2019-2021 Blueline Tilefish Specifications
Environmental Assessment
Initial Regulatory Flexibility Act Analysis

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

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1. EXECUTIVE SUMMARY

This document was prepared by the Mid-Atlantic Fishery Management Council (the Council) in consultation with the National Marine Fisheries Service (NMFS). This document was developed in accordance with all applicable laws and statutes as described in section 8.

The purpose of the management actions described in this document are to implement Annual Catch Limits (ACL) and commercial trip limits for the blueline tilefish fishery for 2019-2021 (Box ES-1 and ES-2). These measures are necessary to prevent overfishing and to ensure that annual catch limits (ACLs) are not exceeded. The actions described in this document also include changes to the commercial trip limit for blueline tilefish.

This document details all evaluated management alternatives and their expected impacts on several components of the environment. The *status quo* alternatives for 2019-2021 are equivalent to a "No Action" alternative for blueline tilefish. If the actions proposed for 2019-2021 are not taken, the existing (*status quo*) management measures will remain in place. This is because the Tilefish FMP includes provisions that would allow the previous year's management measures to roll over to the next year. Thus, the No Action alternative would result in status quo specifications.

Summary of Alternatives and Impacts

For catch limits, the preferred alternative (Alternative 1B) represents the 2019-2021 specifications recommended by the Council in April 2018. This alternative is based on the recommendations of the Council's Scientific and Statistical Committee (SSC), which are based on the best available scientific information and are intended to prevent overfishing. The *status quo* alternative (Alternative 1A) is the most restrictive alternative and is equivalent to the previously implemented 2016-2018 specifications (82 FR 27223). Alternative 1C is the least restrictive alternative considered and includes a commercial quota and RHL that are ~50% higher than those under Alternative 1A (the *status quo* alternative).

For commercial trip limits, the preferred alternative (Alternative 2B) represents the 2019-2021 commercial trip limit recommended by the Council in April 2018. This alternative is based on the recommendations of the Council's Monitoring Committee (MC), which are based on the best available scientific information and are intended to prevent overfishing. The *status quo* alternative (alternative 2A) is the most restrictive alternative and is equivalent to the previously implemented 2016-2018 specifications (82 FR 27223). Alternative 2C is the least restrictive alternative considered and includes a commercial trip limit that is three times higher than those under Alternative 2A (the *status quo* alternative).

The following section presents a qualitative summary of expected impacts by alternative and cumulatively for all evaluated alternatives (Box ES-3). The impacts of each alternative are described in detail in section 7. For all VECs, consideration was given to how commercial and recreational fishing effort is likely to change under each alternative.

Box ES-1. Summary of the 2019-2021 blueline tilefish ACLs analyzed in this specifications document.		
Alternative	**Recreational ACL**	**Commercial ACL**
	2019-2021	**2019-2021**
Alternative 1A (Non-preferred: No Action/*Status Quo*: Most Restrictive)	63,533 lbs	23,498 lbs
Alternative 1B (Preferred)	73,380 lbs	27,140 lbs
Alternative 1C (Non-preferred: Least Restrictive)	96,611 lbs	35,733 lbs

Box ES-2. Summary of the 2019-2021 blueline tilefish commercial trip limit alternatives analyzed in this specifications document.	
Alternative	**Commercial Trip Limit**
	2019-2021
Alternative 2A (Non-preferred: No Action/*Status Quo*: Most Restrictive)	300-lbs
Alternative 2B (Preferred)	500-lbs until 70% of quota is landed, then 300-lbs
Alternative 2C (Non-preferred: Least Restrictive)	900-lbs until 70% of quota is landed, then 300-lbs

Blueline tilefish and Non-Target Species

Alternative 1A (the *status quo* alternative) is expected to result in moderate negative to moderate positive impacts on blueline tilefish and slight positive impacts on non-target species in 2019-2021, relative to the current conditions, and would maintain these stocks above an overfished condition (Box ES-3). The 2017 stock assessment update for blueline tilefish, with catch and survey data through 2016, resulted in an unknown stock status within the Mid-Atlantic, which was addressed by a joint review committee consisting of individuals from the Northeast/Southeast Fisheries Science Centers, Mid/South Atlantic SSC Members, and Mid/South Atlantic Council Staffers. The catch limits under alternative 1A are consistent with the 2017 ABC recommendations of the SSC and are not based on the best scientific information available that was reviewed by the joint committee. Alternative 1 represents *status quo* catch limits (Box ES-1).

Alternative 1B (the preferred alternative) is expected to result in moderate negative to moderate positive impacts on blueline tilefish and slight positive impacts on non-target species in 2019-2021, given measures that are higher than the *status quo* alternative. This offers greater

opportunities to achieve the TAL without exceeding the ACL and/or result in minimal interactions with non-target species and will not negatively affect the current stock statuses.

Alternative 1C is the least restrictive alternative and is expected to result in moderate negative to moderate positive impacts on blueline tilefish and slight positive impacts on non-target species in 2019-2021, when compared to the current conditions of the resources. The positive biological impacts for blueline tilefish under the preferred alternative are expected to be slightly more positive than alternative 1C (least restrictive) given that the SSC concluded there was too much uncertainty within the fishery to increase the ABC by 52%. Compared to alternative 1A (status quo), alternative 1B is expected to be slightly less positive, but more positive than alternative 1C, again, due to the unknowns in the fishery. Ultimately, the broad range on the VECs is due to the unknown stock status (Box ES-3; section 7.1).

For blueline tilefish, Alternative 2A is expected to impose slight negative to slight positive impacts. The current stock status is unknown and the opportunity to land the TAL without exceeding the ACL is hindered by the current trip limit. The current 300-pound trip limit is not high enough for vessels to make continuous directed trips for blueline tilefish. The distance that must be traveled and associated costs often outweigh the revenue per trip.

Alternatives 2B and 2C are expected to impose moderate negative to slight positive impacts on blueline tilefish. Both trip limits would be reduced to 300 pounds during the fishing year once 70% of the overall commercial quota has been landed. This reduction will act as a buffer to help monitor the quota and reduce the chances of an overage. Recommendations from stakeholders suggested that a trip limit of at least 500 pounds will lead to directed blueline tilefish fishing trips and more opportunity to achieve the TAL without exceeding the ACL.

For non-target species, Alternatives 2A, 2B, and 2C are all expected to result in slight positive impacts because the current positive stock statuses of the non-targets will be maintained and stocks currently presenting negative stock statuses will not be exacerbated. Additionally, the observer data (see Sections 6.1.2) show minimal non-target interactions and/or discarding in the targeted blueline tilefish fishery. Under all three alternatives, fishing effort will remain similar to the effort under the currently implemented measures, but with Alternative 2C and then 2B inducing slightly higher fishing pressure than the *status quo* (Alternative 2A) alternative.

Physical Habitat

The primary gears used in the blueline tilefish fisheries are bottom longline, handline, and rod and reel, which are generally not associated with adverse impacts on habitat. Bottom trawling has the potential for negative habitat impacts, but less than 8% of blueline tilefish landings have been associated with bottom trawl in the Northeast region from 2013-2017, and these bottom trawl trips are not targeting blueline tilefish (see Section 6.2.2). These areas have been widely fished for decades and the methods of fishing will not change for the duration of the specifications package.

All three catch limit alternatives will impose slight negative to no impact on the VEC when compared to the current conditions. The *status quo* alternative (Alternative 1A) will have the least impact on habitat compared to alternatives 1B and 1C. Due to the proposed small increases to the quota, the preferred alternative (Alternative 1B) will have a less negative effect on habitat compared to the least restrictive alternative (Alternative 1C). Overall, the higher quotas will result

in more fishing effort, which constitutes increased pressure on the habitat (Box ES-3; section 7.1.2).

All three commercial trip limit alternatives will impose slight negative to no impact on the VEC when compared to the current conditions. Considering changes to the commercial trip limit, the *status quo* (Alternative 2A) alternative will have the least negative impact on habitat compared to Alternatives 2B and 2C. The higher commercial trip limits (Alternatives 2B and 2C) will result in more directed fishing effort during the first half of the fishing year, which constitutes increased pressure on habitat. Ultimately, fishing effort is concentrated under the overall quota. If effort increases due to a larger initial trip limit, the habitat could experience these impacts in a much shorter amount of time. The resulting impacts may be more concentrated, but not too impactful due to the trigger once 70% of the quota has been landed. Ultimately, the preferred alternative (Alternative 2B) will have a less negative effect on habitat compared to the least restrictive alternative (Alternative 2C) since there is a lesser amount of targeted fishing effort (Box ES-3; section 7.2.2).

Protected Resources

The impacts on protected resources are driven primarily by gear type. Bottom longline and rod and reel gear are responsible for most recreational and commercial landings. These gear types have the potential to interact with protected resources (section 6.3). Alternative 1A will impose slight negative to negligible impacts on ESA-listed protected species and slight negative to slight positive impacts on MMPA protected species. Alternative 1B will impose moderate negative to negligible impacts on ESA-listed protected species and moderate negative to slight positive impacts on MMPA protected species. Alternative 1C will impose moderate negative to negligible impacts on ESA-listed protected species and moderate negative to slight positive impacts on MMPA protected species (Box ES-3; section 7.1.3 and 7.2.3).

Despite the small increase in quotas proposed in Alternatives 1B and 1C recreational and commercial fishing effort is not expected to significantly change between these alternatives since the fisheries operate so far offshore and the revenue produced on commercial trips rarely offsets the cost. Relative to Alternatives 1A and 1B, Alternative 1C is expected to have the same direction of impacts on protected species only to a slightly greater degree than 1B and 1A.

The commercial trip limit alternatives also have the potential to affect protected resources. Alternative 2A, which remains status quo at 300 pounds per trip will impose slight negative to negligible impacts on ESA-listed protected species and negligible impacts on MMPA protected species. Alternative 2B, which increases the trip limit to 500 pounds and then is reduced to 300 pounds once 70% of the quota has been landed will impose moderate negative to negligible impacts on ESA-listed protected species and negligible impacts on MMPA protected species. Alternative 2C, which increases the trip limit to 900 pounds and then is reduced to 300 pounds once 70% of the quota has been landed will impose moderate negative to negligible impacts on ESA-listed protected species and negligible impacts on MMPA protected species (Box ES-3; section 7.1.3 and 7.2.3).

Relative to Alternatives 2A and 2B, Alternative 2C is expected to have the same direction of impacts on protected species only to a slightly greater degree (more negative) than 2B and 2A as

commercial fishing effort is expected to slightly increase for only part of the fishing year before returning to levels experienced in 2018.

Human Communities/Socioeconomic

The primary human communities affected by this action are private recreational anglers and party/charter operations targeting tilefish. Impacts to human communities are evaluated on the basis of how each alternative will impact revenues (for party/charter operations and associated businesses) and social well-being, including angler satisfaction (for all relevant human communities including private anglers).

For catch limits, the *status quo* alternative (Alternative 1A) has slight negative to no impacts on human communities. Both Alternatives 1B and 1C will result in slight positive impacts compared to Alternatives 1A, with Alternative 1B to a slightly lesser degree than Alternative 1C. The alternatives that would result in higher quotas (Alternatives 1B and 1C) offer more opportunities for stakeholders to land more fish and increase revenue, ultimately leading to increased social well-being and angler satisfaction. Overall, landings have been under the catch limits since blueline tilefish have been managed by the MAFMC, and an increase in quota may lead to directed fisheries and ultimately, a greater opportunity to achieve the TAL without exceeding the ACL.

For commercial trip limits, increases are proposed in Alternatives 2B and 2C which would result in more potential revenue for fishermen and offers greater opportunity to achieve the TAL without exceeding the ACL. The quota may be reached faster if fishermen are targeting blueline tilefish at the increased limit, but the quota will be monitored closely by GARFO through the buffers. Under the status quo alternative (Alternative 2A) the average catch per trip would be consistent with the 2017 average catch per trip of ~57 pounds (see section 6.4.2) and will have slight negative impacts to human communities. Both Alternatives 2B and 2C will result in slight negative to slight positive impacts compared to Alternative 2A, with Alternative 2B to a lesser degree than Alternative 2C. The alternatives that would result in higher commercial trip limits (Alternatives 2B and 2C) offer more opportunities for stakeholders to land more fish and increase revenue. Since blueline tilefish have been managed, the commercial quotas have never been landed. Although the overall quota is only slightly higher, the increased trip limit should result in more directed blueline tilefish trips leading to a larger initial percentage of quota being landed. This provides increased ex-vessel revenue and will positively affect the human communities.

Box ES-3. Summary of the expected impacts of alternatives considered in this document, relative to current conditions. A minus sign (-) signifies a negative impact, a plus sign (+) signifies a positive impact, and zero (0) indicates no impact.

