative 1 for 2015, 2016, 2017

Under preferred alternative 1 for 2015-2017, it is expected that the number of vessels impacted by revenue losses on the order of 5 percent or less (relative to the *status quo*) would range from 134 (in year 2015) to 138 (in each, year 2016 and 2017). In addition, it is expected that that the number of vessels impacted by revenue losses on the order of 5 percent or more would range from 7 (in year 2015) to 3 (in each, year 2016 and 2017). All vessels with revenue reduction of ≥ 5 percent by home state are from New Jersey and/or New York, with the largest number of impacted vessels homeported in Suffolk County, NY.

Overall, it is expected that preferred alternative 1 for 2015-2017 would result in a combined decrease in revenue of \$1,567,979 relative to the *status quo* quota for 2015-

2017. Since the overall dependence on tilefish for most of the vessels projected to incur revenue losses is small (83 to 97 percent of the vessels), it is expected that the potential decrease in revenue stated above would more greatly affect the 11 vessels that are more dependent on tilefish (IFQ vessel) than the vessels that incidentally catch tilefish. On average, IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur a reduction in revenues of \$135,416 under preferred alternative 1 in 2015-2017 combined when compared to the *status quo* alternative for 2015-2017; and incidental vessels (130 vessels) would incur a \$603 reduction in revenues. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015-2017 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with a lower quantity of tilefish quota availability.

8.11.2.7.2 Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)

This alternative examines the impacts on industry that would result from non-preferred alternative 2 tilefish commercial quotas. To analyze the economic effects of this alternative, the total commercial quotas specified under section 5.0 were employed. Non-preferred alternative 2 contains commercial quotas of 1,995,000 lb for tilefish for each 2015, 2016, and 2017. Under this alternative, the tilefish specifications would result in no change in commercial landings when compared to current conditions (Table 14). Therefore, commercial landings for tilefish are expected to be the same relative to 2014 quota. As such, it is not expected that revenue changes would occur under this alternative when compared to existing conditions.

8.11.2.7.3 Alternative 3 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)

This alternative examines the impacts on industry that would result from non-preferred alternative 3 tilefish commercial quotas. To analyze the economic effects of this alternative, the total commercial quotas specified under section 5.0 were employed. Alternative 1 contains commercial quotas of 1,754,880 lb 1,887,156 lb, and 1,937,863 lb for tilefish for 2015, 2016, and 2017, respectively. Under this alternative, the tilefish specifications would result in an aggregate decrease in commercial landings of 12.0 percent in 2015, 5.4 percent in 2016, and 2.9 percent in 2017 when compared to the *status quo* alternative (Table 14).

Alternative 3 - Non-Preferred (2015)

The expected economic impacts and threshold analysis impacts under preferred alternative 3 for 2015 are identical to those presented under preferred alternative 1 for 2015, because the proposed commercial quotas are identical (see section 8.11.2.7.1).

Alternative 3 - Non-Preferred (2016)

The expected economic impacts and threshold analysis impacts under preferred alternative 3 for 2016 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical (see section 8.11.2.7.1).

Alternative 3 - Non-Preferred (2017)

The results of the threshold analysis are presented in Table 37. The analysis of the commercial quota level under this scenario indicates that the economic impacts from expected revenue losses on the order of 5 percent or less for 141 vessels. No vessels were identified as having economic impacts on the order of 5 percent or more.

In addition to the threshold analysis described above, changes in total ex-vessel gross revenue that would occur as a result of the quota alternatives were analyzed. Assuming an ex-vessel price of \$3.44/lb, the 2017 quota under non-preferred alternative 3 would decrease tilefish revenues by approximately \$196,551 relative to the *status quo* quota for 2017. On average, for IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur in a reduction of revenues of \$16,975 under non-preferred alternative 3 in 2017 when compared to the *status quo* alternative for 2017; and incidental vessels (130 vessels) would incur a \$76 reduction in revenues.

Table 37. Threshold analysis of revenue impacts for participating vessels associated with the non-preferred alternative 3 for 2017.

Quota Alternative 3 (Non-Preferred) for 2017		Increased Revenue (number)	No Change in Revenue (number)	Number of Impacted Vessels by Reduction Percentile (%)						
Total Vessels	Number of Vessels Impacted by ≥ 5 Reduction			<5	5-9	10-19	20-29	30-39	40-49	≥50
141	0	0	0	141	0	0	0	0	0	0

Combined Impacts of Non-Preferred Alternative 3 for 2015, 2016, 2017

Under non-preferred alternative 3 for 2015-2017, it is expected that the number of vessels impacted by revenue losses on the order of 5 percent or less (relative to the *status quo*) would range from 134 (in year 2015) to 141 (in 2017). In addition, it is expected that that the number of vessels impacted by revenue losses on the order of 5 percent or more would range from 7 (in year 2015) to 3 (in year 2016; no vessels were projected to incur revenue losses of 5 percent or more in 2017). All vessels with revenue reduction of ≥ 5 percent by home state are from New Jersey and/or New York, with the largest number of impacted vessels homeported in Suffolk County, NY.