Alternative	**Blueline tilefish**	**Non-Target Species**	**Physical Environment /Habitat/EFH**	**ESA-Listed Protected Species** (endangered or threatened)	**MMPA Protected Species** (not also ESA listed)	**Human Communities** (Socio-economic)
Alternative 1A (Non-preferred: *Status quo*: Most Restrictive)	Moderate - to Moderate +	Slight +	Slight - to 0	Slight - to 0	Slight - to Slight +	Slight - to 0
Alternative 1B (Preferred)	Moderate - to Moderate +	Slight +	Slight - to 0	Moderate - to 0	Moderate - to Slight +	Slight +
Alternative 1C (Non-preferred: Least Restrictive)	Moderate - to Moderate +	Slight +	Slight - to 0	Moderate - to 0	Moderate - to Slight +	Slight +
Alternative 2A (Non-preferred: *Status quo*: Most Restrictive)	Slight - to Slight +	Slight +	Slight - to 0	Slight - to 0	0	Slight -
Alternative 2B (Preferred)	Moderate - to Slight +	Slight +	Slight - to 0	Moderate - to 0	0	Slight - to Slight +
Alternative 2C (Non-preferred: Least Restrictive)	Moderate -to Slight +	Slight +	Slight - to 0	Moderate - to 0	0	Slight - to Slight +

Cumulative Impacts

The Council analyzed the impacts of the alternatives presented in this document on the biological environment, physical habitat, protected species, and human communities. When the proposed action (i.e., the preferred alternative) is considered in conjunction with all other impacts from 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 proposed action (section 7.3).

Conclusions

A description of the expected environmental impacts, as well as any cumulative impacts resulting from each of the alternatives considered in this document, are provided in section 7. The preferred alternatives are not associated with significant impacts to the biological, socioeconomic, or physical environment individually or in conjunction with other actions; therefore, a "Finding of No Significant Impact" is warranted.

2. LIST OF ACRONYMS AND ABBREVIATIONS

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

PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
RHL	Recreational Harvest Limit
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SBA	Small Business Administration
SI	Serious Injury
SSB	Spawning Stock Biomass
SSB_{MSY}	Spawning Stock Biomass at Maximum Sustainable Yield
SSC	Scientific and Statistical Committee
STDN	Sea Turtle Disentanglement Network
USFWS	United States Fish and Wildlife Service
VECs	Valued Ecosystem Components
VTR	Vessel Trip Report

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4. INTRODUCTION AND BACKGROUND

4.1. PURPOSE AND NEED FOR THE ACTION

In 2017, one-year specifications were implemented for blueline tilefish, establishing catch and landings limits. These specifications were set with the publication of Amendment 6 to the Tilefish FMP (82 FR 52851). Status quo specifications were set through the 2018 fishing year via a Supplemental Information Report published on November 15, 2017. Prior to 2017, blueline tilefish were not steadily managed in the Mid-Atlantic (with exception to an emergency rule in 2015). A combination of lack of management, inconsistent aging data, poor historical time series, and increased catch in the Mid-Atlantic led to managers applying the Data Limited Toolkit (DLMTool).

The purpose of this action is to implement commercial quotas and TALs for blueline tilefish for 2019-2021 based on updated recommendations resulting from a benchmark stock assessment completed in 2017 and a rerun of the DLMTool. This action is needed to prevent overfishing and ensure ACLs are not exceeded.

This specifications document was developed in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA)[1] and the National Environmental Policy Act (NEPA), the former being the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ). Failure to specify management measures that constrain catch to prevent overfishing would be inconsistent with the National Standards under the MSA. This document was also developed in accordance with the Tilefish FMP, which details the management regime for this fishery The FMP and subsequent amendments are available at: http://www.mafmc.org.

The Environmental Assessment (EA) contained in this document examines the impacts of the management alternatives on the human environment. Aspects of the human environment that are likely to be directly or indirectly affected by the actions proposed in this document are described as valued ecosystem components (VECs; Beanlands and Duinker 1984). VECs make up the affected environment and are defined as the managed species (i.e., blueline tilefish) and non-target species; physical habitat, including essential fish habitat (EFH) for the managed species and non-target species; species protected under the ESA and/or the MMPA; and human communities (i.e., the social and economic aspects of the environment). The impacts of the alternatives are evaluated with respect to these VECs.

4.2. THE SPECIFICATIONS PROCESS

The MSA requires that the Council's SSC provide recommendations for ABCs, prevention of overfishing, and maximum sustainable yield (MSY). The Council's catch limit recommendations cannot exceed the ABCs recommended by the SSC. In addition, the Tilefish MC is responsible for developing recommendations to the Council on management measures, including annual catch targets (ACTs), to achieve the recommended catch limits for each species. The Council's Tilefish Advisory Panel also provides input on the management measures for these species.

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

Each year, the Council's SSC meets to recommend new or review existing ABCs for blueline tilefish. The SSC derives ABCs using a combination of the Council's risk policy and specific methods based on the degree of uncertainty associated with information provided in the stock assessments for each species. The method used for blueline tilefish in recent years is based on a Data Limited Toolkit. The over fishing limit (OFL) is the maximum amount of catch that can be removed from the stock without causing overfishing. For this approach, the SSC accepts a composite of multiple management procedures within the DLMTool that incorporate the available data within the fishery. This is typically done when no recommendations come out of a benchmark stock assessment or there is not enough data to run an assessment.

The Council's risk policy describes the Council's tolerance for overfishing at a given level of biomass depending on whether the stock's life history is considered typical or atypical.[2] The risk policy states that, for stocks with typical life histories, such as blueline tilefish, if spawning stock biomass (SSB) is greater than or equal to SSB_{MSY} (spawning stock biomass at maximum sustainable yield), then the ABC should be associated with a 40% probability of overfishing. If SSB is less than SSB_{MSY}, then the probability of overfishing should decrease based on the linear relationship shown in Figure 1.

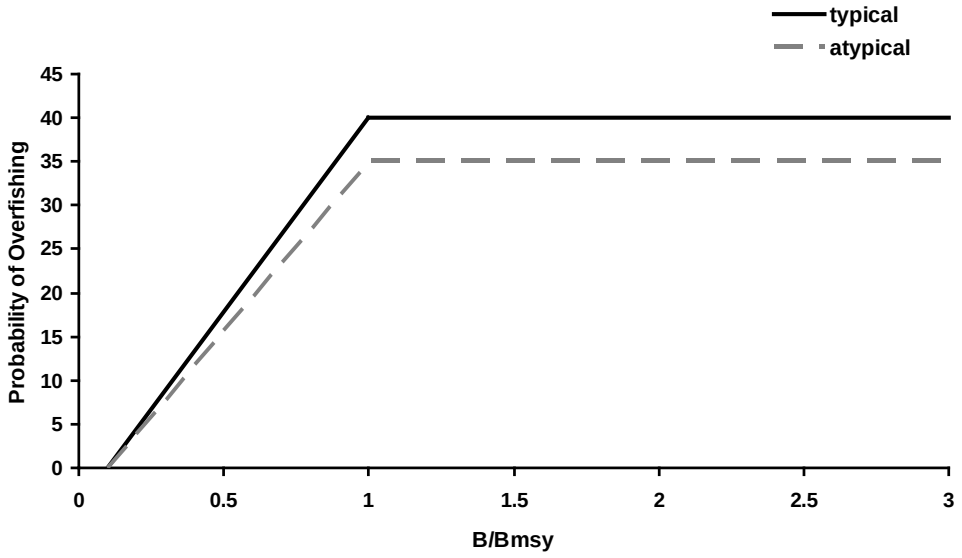

Figure 1. The Council's risk policy on overfishing.

Blueline tilefish catch and landings limits are established on an annual basis for up to three years at a time. In 2017, Amendment 6 to the Tilefish FMP added blueline tilefish to the Tilefish FMP and set specifications for three years (2016-2018). As part of the annual review, specifications

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

were set through a supplemental information report and remained status quo through fishing year 2018. These specifications were addressed in Amendment 6 to the Tilefish FMP and a Supplemental Information Report (SIR) published via final rule on November 15, 2017 (82 FR 52851).

4.3. BASIS FOR 2019-2021 BLUELINE TILEFISH RECOMMENDATIONS

The 50th Southeast Data, Assessment, and Review (SEDAR 50) benchmark assessment for blueline tilefish concluded in late 2017. Within the assessment, blueline tilefish were split into two separate stocks, north and south of Cape Hatteras, North Carolina. ABC recommendations were set for the region south of Cape Hatteras (not overfished, overfishing not occurring), but data limitations restricted an ABC recommendation for the region north of Cape Hatteras, which encompasses part of the South Atlantic and the Mid-Atlantic management areas. To assist in developing an ABC recommendation, the Mid- and South Atlantic Councils/SSCs, as well as staff from the Northeast and Southeast Fisheries Science Centers developed a joint subcommittee to rerun the DLMTool for the region north of Cape Hatteras. The results were partitioned at the Council boundaries using coastwide catch data from the recently completed pilot tilefish survey funded by the MAFMC out of SUNY Stony Brook.

At their March 2018 meeting, the SSC reviewed the output from the most recent blueline tilefish DLMTool runs (as recommended by the Joint Mid- and South Atlantic Blueline Tilefish Subcommittee) as well as the output from the SEDAR 50 benchmark stock assessment and provided recommendations for annual OFL and ABC levels for 2019-2021[3]. The blueline tilefish ABCs for 2019-2021 were derived using the DLMTool. The SSC also concluded that the MSY estimate based on the DLMTool analysis for the region north of Cape Hatteras is an estimate of the OFL, not the ABC (as recommended by the joint subcommittee), which enabled the SSC to use the P* approach[4] and the Council's risk policy in setting ABC specifications. This was considered a reasonable recommendation for 2019-2021 (with annual reviews) due to limited data and broad uncertainties (e.g. max age, short time series, no estimate of recruitment, etc.) within the fishery.

Since the SSC lacked information on the estimate of stock biomass relative to B_{MSY}, a ratio of $B/B_{MSY} = 1$ was applied as a default value for the P* (i.e., P* = 0.4 under the MAFMC's risk policy). The SSC also assumed a typical life history (similar to golden tilefish). Based on this application of the Council's risk policy, the resulting SSC-recommended ABC was 179,500 pounds for 2019-2021 for the region north of Cape Hatteras. The SSC then followed the recommendation of the Joint Mid- and South Atlantic Blueline Tilefish Subcommittee to allocate

[3] The March 2018 SSC meeting report is available at: http://www.mafmc.org/ssc.

[4] Acceptable probability of overfishing (P*) as a function of stock size was adopted by the MAFMC in an Omnibus Amendment (July 2011). The threshold acceptable probability of overfishing is 0.4 for species with a typical life history and 0.35 for those with an atypical life history. The acceptable probability of overfishing is zero if relative biomass (projected biomass divided by the expected biomass if the stock was fished at the maximum fishing mortality rate threshold) is less than 0.1. The acceptable probability of overfishing increases to its threshold as relative biomass approaches 1. Whether a species is deemed typical or atypical depends on the degree to which its life history has been incorporated in the development of fishing mortality reference points.

56% of that ABC to the MAFMC (VA/NC border – north) and 44% to the South Atlantic Fishery Management Council. The basis for this percentage breakdown came from the catch results and random stratified design of the Pilot Blueline Tilefish Longline Survey (SUNY Stony Brook-Frisk et al. 2018). Using the 56% allocation, the MAFMC ABC for 2019-2021 is 100,520 pounds.

As defined by the Omnibus ACLs and AMs Amendment (Amendment 3 to the Tilefish FMP; MAFMC 2011), the ABC includes both landings and discards, and is equal to the sum of the commercial and recreational ACLs (Figure 2). The MC is responsible for recommending ACLs and ACTs derived from the ABC recommendations of the SSC. The ABC is then apportioned into total landings and discards based on recent information that is representative of the current fishery. Based on the allocation percentages in the FMP, 73% of the ABC is allocated to the recreational fishery as the recreational ACL, and 27% to the commercial fishery as the commercial ACL. Total projected discards are apportioned based on the contribution from each fishing sector. Commercial and recreational TALs are derived from the sector-specific ACTs after subtracting sector-specific projected discards (Figure 2).

The MC meets each year to recommend new or review existing TALs and other management measures such as trip limits, gear restrictions, and possession limits. In 2018, the MC recommended changing the commercial trip limit from 300 pounds to 500 pounds with a reduction to 300 pounds once 70% of the quota has been landed. This trigger was put into place to allow fishermen to catch the TAL, while providing enough of a buffer (30% of the quota) to make sure catch remains below the ACL.

More details on the SSC, MC, and Advisory Panel recommendations relevant to this action can be found in the briefing materials for the April 2018 Council meeting, at: http://www.mafmc.org/briefing/april-2018.

The 2019-2021 ACLs recommended by the Council at its April 2018 meeting are identified in this document as the preferred alternative. The alternatives are fully described in section 5.

A summary of all recommendations, from the OFLs though the Council-recommended ACLs, is shown in Table 1.

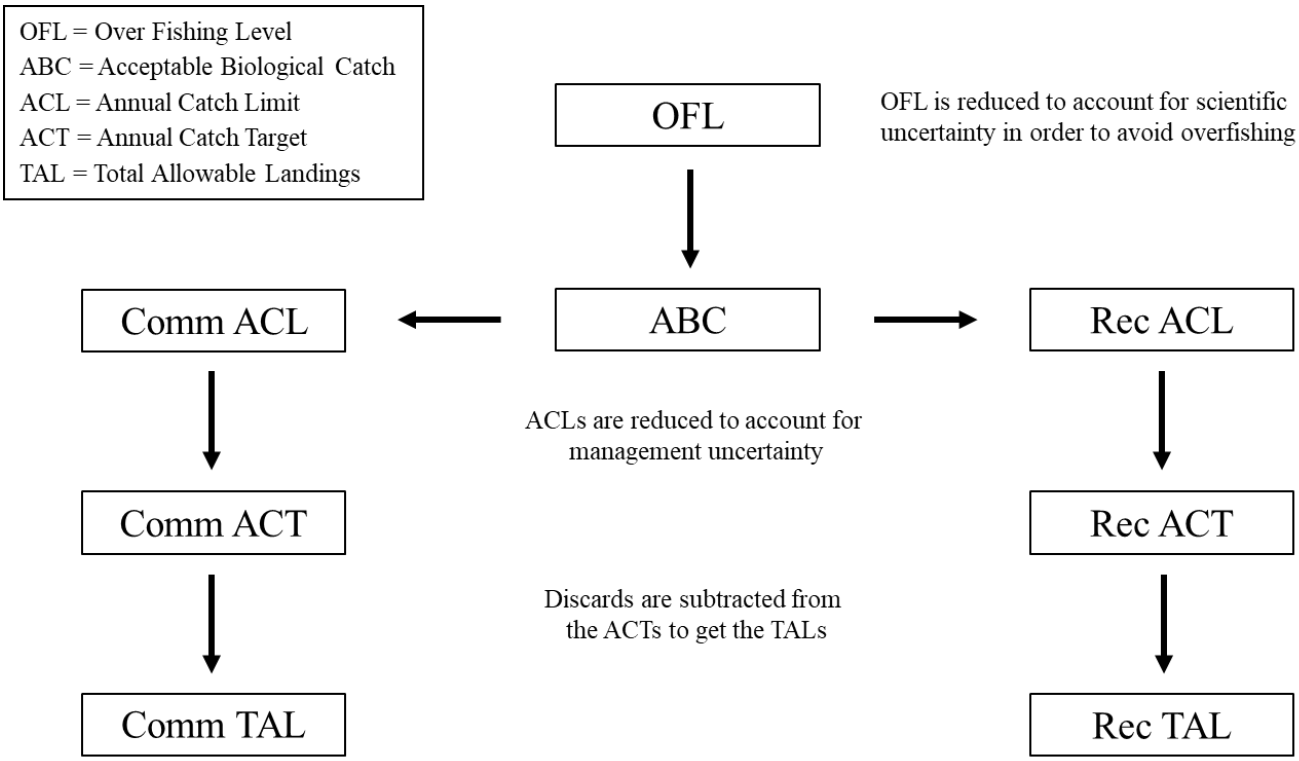

Figure 2: Flowchart for blueline tilefish commercial and recreational landings limits.

Table 1: OFL, catch limits, and discards (in pounds and metric tons) for the preferred alternative for blueline tilefish in 2019-2021.

Management Measure	2019-2021		Basis
	lbs	mt	
OFL: North of Cape Hatteras	236,329	107.20	Outcome of the DLMTool for the region North of Cape Hatteras as specified by the SSC
ABC: North of Cape Hatteras	179,500	81.42	SSC recommendation based on application of the Council risk policy
ABC: Mid-Atlantic	100,520	45.60	56% allocation of the North of Cape Hatteras ABC
Recreational ACL	73,380	33.28	73% of ABC (per FMP allocation)
Recreational ACT	73,380	33.28	Recreational ACL, less deduction for management uncertainty
Projected Recreational Discards	1,468	0.67	MC assumes a 2% discard rate for the recreational fishery (projected with VTR data)
Recreational TAL	71,912	32.62	Recreational ACT, less projected discards
Commercial ACL	27,140	12.31	27% of ABC (per FMP allocation)
Commercial ACT	27,140	12.31	Commercial ACL, less deduction for management uncertainty
Projected Commercial Discards	271	0.12	MC assumes a 1% discard rate for the commercial fishery (projected with VTR data)
Commercial TAL	26,869	12.19	Commercial ACT, less projected discards
Commercial Trip Limit	500-lbs to 300-lbs after 70%	0.23-mt to 0.14 mt after 70%	MC recommendation to achieve the TAL, yet remain under the quota with the 70% trigger

Accountability Measures

Accountability measures (AMs) are measures that are implemented if the commercial or recreational ACL is exceeded. A summary of the regulations associated with the blueline tilefish AMs are presented here. Commercial landings in excess of the commercial ACL will be deducted from the commercial ACL in the following year. In the event that the commercial ACL has been

exceeded and the overage has not been accommodated through the landings-based AM, then the exact amount by which the commercial ACL was exceeded, in pounds, will be deducted, as soon as possible, from the applicable subsequent single fishing year commercial ACL. Recreational ACL overages are evaluated based on a three-year moving average comparison of total catch (landings and discards). Both landings and dead discards will be evaluated in determining if the three-year average recreational sector ACL has been exceeded. Recreational overage adjustments, adjustments to ACTs, and/or adjustments to the specific management measures that regulate retention of fish (i.e., size, season, and possession limits) are used alone or in combination as recreational AMs depending on relationship of the current biomass to the biomass threshold and target (i.e., ½ B_{MSY} and B_{MSY}) and whether the ACL or the ABC has been exceeded. There is also an in-season closure authority for the recreational blueline tilefish fishery based on monitoring by the Regional Administrator. More details on these requirements can be found in the regulations at: http://www.greateratlantic.fisheries.noaa.gov/regs/fr.html.

5. MANAGEMENT ALTERNATIVES

The alternatives described below propose specifications for the blueline tilefish fishery for 2019-2021. In April 2018, the Council recommended commercial and recreational ACLs and ACTs and commercial trip limits (section 4.2) based on updated information provided by the joint Mid- and South Atlantic Blueline Tilefish Subcommittee. The Council did not recommend other changes to the existing regulations for blueline tilefish; therefore, any other fishery management measures in place will remain unchanged. Comprehensive descriptions of the regulations for this fishery, as detailed in the Code of Federal Regulations (CFR), are available through the NMFS Greater Atlantic Regional Fisheries Office (GARFO) website: http://www.greateratlantic.fisheries.noaa.gov/.

The Council's current system of catch limits was first implemented in 2012 (MAFMC 2011), and has been applied in the 2019-2021 recommendations described in this document. This system considers both scientific and management uncertainty, and is designed to ensure that recreational and commercial catches do not exceed the recreational and commercial ACLs, the sum of which is equal to the ABC (section 4.2). The amount of total catch, including landings and discards, produced in the recreational and commercial blueline tilefish fisheries in 2019-2021 is contingent on how the combinations of fishery regulations (e.g. minimum fish size, gear requirements, possession limits, etc.) interact to achieve the implemented levels of recreational and commercial ACLs. For the purposes of impact analyses, changes in the commercial quotas and recreational harvest limits are expected to drive any anticipated changes in effort and impacts on the VECs considered in this EA.

The catch limits associated with each of the alternatives are shown in Table 2. The preferred specifications (Alternatives 1B) was developed with information from the joint Mid- and South Atlantic Blueline Tilefish Subcommittee, SSC, and MC. The basis for the preferred alternatives is described in section 4.3. The non-preferred (most restrictive) *status quo* alternative (Alternative 1A) reflect the current specifications in place in 2018. The least restrictive non-preferred alternative (alternative 1C) was an output of the DLMTool and serves as an upper limit to the preferred alternative.

The commercial trip limits associated with each of the alternatives are shown in Table 3. The preferred alternative (Alternative 2B) represents the 2019-2021 commercial trip limit

recommended by the Council in April 2018. This alternative is based on the recommendations of the Council's MC, which are based on the best available scientific information and are intended to prevent overfishing. The *status quo* alternative (alternative 2A) is the most restrictive alternative and is equivalent to the previously implemented 2016-2018 specifications (82 FR 27223). The least restrictive non-preferred alternative (Alternative 2C) was recommended as an upper bound to the commercial trip limit, which was the same upper bound alternative in Amendment 6 to the Tilefish FMP. Alternatives 2B and 2C include a trigger to reduce the trip limit once 70% of the quota has been landed. This trigger was added due to the uncertainties in effort associated with timing of directed trips and to create a buffer in the fishery to assist in achieving the TAL without exceeding the ACL.

Under the management programs detailed in the FMP, the No Action alternative is equivalent to a *status quo* alternative because specifications for blueline tilefish roll over from one year to the next if no action is taken (section 5).

Blueline tilefish landings limits are currently implemented for 2018 but not for 2019-2021. For purposes of comparing impacts, the landing limits alternatives include a single *status quo* alternative with landings limits equivalent to those previously implemented for 2018.

For each of the alternatives, recreational and commercial ACLs are provisional and may be adjusted by NMFS in the 2019-2021 specifications final rule. Further adjustments may also be necessary for fishing years 2019-2021 and will be published separately in the *Federal Register* or through the annual specifications review process.

Table 2: 2019-2021 blueline tilefish alternatives and associated catch and landings limits in pounds for the Mid-Atlantic.

	Alt. 1A	Alt. 1B	Alt. 1C
	(No Action/*Status Quo* – Most Restrictive)	(Preferred)	(Least Restrictive)
	2019-2021	2019-2021	2019-2021
OFL	N/A [a]	N/A [a]	N/A [a]
ABC	87,031	100,520	132,344
Recreational ACL	63,533	73,380	96,611
Recreational ACT	63,533	73,380	96,611
Projected Recreational Discards	1,271	1,468	1,932
Recreational TAL	62,262	71,912	94,679
Commercial ACL	23,498	27,140	35,733
Commercial ACT	23,498	27,140	35,733
Projected Commercial Discards	235	271	357
Commercial TAL	23,263	26,869	35,736

[a] No OFL recommendation was determined in the SEDAR 50 assessment. The MAFMC SSC concluded that the joint subcommittee recommended ABC be used as an OFL for the region north of Cape Hatteras due to the many uncertainties within the blueline tilefish fishery.

Table 3: 2019-2021 blueline tilefish alternatives and associated catch and landings limits in pounds.

	Alt. 2A	Alt. 2B	Alt. 2C
	(No Action/*Status Quo* – Most Restrictive)	(Preferred)	(Least Restrictive)
	2019-2021	2019-2021	2019-2021
Commercial Trip Limit	300-lbs	500-lbs until 70% of quota is landed, then 300-lbs	900-lbs until 70% of quota is landed, then 300-lbs

Catch Limit Alternatives

5.1 Alternative 1A (Non-preferred: No Action/*Status quo* – Most Restrictive)

The 2019-2021 *status quo* alternative includes measures that were implemented for blueline tilefish for the 2018 fishing year (December 15, 2017; 82 FR 52851). The original specifications were published in Amendment 6 to the Tilefish FMP. A 2018 supplemental information report set *status quo* specifications from 2017 to 2018, since no new information was available to review for the fishery and the current specifications were based on the best scientific information available. Therefore, the basis for Alternative 1A (the previously implemented specifications) no longer represents the best available science for blueline tilefish.

Alternative 1A includes no OFL and an ABC of 87,031 pounds. Under this alternative, the recreational ACL is 63,533 pounds and the commercial ACL is 23,498 pounds. The commercial and recreational ACTs are set equal to their respective ACLs. After subtracting projected discards, the recreational quota is 62,262 pounds and the commercial quota is 23,263 pounds.

5.2 Alternative 1B (Preferred: Consistent with SSC Recommended ABCs)

The process for arriving at Council recommendations for the preferred alternative, and the basis for each catch and landings level recommendation, is more fully described in section 4.3. At its April 2018 meeting, the Council accepted the recommendations of the SSC for 2019-2021 ACLs. At the ACT/TAL level, the Council recommended 2019-2021 recreational and commercial ACTs set equal to the 2019 ACLs (i.e., taking no reduction from ACL to ACT to account for management uncertainty). A 2% and 1% reduction for the recreational and commercial fisheries, respectively, was implemented from ACT to TAL to account for discards.

Alternative 1B includes an ABC of 100,520 pounds for 2019-2021 (Table 2). After subtracting projected discards, the recreational quota is 71,912 pounds and the commercial quota is 26,869 pounds.

5.3 Alternative 1C (Non-preferred: Least Restrictive)

The 132,344-pound ABC staff recommended to the SSC was designated as the least restrictive alternative (Alternative 1C). Alternative 1C was calculated as 56% of the DLMTool output for the region north of Cape Hatteras (236,329 pounds)[5]. The 2019-2021 recreational ACL under this alternative is 96,611 pounds and the commercial ACL is 35,733 pounds. These combined ACLs are 32% higher than the preferred alternative and 52% higher than the *status quo*/No Action alternative.