Overall, it is expected that non-preferred alternative 3 for 2015-2017 would result in a combined decrease in revenue of \$1,393,547 relative to the *status quo* quota for 2015-

2017. Since the overall dependence on tilefish for most of the vessels projected to incur in revenue losses is small, it is expected that the that the potential decrease in revenue stated above would more greatly affect the 11 vessels that are more dependent on tilefish (IFQ vessel) than the vessels that incidentally catch tilefish. On average, IFQ vessels that landed tilefish during fishing year 2013 (11 vessels) would incur in a reduction of revenues of \$120,352 under non-preferred alternative 3 in 2015-2017 combined when compared to the *status quo* alternative for 2015-2017; and incidental vessels (130 vessels) would incur a \$536 reduction in revenues. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015-2017 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with lower quantity of tilefish quota availability.

8.11.2.7.4 Firm Level Impacts

In addition to the impact analysis at the vessel level presented above, Council staff conducted an impact analysis at the firm level. In order to identify firms, new vessel ownership data, which have been added to the permit database, was used to identify all the individuals who own fishing vessels. With this information, vessels were grouped together according to common owners. The resulting groupings were then treated as a fishing business, for purposes of RFA analyses. This is the same data set that was used to identify the number of small/large firms in section 8.11.2.3.

The impact of the proposed tilefish measures presented in this document were analyzed at the firm level by estimating the potential changes in revenues due to subsequent tilefish quota changes compared against the estimated average total revenues from all species landed by each firm during year 2010-2012. The other assumptions used to conduct the vessel level analysis (industry harvest levels, how quotas changes were compared across alternatives) also apply here (see section 8.11.2.6).

To analyze the economic effects of the alternatives presented in this section, the total commercial quota levels specified under section 5.0 were employed. These quota levels were also presented above in sections 8.11.2.7.1 to 8.11.2.7.3.

Alternative 1 - Preferred (2015)

The result of the threshold analysis indicates that the commercial quota level under this scenario, relative to the *status quo*, would result in revenue losses of 10-12 percent for 5 firms (when compared to the average revenues for the 2010-2012 period), 5-9 percent for 2 firms, and 5 percent or less for 187 firms. However, the bulk of the firms projected to incur in revenue losses of 5 percent or less (171 firms or 91 percent of those firms) were projected to incur in revenue losses of less than 0.10 percent.

Under this alternative (as well as the other alternative evaluated), none of the large entities were projected to incur in revenue losses greater than 0.001 percent.

Alternative 1 - Preferred (2016)

The result of the threshold analysis indicates that the commercial quota level under this scenario, relative to the *status quo*, would result in revenue losses of 5-9 percent for 5 firms (when compared to the average revenues for the 2010-2012 period), and 5 percent or less for 189 firms. However, the bulk of the firms projected to incur in revenue losses of 5 percent or less (174 firms or 92 percent of those firms) were projected to incur in revenue losses of less than 0.10 percent.

Alternative 1 - Preferred (2017)

The expected economic impacts and threshold analysis impacts under preferred alternative 1 for 2017 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical.

Combined Impacts of Preferred Alternative 1 for 2015, 2016, 2017

Under preferred alternative 1 for 2015-2017, it is expected that the number of firms impacted by revenue losses on the order of 5 percent or less (relative to the *status quo*) would range from 187 (in year 2015) to 189 (in each, year 2016 and 2017). In addition, it is expected that that the number of firms impacted by revenue losses on the order of 5 percent or more would range from 7 (in year 2015) to 5 (in each, year 2016 and 2017).

Overall, it is expected that preferred alternative 1 for 2015-2017 would result in a combined decrease in revenue of \$1,567,979 relative to the *status quo* quota for 2015-2017. It is expected that the potential decrease in revenue stated above would more greatly affect the firms that are more dependent on tilefish (e.g., holding IFQ) than the firms that incidentally catch tilefish. According to the affiliate data set, of the 194 firms that reported tilefish landings during the 2010-2012 time period (on average), 183 firms (94 percent) had tilefish gross receipts of \$10,000 or less and 157 firms (81 percent) had tilefish gross receipts of \$1,000 or less. Thus likely indicating that the dependence on tilefish fishing for most of these firms is very small. Furthermore, only 12 firms with tilefish gross receipts of \$1,000 or higher were identified as having tilefish landings that accounted for 5 percent or more of their total gross receipts (all species combined). It is likely that these 12 firms are more dependent on tilefish and would incur in the greatest revenue reduction. On average it is expected that these 12 firms would incur a reduction in revenues of approximately \$124,132 under preferred alternative 1 in 2015-2017 combined when compared to the *status quo* alternative for 2015-2017; the remainder of the firms (182) would incur a \$431 reduction in revenues. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015-2017 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with a lower quantity of tilefish quota availability.