Commercial Trip Limit Alternatives

[5] The DLMTool recommended ABC for the portion of the blueline tilefish stock north of Cape Hatteras, NC was 236,329 pounds. Using the allocation proportions (56%) from the Pilot Tilefish Survey, the DLMTool recommended ABC for the region north of Cape Hatteras, NC was 132,344 pounds. The SSC decided to treat the 236,329 output as an OFL for the region north of Cape Hatteras. Following the Council's risk policy this was reduced to an ABC of 179,500 pounds. Then, allocated 56% to the Mid-Atlantic region (100,520 pounds).

5.4 Alternative 2A (Non-preferred: No Action/*Status quo* – Most Restrictive)

The 2019-2021 *status quo* alternative is a commercial trip limit of 300 pounds gutted weight (heads and fins must be attached) that was initially implemented for blueline tilefish during the 2018 fishing year (December 15, 2017, 82 FR 52851). These specifications were published through Amendment 6 to the Tilefish FMP and a 2018 supplemental information report.

5.5 Alternative 2B (Preferred: Consistent with MC Recommended Commercial Trip Limit)

The process for arriving at Council recommendations for the preferred alternative, and the basis for catch/landings and commercial trip limit recommendations, are described in section 4.3. At their April 2018 meeting, the Council accepted the MC recommendations for 2019-2021 commercial trip limits.

Alternative 2B includes a 500-pound gutted weight (heads and fins must be attached) commercial trip limit that will be reduced to 300 pounds once 70% of the quota has been landed. This trigger was added due to the many unknowns in the blueline tilefish fishery such as maximum age, habitat preference, habitat range, etc. This trip limit reduction creates a necessary buffer in the fishery to assist in achieving the TAL without exceeding the ACL.

5.6 Alternative 2C (Non-preferred: Least Restrictive)

The least restrictive, non-preferred alternative (Alternative 2C) was developed as an upper bound to the commercial trip limit, which was the same upper bound alternative analyzed in Amendment 6 to the Tilefish FMP. This alternative includes a 900-pound gutted weight (heads and fins must be attached) commercial trip limit that will be reduced to 300 pounds once 70% of the quota has been landed. The trigger used to decrease the trip limit was added due to the many unknowns in the blueline tilefish fishery such as maximum age, habitat preference, habitat range, etc. This trip limit reduction creates a necessary buffer in the fishery to assist in achieving the TAL without exceeding the ACL.

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The Affected Environment consists of those physical, biological, and human components of the environment expected to experience impacts if any of the actions considered in this document were to be implemented. This document focuses on four aspects of the affected environment, which are defined as valued ecosystem components (VECs).

The VECs include:

- Managed species (i.e. blueline tilefish) and non-target species
- Physical habitat
- Protected species
- Human communities

The following sections describe the recent condition of the VECs.

6.1 Managed and Non-target Species

The following sections briefly describe the recent biological conditions of the blueline tilefish stock and other stocks commonly caught in fisheries targeting blueline tilefish.

6.1.1. Blueline Tilefish

Blueline tilefish are primarily distributed from the Gulf of Mexico northward through the Mid-Atlantic as far north as southern New England (Klibansky 2016, Farmer and Klibansky 2016). In the South Atlantic Bight, they inhabit the shelf edge and upper slope reefs at depths of 46-256m and temperatures between 15-23°C (Sedberry et al. 2006). Blueline tilefish create horizontal or vertical burrows in sediments composed of silt, clay, and sand (Able et al. 1987). They have also been observed around shipwrecks and over natural hard bottom near Norfolk Canyon, Virginia (Ross 2016). They are considered relatively sedentary and thought not to undertake north-south migrations along the coast. Blueline tilefish also occur further south, and South Atlantic Fishery Management Council (SAFMC) documents[6] can be consulted for additional information on the southern extent of their range. Blueline tilefish in the Greater Atlantic region are assessed as a separate stock.

Blueline tilefish, like other tilefish species, are a large, long-lived fish. Fish collected north of Cape Hatteras range up to about 900 mm fork length (FL) and 43 years of age (Schmidtke and Jones 2016). This species also exhibits dimorphic growth with males attaining larger size-at-age than females. Males are predominant in the size categories greater than 650 mm FL. They are classified as indeterminate spawners, with up to 110 spawnings per individual based on the estimates of a spawning event every 2 days during a protracted spawning season that lasts from approximately March through October. Females collected between Virginia and Florida between February and November reached 50% maturity at 299-312 mm FL and all females were mature by 365 mm FL (Kolmos et al. 2017).

The SSC determined that under the ABC control rule, blueline tilefish are classified as a fishery where the OFL cannot be specified for the Mid-Atlantic region given the current state of knowledge and thus, the SSC used methods that do not rely on biological reference points. Additionally, due to the outcome of the SEDAR 50 benchmark stock assessment for blueline tilefish as mentioned in section 4.3, alternative approaches were used to develop ABCs for 2019-2021.

The SSC was asked to provide an ABC recommendation for the subarea north of the NC/VA border (subarea that is under the management purview of the MAFMC) and decided to use a 56% allocation for that subarea based on the recommendation of the joint working group. This allocation recommendation was based on a fishery independent survey (Frisk et al. 2018) due to the lack of reliable fishery-dependent (catch) data. The joint working group decided that landings histories were not indicative of stock distribution, primarily due to the recent and rapid rise of landings in the MAFMC jurisdiction while the fishery was largely unregulated, and to the constant shift of regulations by both Councils as they reacted to documented (SAFMC) and potential (MAFMC) overfishing in their respective jurisdictions. Landings histories exhibit wide fluctuations from year to year in both subareas, and the working group could not separate which were due to regulatory histories and which were due to underlying changes in the abundance and distribution of the stock. This was the same conclusion reached by the Review Panel of SEDAR 50.

[6] http://safmc.net/regulations/regulations-by-species/blueline-tilefish/

As described in the SSC report[7], the SSC was generally concerned about the relatively high level of scientific uncertainty in many aspects of the DLMTool analysis; however, the SSC ultimately agreed that it represented the best science information available and was an improvement over the previous DLMTool analysis used by the SSC in 2016. The SSC also concluded that the MSY estimate for the region north of Cape Hatteras based on the DLMTool analysis is an estimate of the OFL, not the ABC (as recommended by the joint working group), which enabled the SSC to use the P* approach and the Council's risk policy in setting ABC specifications for the Mid-Atlantic region. It is worth noting that in May 2018 the SAFMC SSC used the same information and joint working group recommendations to develop an ABC for Blueline Tilefish in the subarea between Cape Hatteras and the VA/NC border.

Since the SSC lacked information on the estimate of stock biomass relative to BMSY, a ratio of B/BMSY = 1 was applied as a default value for the P* (i.e., P* = 0.4 under the MAFMC's risk policy). The SSC also assumed a typical life history (similar to Golden Tilefish). The resultant ABC estimate is 81.42 mt (179,500 pounds) for the stock north of Cape Hatteras.

The DLMTool analysis for the Mid-Atlantic region used a time series from 2002-2015 (Table 4) and resulted in three different ABC distributions, which are presented in Figure 3. Ultimately, the SSC used the percentage breakdown from the catch results and random stratified design of the Pilot Blueline Tilefish Longline Survey (SUNY Stony Brook-Frisk et al. 2018) to designate the Mid-Atlantic allocation within the region north of Cape Hatteras. The MAFMC SSC recommended ABC for 2019-2021 is 100,520 pounds.

[7] SSC recommendations for blueline tilefish are further described in the meeting report.

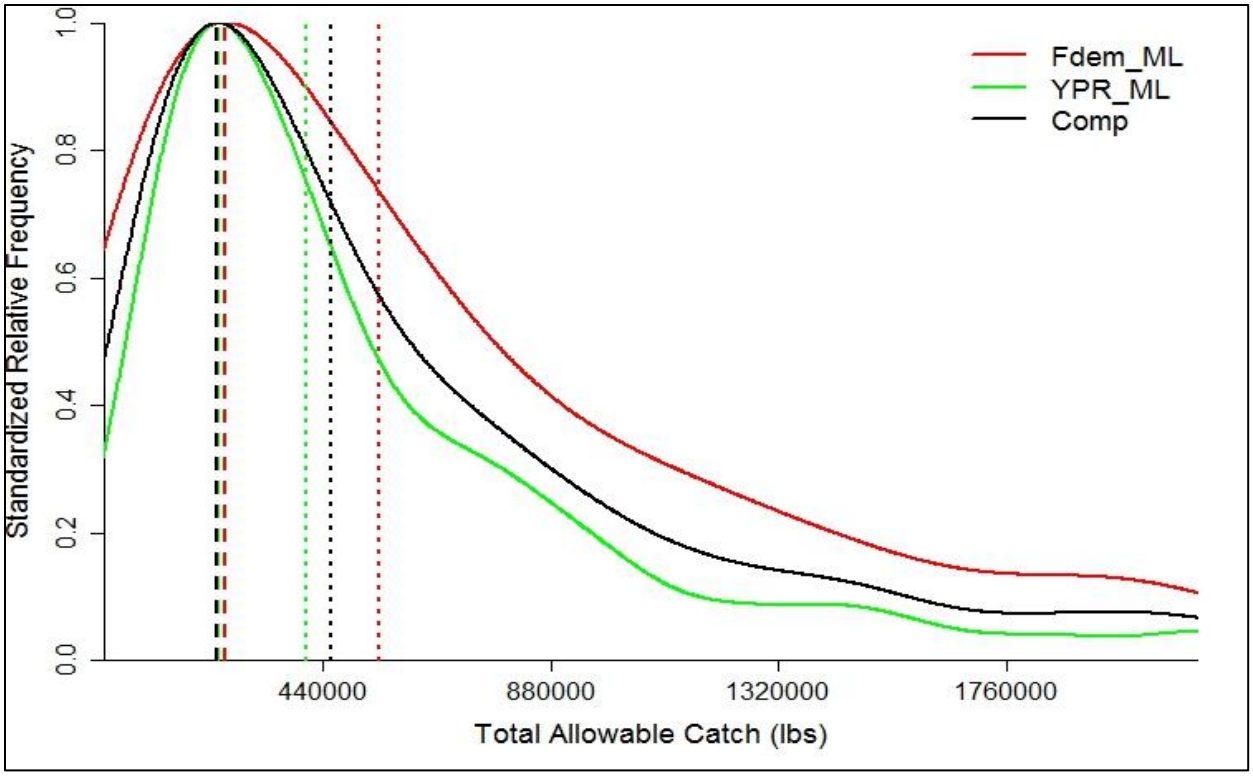

Figure 3: Total allowable catch (or ABC) distributions for DLMTool management procedures. Modal and median values for each distribution are indicated by vertical dashed and dotted lines, respectively.

Table 4: Time series of annual removal for blueline tilefish landed north of Cape Hatteras, North Carolina.

Year	Removals
2002	178,083
2003	135,412
2004	76,726
2005	125,075
2006	433,991
2007	641,712
2008	806,662
2009	610,985
2010	491,044
2011	244,804
2012	485,625
2013	353,477
2014	453,369
2015	275,113

6.1.2. Non-Target Species

Non-target species are those species caught incidentally while targeting other species. They may be retained or discarded and are often identified within the observer database. The data show minimal non-target interactions and/or discarding in the targeted golden tilefish fishery (MAFMC 2014), and the same is true for the blueline tilefish fishery. Blueline tilefish are occasionally landed incidentally on trips targeting other species, especially golden tilefish.

The blueline tilefish fishery is prosecuted primarily by bottom longline and rod and reel gear, thus, focus on non-target species is directed to other species caught via those gears. Blueline tilefish non-target species data are rare and difficult to quantify within the observer database. So, to assist in identifying non-target species, the dealer database was first filtered for trips that caught at least one pound of blueline tilefish. A directed trip was identified when at least 50% of the pounds landed were blueline tilefish. Of the 36 trips identified to have landed at least 1 pound of blueline tilefish in 2017, 8 of them landed only blueline tilefish (average ~196 pounds), 4 trips had landings where blueline tilefish made up greater than 10% (but less than 100%) of the

landings and 24 trips had landings where blueline tilefish made up less than 10% of the total landings (**Error! Reference source not found.**).

On these trips in 2017, ~220,000 pounds of golden tilefish were landed when at least 1 pound of blueline tilefish was also landed. The next highest landings were 893 pounds of spiny dogfish.

In summary, there have been very few non-target species landed on blueline tilefish trips and often, many of these trips are directing on other species and landing blueline tilefish incidentally. This is due to the gears used to prosecute the fisheries often avoiding bycatch, limited targeted effort under the current quotas and trip limits, the inaccessibility of the fishery to the private angler and the costs associated with each trip. When non-target species do show up in the dealer database, it is most often the case where blueline tilefish are the non-target species on other species (often golden tilefish) directed trips.

Table 5: Percentage of landings consisting blueline tilefish on all trips with at least one pound of reported blueline tilefish landed.

Percentage of Blueline Tilefish Per Trip	Number of Trips
100%	8
51-99%	1
26-50%	3
1-25%	14
<1%	10

Status of Non-Target Species

When non-target species are occasionally landed, the most common species observed within the blueline tilefish fishery is golden tilefish. The last full assessment update for golden tilefish was completed in February 2017. This update indicates that the golden tilefish stock was not overfished, and overfishing was not occurring in 2016, relative to the newly updated biological reference points. Fishing mortality in 2016 was estimated at F=0.249; 20% below the fishing mortality threshold of F=0.310 ($F_{MSY\ proxy}$). SSB in 2016 was estimated at 18.69 million pounds (8,479 mt) and was at 89% of the biomass target ($SSB_{MSY\ proxy}$).

6.2 Physical Environment and Essential Fish Habitat

The physical, chemical, biological, and geological components of benthic and pelagic environments are important aspects of habitat for marine species and have implications for reproduction, growth, and survival of marine species. The following sections briefly describe key aspects of physical habitats which may be impacted by the alternatives considered in this document. This information is largely drawn from Stevenson et al. (2004), unless otherwise noted.

6.2.1 Physical Environment

The physical environment that could be affected by this action extends from southern New England (possibly including Georges Bank) to the North Carolina-South Carolina border, primarily on the outer continental shelf within the 50-200 meter depth range.

The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, North Carolina.

Shelf and slope waters of the Mid-Atlantic Bight have a slow southwestward flow that is occasionally interrupted by warm core rings or meanders from the Gulf Stream. On average, shelf water moves parallel to bathymetry isobars at speeds of 5 - 10 cm/s at the surface and 2 cm/s or less at the bottom. Storm events can cause much more energetic variations in flow. Tidal currents on the inner shelf have a higher flow rate of 20 cm/s that increases to 100 cm/s near inlets.

The shelf slopes gently from shore out to between 100 and 200 km offshore where it transforms to the slope (100 - 200 m water depth) at the shelf break. Numerous canyons incise the slope and some cut up onto the shelf itself. The primary morphological features of the shelf include shelf valleys and channels, shoal massifs, scarps, and sand ridges and swales. Most of these structures are relic except for some sand ridges and smaller sand-formed features. Shelf valleys and slope canyons were formed by rivers of glacier outwash that deposited sediments on the outer shelf edge as they entered the ocean. Most valleys cut about 10 m into the shelf; however, the Hudson Shelf Valley is about 35 m deep. The valleys were partially filled as the glacier melted and retreated across the shelf. The glacier also left behind a lengthy scarp near the shelf break from Chesapeake Bay north to the eastern end of Long Island. Shoal retreat massifs were produced by extensive deposition at a cape or estuary mouth. Massifs were also formed as estuaries retreated across the shelf.

Some sand ridges are more modern in origin than the shelf's glaciated morphology. Their formation is not well understood; however, they appear to develop from the sediments that erode from the shore face. They maintain their shape, so it is assumed that they are in equilibrium with modern current and storm regimes. They are usually grouped, with heights of about 10 m, lengths of 10 - 50 km and spacing of 2 km. Ridges are usually oriented at a slight angle towards shore, running in length from northeast to southwest. The seaward face usually has the steepest slope. Sand ridges are often covered with smaller similar forms such as sand waves, megaripples, and ripples. Swales occur between sand ridges. Since ridges are higher than the adjacent swales, they are exposed to more energy from water currents and experience more sediment mobility than swales. Ridges tend to contain less fine sand, silt and clay while relatively sheltered swales contain more of the finer particles. Swales have greater benthic macrofaunal density, species richness and biomass, due in part to the increased abundance of detrital food and the less physically rigorous conditions.

Sand waves are usually found in patches of 5 - 10 with heights of about 2 m, lengths of 50 - 100 m and 1 - 2 km between patches. Sand waves are primarily found on the inner shelf, and often observed on sides of sand ridges. They may remain intact over several seasons. Megaripples occur on sand waves or separately on the inner or central shelf. During the winter storm season, they may cover as much as 15% of the inner shelf. They tend to form in large patches and usually have lengths of 3 - 5 m with heights of 0.5 - 1 m. Megaripples tend to survive for less than a season. They can form during a storm and reshape the upper 50 - 100 cm of the sediments within a few hours. Ripples are also found everywhere on the shelf and appear or disappear within hours or days, depending upon storms and currents. Ripples usually have lengths of about 1 - 150 cm and heights of a few centimeters.

Sediments are uniformly distributed over the shelf in this region. A sheet of sand and gravel varying in thickness from 0 - 10 m covers most of the shelf. The mean bottom flow from the constant southwesterly current is not fast enough to move sand, so sediment transport must be episodic. Net sediment movement is in the same southwesterly direction as the current. The sands are mostly medium to coarse grains, with finer sand in the Hudson Shelf Valley and on the outer shelf. Mud is rare over most of the shelf but is common in the Hudson Shelf Valley. Occasionally relic estuarine mud deposits are re-exposed in the swales between sand ridges. Fine sediment content increases rapidly at the shelf break, which is sometimes called the "mud line," and sediments are 70 - 100% fine on the slope. On the slope, silty sand, silt, and clay predominate (Stevenson et al. 2004).

Like all the world's oceans, the western North Atlantic is experiencing changes to the physical environment as a result of global climate change. These changes include warming temperatures; sea level rise; ocean acidification; changes in stream flow, ocean circulation, and sediment deposition; and increased frequency, intensity, and duration of extreme climate events. These changes in physical habitat can impact the metabolic rate and other biological processes of marine species. As such, these changes have implications for the distribution and productivity of many marine species. Several studies demonstrate that the distribution and productivity of several species in the Mid-Atlantic have changed over time, likely because of changes in physical habitat conditions such as temperature (e.g. Weinberg 2005, Lucey and Nye 2010, Nye et al. 2011, Pinsky et al. 2013, Gaichas et al. 2015).

6.2.2 Essential Fish Habitat (EFH)

Eggs and larvae: Blueline tilefish egg and larval EFH in the Greater Atlantic region is the water column on the outer continental shelf from eastern Georges Bank to the Virginia / North Carolina boundary in depths of 46 to 256 meters (151 to 840 ft), as shown in Figure 4.

Juveniles and adults: Blueline tilefish juvenile and adult EFH in the Greater Atlantic region is benthic habitats on the outer continental shelf from eastern Georges Bank to the Virginia / North Carolina boundary in depths of 46 to 256 meters (151 to 840 ft) at bottom water temperatures which range from 8 to 18°C (46 to 64°F), as shown in Figure 4. Blueline tilefish create horizontal or vertical burrows in sediments composed of silt, clay, and sand.

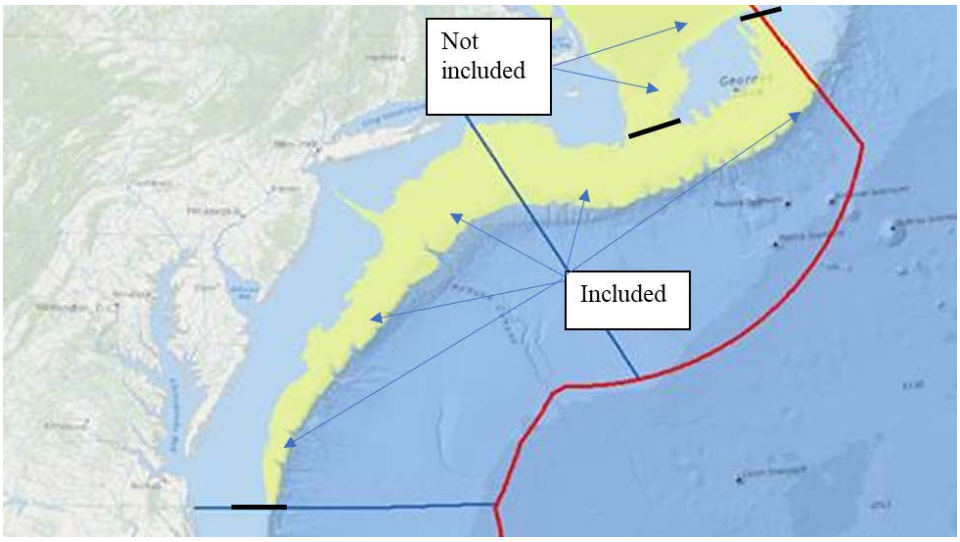

Figure 4: Proposed blueline tilefish EFH, showing Council boundaries.

Other species in the Mid-Atlantic region managed by the New England and Mid-Atlantic council with EFH that utilize bottom habitats within the 50-200 meter depth range that could be affected by the measures being proposed in this action are listed in Table 6.

Table 6: Geographic distributions and habitat characteristics of Essential Fish Habitat designations for benthic fish and shellfish species managed by the New England and Mid-Atlantic fishery management councils with a presence in the Mid-Atlantic region.

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Atlantic cod	Juveniles	Gulf of Maine, Georges Bank, and Southern New England, including nearshore waters from eastern Maine to Rhode Island and the following estuaries: Passamaquoddy Bay to Saco Bay; Massachusetts Bay, Boston Harbor, Cape Cod Bay, and Buzzards Bay	Mean high water-120	Structurally-complex intertidal and sub-tidal habitats, including eelgrass, mixed sand and gravel, and rocky habitats (gravel pavements, cobble, and boulder) with and without attached macroalgae and emergent epifauna
Atlantic cod	Adults	Gulf of Maine, Georges Bank, Southern New England, and the Mid-Atlantic to Delaware Bay, including the following estuaries: Passamaquoddy Bay to Saco Bay; Massachusetts Bay, Boston Harbor, Cape Cod Bay, and Buzzards Bay	30-160	Structurally complex sub-tidal hard bottom habitats with gravel, cobble, and boulder substrates with and without emergent epifauna and macroalgae, also sandy substrates and along deeper slopes of ledges
Atlantic sea scallop	Eggs	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Massachusetts Bay, and Cape Cod Bay	18-110	Inshore and offshore benthic habitats (see adults)

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Atlantic sea scallop	Larvae	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Massachusetts Bay, and Cape Cod Bay	No information	Inshore and offshore pelagic and benthic habitats: pelagic larvae ("spat"), settle on variety of hard surfaces, including shells, pebbles, and gravel and to macroalgae and other benthic organisms such as hydroids
Atlantic sea scallop	Juveniles	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Great Bay, Massachusetts Bay, and Cape Cod Bay	18-110	Benthic habitats initially attached to shells, gravel, and small rocks (pebble, cobble), later free-swimming juveniles found in same habitats as adults
Atlantic sea scallop	Adults	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Great Bay, Massachusetts Bay, and Cape Cod Bay	18-110	Benthic habitats with sand and gravel substrates
Atlantic surfclams	Juveniles and adults	Continental shelf from southwestern Gulf of Maine to Cape Hatteras, North Carolina	Surf zone to about 61, abundance low >38	In substrate to depth of 3 ft
Black sea bass	Juveniles and adults	Continental shelf and estuarine waters from the southwestern Gulf of Maine and Cape Hatteras, North Carolina	Inshore in summer and spring	Benthic habitats with rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas, also offshore clam beds and shell patches in winter
Deep-sea red crab	Eggs	Outer continental shelf and slope throughout the region, including two seamounts	320-640	Benthic habitats attached to female crabs
Deep-sea red crab	Juveniles	Outer continental shelf and slope throughout the region, including two seamounts	320-1300 on slope and to 2000 on seamounts	Benthic habitats with unconsolidated and consolidated silt-clay sediments
Deep-sea red crab	Adults	Outer continental shelf and slope throughout the region, including two seamounts	320-900 on slope and up to 2000 on seamounts	Benthic habitats with unconsolidated and consolidated silt-clay sediments
Golden tilefish	Juveniles and adults	Outer continental shelf and slope from U.S.-Canada boundary to the Virginia-North Carolina boundary	100-300	Burrows in semi-lithified clay substrate, may also utilize rocks, boulders, scour depressions beneath boulders, and exposed rock ledges as shelter
Haddock	Juveniles	Inshore and offshore waters in the Gulf of Maine, on Georges Bank, and on the	40-140 and as shallow as 20 in	Sub-tidal benthic habitats on hard sand (particularly smooth patches between