Alternative 2 - Non-Preferred: Status Quo/No Action (2015, 2016, 2017)

As indicated in section 8.11.2.7.2, non-preferred alternative 2 would result in no change in the quota levels in 2015, 2016, or 2017, when compared to current levels. As such, it is not expected that revenue changes would occur under this alternative when compared to existing conditions.

Alternative 3 - Non-Preferred (2015)

The expected economic impacts and threshold analysis impacts under preferred alternative 3 for 2015 are identical to those presented under preferred alternative 1 for 2015, because the proposed commercial quotas are identical.

Alternative 3 - Non-Preferred (2016)

The expected economic impacts and threshold analysis impacts under preferred alternative 3 for 2016 are identical to those presented under preferred alternative 1 for 2016, because the proposed commercial quotas are identical.

Alternative 3 - Non-Preferred (2017)

The analysis of the commercial quota level under this scenario indicates that the economic impacts from expected revenue losses on the order of 5 percent or less for 194 firms. No firms were identified as having economic impacts on the order of 5 percent or more.

Combined Impacts of Non-Preferred Alternative 3 for 2015, 2016, 2017

Under non-preferred alternative 3 for 2015-2017, it is expected that the number of firms impacted by revenue losses on the order of 5 percent or less (relative to the *status quo*) would range from 187 (in year 2015) to 194 (in 2017). In addition, it is expected that the number of firms impacted by revenue losses on the order of 5 percent or more would range from 7 (in year 2015) to 5 (in year 2016; no firms were projected to incur revenue losses of 5 percent or more in 2017).

Overall, it is expected that non-preferred alternative 3 for 2015-2017 would result in a combined decrease in revenue of \$1,393,547 relative to the *status quo* quota for 2015-2017. It is expected that the potential decrease in revenue stated above would more greatly affect the firms that are more dependent on tilefish (e.g., holding IFQ) than the firms that incidentally catch tilefish. According to the affiliate data set, of the 194 firms that reported tilefish landings during the 2010-2012 time period (on average), 183 firms (94 percent) had tilefish gross receipts of \$10,000 or less and 157 firms (81 percent) had tilefish gross receipts of \$1,000 or less. Thus likely indicating that the dependence on tilefish fishing for most of these firms is very small. Furthermore, only 12 firms with tilefish gross receipts of \$1,000 or higher were identified as having tilefish landings that accounted for 5 percent or more of their total gross receipts (all species combined). It is

likely that these 12 firms are more dependent on tilefish and would incur in the greatest revenue reduction. On average it is expected that these 12 firms would incur a reduction in revenues of approximately \$110,322 under non-preferred alternative 3 in 2015-2017 combined when compared to the *status quo* alternative for 2015-2017; the remainder of the firms (182) would incur a \$329 reduction in revenues. The changes in ex-vessel gross revenues associated with the potential changes in quotas in 2015-2017 versus the *status quo* assumed static prices for tilefish. However, it is possible that given the potential decrease in landings for tilefish, the price for this species may increase holding all other factors constant. If this occurs, an increase in the price for tilefish may mitigate some of the revenue losses associated with a lower quantity of tilefish quota availability.

8.11.3 Other Impacts

County Impacts

To further characterize the potential impacts on indirectly impacted entities and the larger communities where owners of impacted vessels reside, selected county profiles are typically constructed. Each profile is based on impacts under the most restrictive quota scenario because it would identify the maximum number possible and thus include the broadest possible range of counties in the analysis. The following criteria was employed to derive the range of counties profiled: a) the number of vessels with revenue losses exceeding 5 percent per county was either greater than 4, or b) all vessels with losses exceeding 5 percent in a given state were from the same home county. It is expected that this system will allow for a county profile that may include a wide range of potentially affected areas.

Counties are typically selected as the unit of observation because a variety of secondary economic and demographic statistical data were available from several different sources. Limited data are available for place names (i.e., by town or city name) but in most instances reporting is too aggregated or is not reported due to confidentiality requirements. Reported statistics include demographic statistics, employment, and wages.

Based on these criteria, a total of one county was identified as potentially impacted in 2015-2017 under preferred alternative 1: Suffolk, NY. Counties not included in this analysis (e.g., Ocean, NJ) did not meet the criteria specified, i.e., there were less than 5 impacted vessels per county, or all impacted vessels in a state were not home ported within the same county. The target counties were identified based on the county associated with the vessels homeport as listed in the owner's 2013 permit application.