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
		continental shelf in the Mid-Atlantic region	coastal Gulf of Maine	rocks), mixed sand and shell, gravelly sand, and gravel
Little skate	Juveniles	Coastal waters in the Gulf of Maine, Georges Bank, and the continental shelf in the Mid-Atlantic region as far south as Delaware Bay, including certain bays and estuaries in the Gulf of Maine	Mean high water-80	Intertidal and sub-tidal benthic habitats on sand and gravel, also found on mud
Little skate	Adults	Coastal waters in the Gulf of Maine, Georges Bank, and the continental shelf in the Mid-Atlantic region as far south as Delaware Bay, including certain bays and estuaries in the Gulf of Maine	Mean high water-100	Intertidal and sub-tidal benthic habitats on sand and gravel, also found on mud
Longfin inshore squid	Eggs	Inshore and offshore waters from Georges Bank southward to Cape Hatteras	Generally <50	Bottom habitats attached to variety of hard bottom types, macroalgae, sand, and mud
Monkfish	Juveniles	Gulf of Maine, outer continental shelf in the Mid-Atlantic, and the continental slope	50-400 in the Mid-Atlantic, 20-400 in the Gulf of Maine, and to 1000 on the slope	Sub-tidal benthic habitats on a variety of habitats, including hard sand, pebbles, gravel, broken shells, and soft mud, also seek shelter among rocks with attached algae
Monkfish	Adults	Gulf of Maine, outer continental shelf in the Mid-Atlantic, and the continental slope	50-400 in the Mid-Atlantic, 20-400 in the Gulf of Maine, and to 1000 on the slope	Sub-tidal benthic habitats on hard sand, pebbles, gravel, broken shells, and soft mud, but seem to prefer soft sediments, and, like juveniles, utilize the edges of rocky areas for feeding
Ocean quahogs	Juveniles and adults	Continental shelf from southern New England and Georges Bank to Virginia	9-244	In substrate to depth of 3 ft
Offshore hake	Juveniles	Outer continental shelf and slope from Georges Bank to 34° 40'N	160-750	Pelagic and benthic habitats
Offshore hake	Adults	Outer continental shelf and slope from Georges Bank to 34° 40'N	200-750	Pelagic and benthic habitats
Pollock	Juveniles	Inshore and offshore waters in the Gulf of Maine (including bays and estuaries in the Gulf of Maine), the Great South Channel, Long Island Sound, and Narragansett Bay, Rhode Island	Mean high water-180 in Gulf of Maine, Long Island Sound, and Narragansett Bay; 40-180 on Georges Bank	Intertidal and sub-tidal pelagic and benthic rocky bottom habitats with attached macroalgae, small juveniles in eelgrass beds, older juveniles move into deeper water habitats also occupied by adults

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Pollock	Adults	Offshore Gulf of Maine waters, Massachusetts Bay and Cape Cod Bay, on the southern edge of Georges Bank, and in Long Island Sound	80-300 in Gulf of Maine and on Georges Bank; <80 in Long Island Sound, Cape Cod Bay, and Narragansett Bay	Pelagic and benthic habitats on the tops and edges of offshore banks and shoals with mixed rocky substrates, often with attached macro algae
Red hake	Juveniles	Gulf of Maine, Georges Bank, and the Mid-Atlantic, including Passamaquoddy Bay to Cape Cod Bay in the Gulf of Maine, Buzzards Bay and Narragansett Bay, Long Island Sound, Raritan Bay and the Hudson River, and lower Chesapeake Bay	Mean high water-80	Intertidal and sub-tidal soft bottom habitats, esp those that that provide shelter, such as depressions in muddy substrates, eelgrass, macroalgae, shells, anemone and polychaete tubes, on artificial reefs, and in live bivalves (e.g., scallops)
Red hake	Adults	In the Gulf of Maine, the Great South Channel, and on the outer continental shelf and slope from Georges Bank to North Carolina , including inshore bays and estuaries as far south as Chesapeake Bay	50-750 on shelf and slope, as shallow as 20 inshore	Sub-tidal benthic habitats in shell beds, on soft sediments (usually in depressions), also found on gravel and hard bottom and artificial reefs
Rosette skate	Juveniles and adults	Outer continental shelf from approximately 40˚N to Cape Hatteras, North Carolina	80-400	Benthic habitats with mud and sand substrates
Scup	Juveniles	Continental shelf between southwestern Gulf of Maine and Cape Hatteras, North Carolina and in nearshore and estuarine waters between Massachusetts and Virginia	No information	Benthic habitats, in association with inshore sand and mud substrates, mussel and eelgrass beds
Scup	Adults	Continental shelf and nearshore and estuarine waters between southwestern Gulf of Maine and Cape Hatteras, North Carolina	No information, generally overwinter offshore	Benthic habitats
Silver hake	Juveniles	Gulf of Maine, including certain bays and estuaries, and on the continental shelf as far south as Cape May, New Jersey	40-400 in Gulf of Maine, >10 in Mid-Atlantic	Pelagic and sandy sub-tidal benthic habitats in association with sand-waves, flat sand with amphipod tubes, shells, and in biogenic depressions
Silver hake	Adults	Gulf of Maine, including certain bays and estuaries, the southern portion of Georges Bank, and the outer continental shelf and some shallower coastal locations in the Mid-Atlantic	>35 in Gulf of Maine, 70-400 on Georges Bank and in the Mid-Atlantic	Pelagic and sandy sub-tidal benthic habitats, often in bottom depressions or in association with sand waves and shell fragments, also in mud habitats bordering deep boulder reefs, on over deep

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
				boulder reefs in the southwest Gulf of Maine
Smooth skate	Juveniles	Offshore Gulf of Maine, some coastal bays in Maine and New Hampshire, and on the continental slope from Georges Bank to North Carolina	100-400 offshore Gulf of Maine, <100 inshore Gulf of Maine, to 900 on slope	Benthic habitats, mostly on soft mud in deeper areas, but also on sand, broken shells, gravel, and pebbles on offshore banks in the Gulf of Maine
Smooth skate	Adults	Offshore Gulf of Maine and the continental slope from Georges Bank to North Carolina	100-400 offshore Gulf of Maine, to 900 on slope	Benthic habitats, mostly on soft mud in deeper areas, but also on sand, broken shells, gravel, and pebbles on offshore banks in the Gulf of Maine
Summer flounder	Juveniles	Continental shelf and estuaries from Cape Cod, Massachusetts, to Cape Canaveral, Florida	To maximum 152	Benthic habitats, including inshore estuaries, salt marsh creeks, seagrass beds, mudflats, and open bay areas
Summer flounder	Adults	Continental shelf from Cape Cod, Massachusetts, to Cape Canaveral, Florida, including shallow coastal and estuarine waters during warmer months	To maximum 152 in colder months	Benthic habitats
Spiny dogfish	Juveniles	Primarily the outer continental shelf and slope between Cape Hatteras and Georges Bank and in the Gulf of Maine	Deep water	Pelagic and epibenthic habitats
Spiny dogfish	Female sub-adults	Throughout the region	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Male sub-adults	Primarily in the Gulf of Maine and on the outer continental shelf from Georges Bank to Cape Hatteras	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Female adults	Throughout the region	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Male adults	Throughout the region	Wide depth range	Pelagic and epibenthic habitats
Thorny skate	Juveniles	Offshore Gulf of Maine, some coastal bays in the Gulf of Maine, and on the continental slope from Georges Bank to North Carolina	35-400 offshore Gulf of Maine, <35 inshore Gulf of Maine, to 900 om slope	Benthic habitats on a wide variety of bottom types, including sand, gravel, broken shells, pebbles, and soft mud
Thorny skate	Adults	Offshore Gulf of Maine and on the continental slope from Georges Bank to North Carolina	35-400 offshore Gulf of Maine, <35 inshore Gulf of Maine, to 900 om slope	Benthic habitats on a wide variety of bottom types, including sand, gravel, broken shells, pebbles, and soft mud

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Windowpane flounder	Juveniles	Estuarine, coastal, and continental shelf waters from the Gulf of Maine to northern Florida, including bays and estuaries from Maine to Maryland	Mean high water - 60	Intertidal and sub-tidal benthic habitats on mud and sand substrates
Windowpane flounder	Adults	Estuarine, coastal, and continental shelf waters from the Gulf of Maine to Cape Hatteras, North Carolina, including bays and estuaries from Maine to Maryland	Mean high water - 70	Intertidal and sub-tidal benthic habitats on mud and sand substrates
Winter flounder	Eggs	Eastern Maine to Absecon Inlet, New Jersey (39° 22´N) and Georges Bank	0-5 south of Cape Cod, 0-70 Gulf of Maine and Georges Bank	Sub-tidal estuarine and coastal benthic habitats on mud, muddy sand, sand, gravel, submerged aquatic vegetation, and macroalgae
Winter flounder	Juveniles	Coastal Gulf of Maine, Georges Bank, and continental shelf in Southern New England and Mid-Atlantic to Absecon Inlet, New Jersey, including bays and estuaries from eastern Maine to northern New Jersey	Mean high water - 60	Intertidal and sub-tidal benthic habitats on a variety of bottom types, such as mud, sand, rocky substrates with attached macro algae, tidal wetlands, and eelgrass; young-of-the-year juveniles on muddy and sandy sediments in and adjacent to eelgrass and macroalgae, in bottom debris, and in marsh creeks
Winter flounder	Adults	Coastal Gulf of Maine, Georges Bank, and continental shelf in Southern New England and Mid-Atlantic to Absecon Inlet, New Jersey, including bays and estuaries from eastern Maine to northern New Jersey	Mean high water - 70	Intertidal and sub-tidal benthic habitats on muddy and sandy substrates, and on hard bottom on offshore banks; for spawning adults, also see eggs
Winter skate	Juveniles	Coastal waters from eastern Maine to Delaware Bay, including certain bays and estuaries from eastern Maine to Chincoteague Bay, Virginia, and on Georges Bank and the continental shelf in Southern New England and the Mid-Atlantic	0-90	Sub-tidal benthic habitats on sand and gravel substrates, are also found on mud
Winter skate	Adults	Coastal waters from eastern Maine to Delaware Bay, including certain bays and estuaries in Maine and New Hampshire, and on Georges Bank and the continental	0-80	Sub-tidal benthic habitats on sand and gravel substrates, are also found on mud

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
		shelf in Southern New England and the Mid-Atlantic		

6.2.3 Fishery Impact Considerations

The recreational fishery for blueline tilefish is prosecuted primarily by rod and reel. Recreational hook and line gears are generally understood to have minimal impacts on physical habitat and EFH in this region (Stevenson et al. 2004). Some weighted hook and line gear do contact the bottom, but the magnitude and footprint of any impacts resulting from this contact is minimal. Thus, the recreational fisheries are expected to have very minor or no impacts on habitat.

Based on dealer data from 2013 through 2017 from Maine to North Carolina, the bulk of blueline tilefish landings were taken by longline gear (81%) followed by bottom trawl gear (8%), unknown gear (7%), handline gear (3%), and pot/trap gear (~1%) (Table 7).

Table 7: Blueline tilefish commercial landings by gear, Maine through Virginia, 2013-2017 combined.

Gear	Pounds	Percent
Bottom Longline	276,340	80.89
Bottom Trawl	26,632	7.8
Unknown	23,856	6.98
Handline	9,139	2.68
Pot/Trap	2,596	0.76

The commercial fishery for blueline tilefish is largely prosecuted by bottom longline gear. Otter trawls may also be used but have limited utility because of the habitat preferred by blueline tilefish. Soft mud bottom, rough or irregular bottom, or areas with obstructions, which are those that are most frequented by blueline tilefish, are not conducive to bottom trawling. However, blueline tilefish occasionally are taken incidental to other directed trawl fisheries, such as the 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 blueline tilefish) cause some low degree impacts in mud, sand, and gravel habitats. Bottom trawls, which account for about 8% 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).

A report to the MAFMC (Able and Muzeni 2002), based upon a review of archived video surveys in areas of golden tilefish habitat, did not find visual evidence of direct impacts to tilefish burrows from 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 golden 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 golden 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 golden 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 canyons.[8] The gear restricted areas in these four canyons were chosen in order to provide protection to areas that are known to have clay outcrop/pueblo habitats. There is no specific information indicating that blueline tilefish also occupy clay outcrop habitats in canyon walls, however, because these regulations apply to bottom trawls used in any fishery, any blueline tilefish habitat in these four gear restricted areas is protected from this gear. The areas are not closed to fixed gears such as bottom longlines.

6.3 ESA and MMPA Protected Species

6.3.1 Species in the Fisheries Environment

Numerous protected species inhabit the affected environment of the blueline tilefish fishery (Table 8) and have the potential to be affected by the proposed action (i.e., there have been observed/documented interactions in the fishery or with gear type(s) similar to those used in the fishery (hook and line and bottom longline gear)). These species are under NMFS jurisdiction and are afforded protection under the Endangered Species Act (ESA) of 1973 and/or the Marine Mammal Protection Act (MMPA) of 1972. More detailed description of the species listed in Table 8, including their environment, ecological relationships and life history information including recent stock status, is available at https://www.fisheries.noaa.gov/find-species and https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region.

Cusk, alewife, and blueback herring are NMFS "candidate species" under the ESA. Candidate species are those petitioned species for which NMFS has determined that listing may be warranted under the ESA and those species for which NMFS has initiated an ESA status review through an announcement in the Federal Register. If a species is proposed for listing the conference provisions under Section 7 of the ESA apply (see 50 CFR 402.10); however, candidate species receive no

[8] See tilefish regulations at http://www.nero.noaa.gov/regs/fr.html for specific coordinates of the closed areas.

substantive or procedural protection under the ESA. As a result, these species will not be discussed further in this and the following sections; however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on candidate species from any proposed action. Additional information on cusk, alewife, and blueback herring can be found at: https://www.fisheries.noaa.gov/endangered-species-conservation/candidate-species-under-endangered-species-act.