Table 38 details population sizes, employment, personal income, and the contribution of commercial fishing and sea food processing to total personal income for selected counties. Counties presented correspond to the counties identified as impacted due to the management measures evaluated (i.e., as described in the above paragraph). Data presented in Table 38 were obtained from data bases supplied by the Minnesota IMPLAN Group for the calendar year 2001.

The percentage of total personal income derived from commercial fishing sales and from seafood processing in Suffolk County was less than 1 percent. This data indicate that Suffolk county is not substantially dependent upon sales of commercial fishing products to sustain the county economies. Population in this county was estimated at 1.4 million. Additional information on "Community Profiles for the Northeast U.S. Fisheries" can be found at: http://www.nefsc.noaa.gov/read/socialsci/community_profiles/.

Table 38. Counties identified as having ≥ 5 commercial vessels showing revenue reductions of 5 percent or more as a consequence of the most restrictive quota scenario (2015-2017 preferred alternative 1) evaluated in this document (section 8.11.2.7.1).

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

* = < 10 observations.

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

b = Year-round population.

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

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

Source: Scott Steinback (NEFSC).

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

9.0 LITERATURE CITED

- Able, K.W. and A.M. Muzeni. 2002. An evaluation of the impact of mobile fishing gear on tilefish (*Lopholatilus chamaeleonticeps*) habitat: review of archived video images from submersibles. Final Report to the Mid-Atlantic Fisheries Management Council. Rutgers University, Institute of Marine and Coastal Science Marine Field Station, Tuckerton, NJ. 28p.
- Asche, F. and T. Bjørndal. 2003. Demand elasticities for fish: A review. Center for Fisheries Economics. Norwegian School of Economics and Business Administration. Hellevein 30N-5045, Bergen, Norway.
- Awk, R. 1988. Microeconomic: Theory and applications. A Wiley/Hamilton Publication, John Wiley & Sons, Inc. 492 pp.
- Beanlands, G.E., and P. N. Duinker. 1984. Ecological framework adjustment for environmental impact assessment. Journal of Environmental Management. 8:3.
- Freeman B.L. and S.C. Turner. 1977. Biological and fisheries data on tilefish, *Lopholatilus chamaeleonticeps*. NMFS. NEFSC Tech Ser Per. No. 5.
- Kitts, A., P. Pinto da Silva, and B. Rountree. 2007. The evolution of collaborative management in the Northeast USA tilefish fishery. Marine Policy 31(2), 192-200.
- Leftwich, R. 1973. The price system and resource allocation. The Dryer Press. Hinsdale, Illinois 60521. 433 pp.
- Mid-Atlantic Fishery Management Council. 2001. Tilefish Fishery Management Plan. Dover, DE. 443 pp. + appends.
- Mid-Atlantic Fishery Management Council. 2009. Amendment 1 to the Tilefish Fishery Management Plan. Dover, DE. Volume 1, 496 pp.
- Nitschke, P. 2014. Personal communication. Golden tilefish assessment lead. NMFS/NEFSC/READ/PDB. Woods Hole, MA.
- Nolan, L. 2006. Personal communication. Member of the MAFMC and tilefish commercial fisher. Montauk, NY.
- Northeast Fisheries Science Center. 2014. 58th Northeast Regional Stock Assessment Workshop (58th SAW) Assessment Summary Report. U.S. Dept Commer, Northeast Fish Sci Cent Ref Doc. 14-03; 44 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://nefsc.noaa.gov/publications/>.

NEFSC. 2002. Workshop on the effects of fishing gear on marine habitats off the northeastern United States, October 23-25, 2001. Northeast Fisheries Science Center Ref. Doc. 02-01, 86 pp.

Steimle, F.W, C. A. Zetlin, P. L. Berrien, D. L. Johnson, S. Chang. 1999. Essential Fish Habitat Source Document: Tilefish, *Lopholatilus chamaeleonticeps*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-152, Highlands, NJ.

Stenseth, N.C, Mysterud, A., Otterson, G., Hurrell, J.W., Chan, K., and M. Lima. 2002. Ecological Effects of Climate Fluctuations. *Science* 297(5585); 1292-1296

Stevenson D, Chiarella L, Stephan D, Reid R, Wilhelm K, McCarthy J, Pentony M. 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. Woods Hole (MA): National Marine Fisheries Service, Northeast Fisheries Science Center, NOAA Technical Memorandum NMFS-NE-181. 179 p.

Wallace, D.H. and T.B. Hoff. 2005. Hydraulic clam dredge effects on benthic habitat off the Northeastern United States. *American Fisheries Society Symposium* 41: 691-694.

10.0 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 A

Table 1. Essential Fish Habitat descriptions for federally-managed species/life stages in the U.S. Northeast Shelf Ecosystem that are vulnerable to bottom tending fishing gear.

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	10-750, 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

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
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
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

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Bottom Type
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