Table 8: Species Protected Under the ESA and/or MMPA that May Occur in the Affected Environment of the Blueline Tilefish Fishery. Marine mammal species (cetaceans and pinnipeds) italicized and in bold are considered MMPA strategic stocks.[1]

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

[1] A strategic stock is defined under the MMPA as a marine mammal stock for which: (1) the level of direct human-caused mortality exceeds the potential biological removal level; (2) based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; and/or (3) is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA (Section 3 of the MMPA of 1972).

[2] There are 2 species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp*.
[3] This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins. See https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

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

Based on available information, it has been determined that this action is not likely to affect multiple ESA listed and/or marine mammal protected species (see Table 8). Further, this action is not likely to adversely affect any critical habitat for the species listed in Table 8. This determination was made because either the occurrence of the species is not known to overlap with the blueline tilefish fishery and/or there have never been documented interactions between the species and the primary gear type (i.e., hook and line or bottom longline) used to prosecute the blueline tilefish fishery (Palmer 2017; NMFS NEFSC FSB 2015, 2016, 2017; see http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html and https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region). In the case of critical habitat, this determination has been made because the blueline tilefish fishery will not affect the essential physical and biological features of North Atlantic right whale or loggerhead (Northwest Atlantic Distinct Population Segment, or DPS) critical habitat and, and therefore, will not result in the destruction or adverse modification of either species critical habitat (NMFS 2013; NMFS 2014a; NMFS 2015a,b).

6.3.3 Gear Interactions and Protected Species

Protected species (ESA listed and/or MMPA protected) are vulnerable to interactions with various types of fishing gear, with interaction risks associated with gear type, the amount of gear in the water, gear soak or tow time, as well as the area of overlap, either in space or time, of the gear and a protected species. Available information on gear interactions with a given species (or species group) is provided in the sections below. These sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on the primary gear types used to prosecute the blueline tilefish fishery (i.e., recreational: hook and line; commercial: bottom longline gear).

6.3.3.1 Recreational Fisheries Interactions

6.3.3.1.1 Large Whales

Large whales are known to interact with hook and line gear; however, in the most recent (2011-2015) mortality and serious injury determinations for baleen whales, the majority of cases identified with confirmed hook and line or monofilament entanglement did not result in the serious injury or mortality to the whale (89.3% observed/reported whales had a serious injury value of 0; 10.7% had a serious injury value of 0.75; none of the cases resulted in mortality; Henry et al. 2017).[9] In fact, 85.7% of the whales observed or reported with a hook/line or monofilament entanglement were resighted gear free and healthy; confirmation of the health of the other remaining whales remain unknown as no resightings had been made over the timeframe of the

[9] Any injury leading to a significant health decline (e.g., skin discoloration, lesions near the nares, fat loss, increased cyamid loads) is classified as a serious injury (SI) and will result in a SI value set at 1 (Henry *et al*. 2017).

assessment (Henry et al. 2017). Based on this information, while large whale interactions with hook and line gear are possible, there is a low probability that an interaction will result in serious injury or mortality to any large whale species. Therefore, relative to other gear types, such as fixed gear, hook and line gear represents a low source serious injury or mortality to any large whale (Henry *et al*. 2017).

6.3.3.1.2 Small Cetaceans (Bottlenose Dolphins)

Over the past several years, observer coverage has been limited for fisheries prosecuted with hook and line gear. In the absence of extensive observer data for these fisheries, stranding data provides the next best source of information on species interactions with hook and line or trap pot gear. It is important to note; however, stranding data underestimates the extent of human-related mortality and serious injury because not all of the marine mammals that die or are seriously injured in human interactions are discovered, reported, or show signs of entanglement. Additionally, if gear is present, it is often difficult to definitively attribute the animal's death to the gear interaction, or if pieces of gear are absent, attribute the death or serious injury to a specific fishery or fishing gear type. As a result, the conclusions below should be taken with these considerations in mind and with an understanding that interactions may occur more frequently than what we are able to detect and provide at this time.

As provided in Table 8, there are numerous small cetaceans that will occur in the affected environment of the blueline tilefish fishery. However, of these species, only bottlenose dolphin stocks have been identified as vulnerable to entanglement in hook and line gear. Reviewing the stock assessment reports for each dolphin stock identified in Table 8, stranding data provides the best source of information on species interaction history with hook and line gear type. Specifically, based on stranding data from 2007-2013, estimated mean annual mortality for each stock due to interactions with hook and line gear was approximately one animal (Waring *et al*. 2014a; Waring *et al*. 2016; Palmer 2017).[10] Based on this and the best available information, hook and line interaction risks to small cetaceans (specifically bottlenose dolphins) are expected to be low. Should an interaction with a small cetacean occur, serious injury or mortality to the animal is possible; however, relative to other gear types known to result in the serious injury and mortality to small cetaceans (i.e., trawl or gillnet gears; Hayes et al. 2018; Palmer 2017), hook and line gear represents a low source of serious injury or mortality to any small cetacean.

6.3.3.1.3 Sea Turtles

ESA- listed species of sea turtles are known to interact with hook and line gear, particularly in nearshore, southern waters (e.g., Virginia, south; Sea Turtle Disentanglement Network; NMFS 2013; Palmer 2017). Injury and mortality to sea turtles can be incurred by interactions with hook

[10] Stranding data provided in Waring *et al*. (2015), Hayes et al. (2017), and Hayes et al. (2018) was not considered in estimating mean annual mortality as not all bottlenose dolphin stocks are addressed in this stock assessment report and/or details of the strandings were not provided. As all bottlenose dolphin stocks are considered in Waring *et al.* (2014a) and Waring *et al*. (2016), these stock assessment reports were used to estimate mean annual mortality. Estimates of mean annual mortality were calculated based on the total number of animals that stranded between 2007-2013, and that were determined to have incurred serious injuries or mortality as result of interacting with hook and line gear. Please note, any animals released alive with no serious injuries were not included in the estimate. Also, if maximum or minimum number of animals stranded were provided, to be conservative, we considered the maximum estimated number in calculating our mean annual estimate of mortality.

and line gear, and therefore, can pose a risk to these species. However, the extent to which these interactions are impacting sea turtle populations is still under investigation and therefore, no conclusions can currently be made on the impact of hook and line gear on the continued survival of sea turtle populations.

6.3.3.1.4 Atlantic Sturgeon

ESA listed species of Atlantic sturgeon are known to interact with hook and line gear, particularly in nearshore, waters from the Gulf Maine to Southern New England (NMFS 2013; ASMFC 2007). Injury and mortality to Atlantic sturgeon can be incurred by hook and line gear interactions, and therefore, can pose a risk to these species. However, the extent to which these interactions are impacting Atlantic sturgeon DPSs is still under investigation and therefore, no conclusions can currently be made on the impact of hook and line gear on the continued survival of Atlantic sturgeon DPSs (NMFS 2013; NMFS 2011b). However, in the marine environment, subadult and adult Atlantic sturgeon appear to primarily occur inshore of the 50 meter depth contour (Stein et al. 2004 a,b; Erickson et al. 2011; Dunton et al. 2010; ASMFC 2007). As with the commercial fishery (see section 6.3.3.2), the blueline tilefish recreational fishery primarily operates in deep continental shelf edge/slope waters (at times >200 meters) which could reduce the potential for interactions since sturgeon are often observed in much shallower waters.

6.3.3.2 Commercial Fisheries Interactions

The commercial blueline tilefish fishery is prosecuted primarily with bottom longline and handline gear. As provided in Table 8, species of large whales, bottlenose dolphins, sea turtles, and Atlantic sturgeon are known to interact with one or more of these gear types. Available information on bottom longline interactions with a given species (or species group) is provided in the sections below; for information on interaction risks with handline, see section 6.3.3.1. These sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on the primary gear types used to land/catch tilefish.

6.3.3.2.1 Large Whales, Bottlenose Dolphins, and Atlantic sturgeon

Based on information provided by the Northeast Fisheries Observer Program (https://www.nefsc.noaa.gov/fsb/take_reports/nefop.html; NMFS NEFSC FSB 2015, 2016, 2017), as well as information provided in marine mammal stock assessment reports and the MMPA List of Fisheries (https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region; https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-list-fisheries), there has been no confirmed serious injury or mortality, or documented interactions, in general, with bottom longline gear and large whales, bottlenose dolphins, or Atlantic sturgeon. Based on this information, bottom longline gear is not expected to pose an interaction risk to any of these species and therefore, is not expected to be source of serious injury or mortality to these species.

6.3.3.2.2 Sea Turtles

Sea turtles are at risk of interacting with bottom longline gear; however, the risk is tied to where the gear is placed relative to where and when sea turtles are present. As sea turtles are commonly found in neritic waters of the inner continental shelf (Braun-McNeill and Epperly 2002; Morreale and Standora 2005; Blumenthal et al. 2006; Hawkes et al. 2006; McClellan and Read 2007;

Mansfield et al. 2009; Hawkes et al. 2011; Griffin et al. 2013; James et al. 2005; Eckert et al. 2006; Murphy et al. 2006; Dodge et al. 2014)[11], bottom longline gear placed in continental shelf waters (<200 meters) poses a greater risk of an interaction than bottom longline gear placed in deep waters greater than 200 meters. This is evidenced by the large number of sea turtle interactions observed in the South Atlantic and Gulf of Mexico (under NMFS SERO jurisdiction; NMFS 2006; NMFS 2011a; NMFS 2012), where numerous fisheries prosecuted by bottom longline gear (e.g., HMS fishery-Atlantic shark bottom longline component; Gulf of Mexico reef fishery) operate in nearshore southern continental shelf waters (<200 meters) where sea turtles are commonly present year-round. Under such conditions, the co-occurrence of gear and sea turtles is high, thereby causing increased interaction risks. In contrast, in the Greater Atlantic Region (GAR), no sea turtles have been observed in bottom longline gear from 1989-2016 (NMFS NEFSC FSB 2015, 2016, 2017). This may in part be due to the fact that fisheries (e.g., tilefish spp.) prosecuted by bottom longline gear in the GAR primarily operate in deep continental shelf edge/slope waters (>200 meters). In deeper waters, sea turtle (primarily loggerhead and leatherback) behaviors are primarily directed at migratory movements. As a result, sea turtles are more likely to be present in the water column than near the deep benthos where bottom longline is present, thereby reducing the co-occurrence of bottom longline gear and sea turtles and thus, the potential for an interaction (Braun-McNeill and Epperly 2002; McClellan and Read 2007; Mansfield et al. 2009; Hawkes et al. 2011; Griffin et al. 2013; http://seamap.env.duke.edu/). Based on this, although sea turtle interactions with bottom longline gear are possible, due to the fishing behavior of GAR fisheries prosecuted by bottom longline gear, the risk of an interaction is likely low in the GAR.

6.4 Human Communities

6.4.1 Recreational Fishery

The blueline tilefish recreational fishery is relatively small and runs from May 1 to October 31. The recreational ACL is allocated as 73% of the ABC. The status quo bag limits are set at seven fish for a for-hire vessel with a party/charter permit that also has a U.S. Coast Guard safety inspection sticker, five fish for a for-hire vessel with a party/charter permit that does not have a U.S. Coast Guard safety inspection sticker, and three fish for any private vessel. In 2017, 629 vessels were issued recreational party/charter tilefish permits, which includes both golden and blueline tilefish. Blueline tilefish intercepts in the MRIP program are an exceedingly rare event, but in 2016 MRIP estimates were 10,644 fish for Maryland, 3,040 fish for New Jersey, and 14,240 fish for Virginia. Preliminary 2017 MRIP estimates are 3,465 fish (all Virginia).

It is believed that VTR reporting compliance for blueline tilefish has been low, especially historically and for charter vessels.
Table **9** provides the available VTR reports for blueline tilefish since 2012, when previous work with the advisors and other blueline tilefish recreational fishermen has suggested VTR reporting compliance began to encompass at least the primary head boats. Table 10 includes the statistical areas that account for more than 3% of landings where blueline tilefish have been predominantly targeted from 2012-2017.

[11] Also see sea turtle species status reviews and recovery plans at the following websites: http://www.nmfs.noaa.gov/pr/listing/reviews.htm#species; http://www.nmfs.noaa.gov/pr/recovery/plans.htm#turtles

Table 9: Blueline tilefish VTR landings from ME-VA, 2012-2017

Year	Number of Trips	Number of Fish
2012	103	10,051
2013	120	11,838
2014	138	15,849
2015	170	14,391
2016	160	15,531
2017	112	9,682

Table 10: Blueline tilefish VTR Landings by statistical area from ME-VA, 2012-2017

Stat Area	Number of Trips	Number of Fish	Percent
622	281	38764	50.12%
626	318	30950	40.02%
632	64	3300	4.27%
621	81	2534	3.28%

6.4.2 Commercial Fishery

The commercial blueline tilefish fishery operates year-round, taking place in federal waters. The commercial ACL is allocated as 27% of the ABC. From Maine to Virginia, the commercial fishery produced relatively low landings from 1999-2013. In 2014, landings spiked to over 200,000 pounds. On June 4, 2015, NMFS published an emergency action to constrain catch and landings of blueline tilefish. If the emergency rule had not been implemented, 2015 landings could have been well above 2014's landings. Landings then returned to the lower levels observed prior to the 2014 fishing year (Figure 5). In 2017, there were 2120 vessels with commercial tilefish permits (which includes both golden and blueline tilefish) that conducted 176 trips (Figure 6) and landed approximately 10,000 pounds of blueline tilefish.

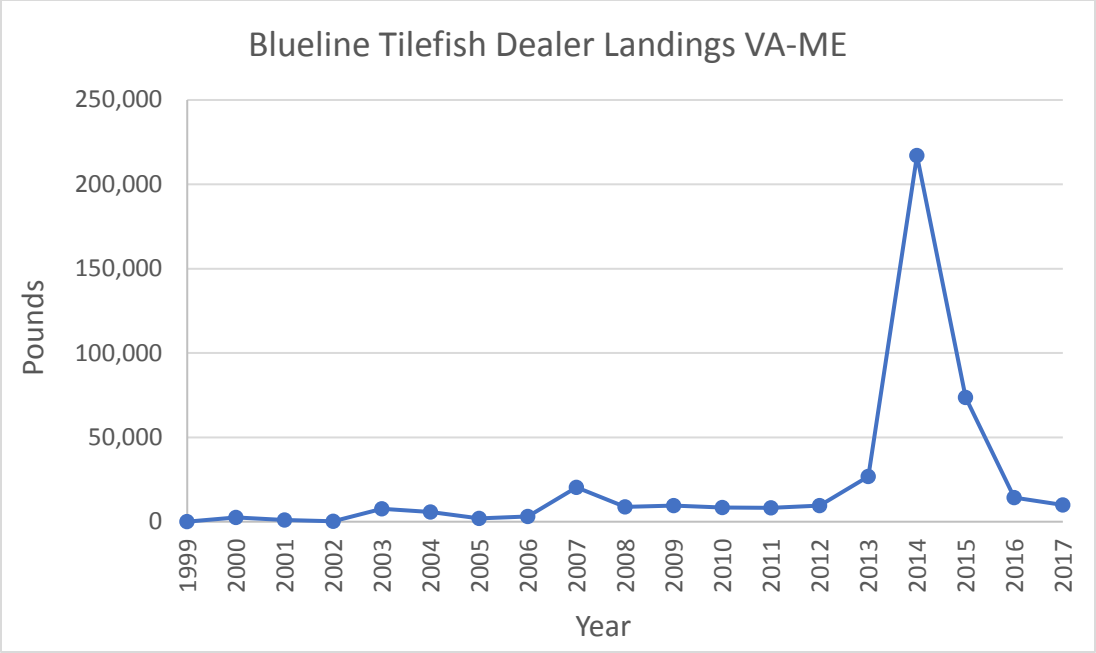

Figure 5: Commercial U.S. Blueline Tilefish Landings (live weight) from Maine-Virginia, 1999-2017. Source: 1999-2017 NMFS unpublished dealer data.

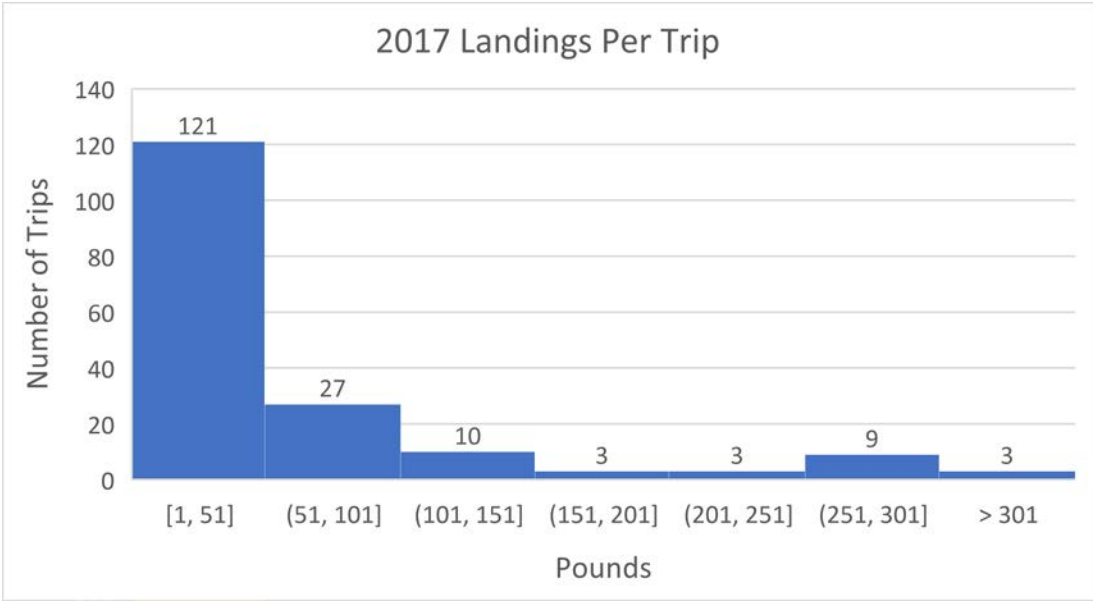

Figure 6: Commercial blueline tilefish landings (live weight) per trip in 2017 from Maine-Virginia.

Dealer and VTR data suggest that statistical areas 616, 621, 622, 626, and 632 accounts for the majority of catch from 1999-2012 until the overall ramp up in the recent years in areas 621, 626, and 632 (Figure 7). Further breakdown by year/area may violate data confidentiality rules, especially for 2016 and 2017.

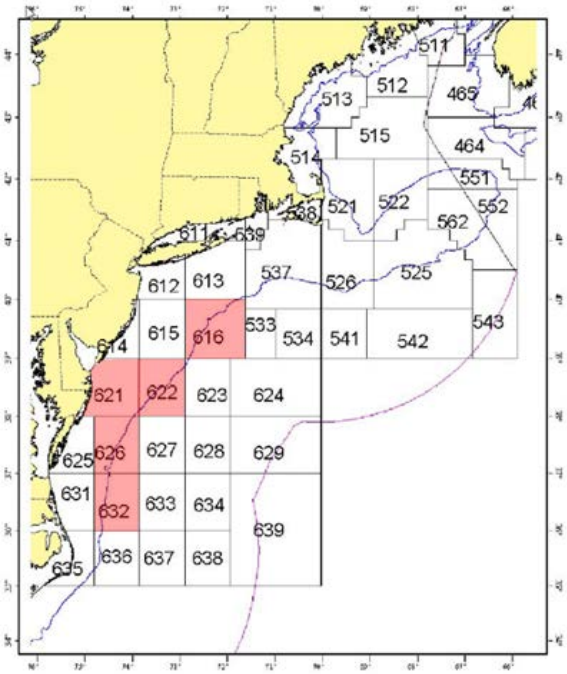

Figure 7: NMFS statistical areas accounting for the majority of blueline tilefish landings, 1994-2017 (Dealer and VTR)

In 2017, blueline tilefish dealer landings were reported as 9,957 pounds. The 2017 adjusted price per pound was $2.13 (Figure 8), slightly above the 1999-2017 time series average of $1.94 per pound. This resulted in an ex-vessel revenue of $21,183 in 2017 (Figure 9), which is slightly above the time series average when excluding the 2014 and 2015 fishing years (the years that influenced the emergency action).

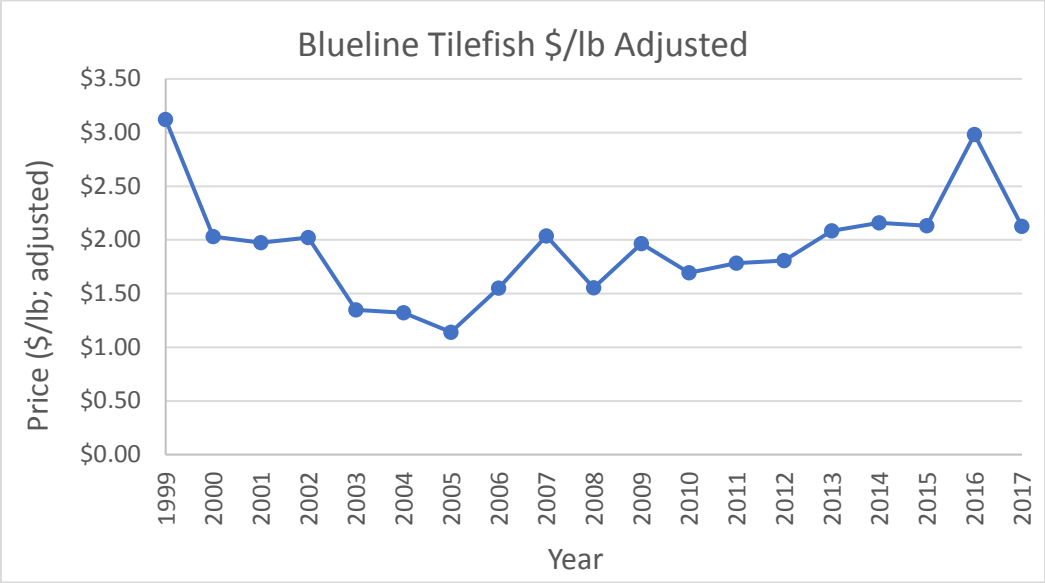

Figure 8: Price for blueline tilefish, Maine through Virginia combined, 1999-2017. Note: Price data have been adjusted by the GDP deflator indexed for 2016 (2017 – unadjusted).

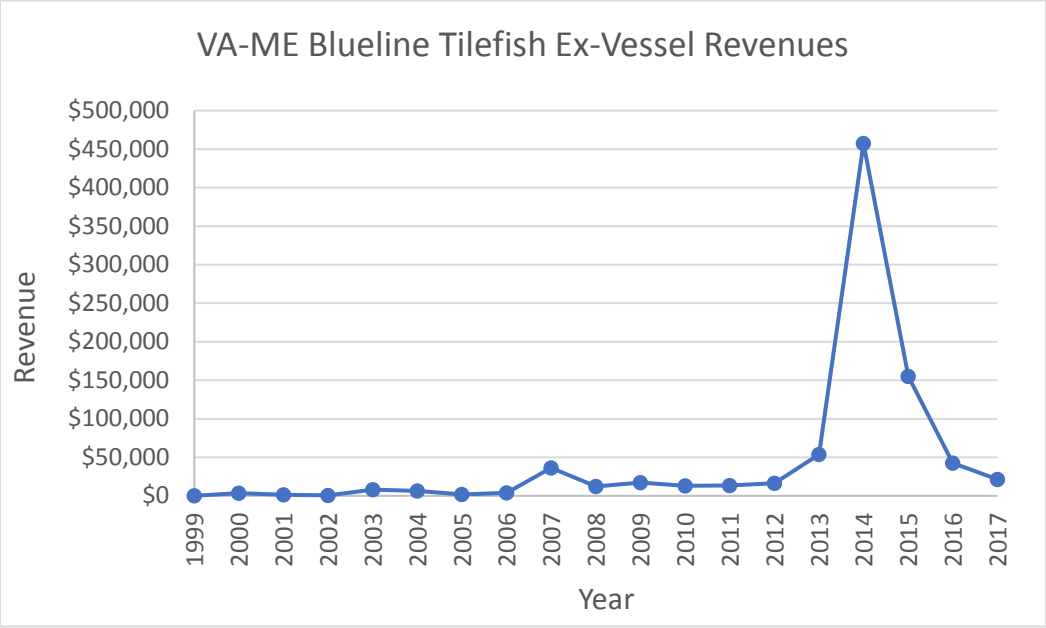

Figure 9: Ex-Vessel revenues for blueline tilefish, Maine through Virginia combined, 1999-2017.

For Maine to Virginia in 2017, blueline tilefish were landed in 13 different ports. Of the 13 ports, only five ports accounted for more than 5% of the yearly landings. These ports were Hampton, Montauk, Point Judith, Barnegat Light/Long Beach, and Other, RI [12].

7 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This EA analyzes the expected impacts of each alternative on each VEC. When considering impacts on each VEC, the alternatives are compared to the current condition of the VEC. The alternatives are also compared to each other. The *status quo* alternative assumes that the current management regimes and fishery operations will continue into the future. Impacts are described both in terms of their direction (negative, positive, or no impact) and their magnitude (slight, moderate, or high). Table 11 summarizes the main guidelines used for each VEC to determine the magnitude and direction of the impacts described in this section.

The recent conditions of the VECs include the biological conditions of the blueline tilefish stock, non-target stocks, and protected species in 2017 in recent years (sections 6.1 and 6.3). They also include the fishing practices and levels of effort and landings in the blueline tilefish fishery over recent years, as well as the economic characteristics of the fisheries over recent years (depending on the dataset; section 6.4). The recent conditions of the VECs also include recent levels of habitat availability and quality (section 6.2). The current condition of each VEC is described in Table 12.

[12] The specific ports where these landings occurred were not specified.

The alternatives are not compared to a theoretical condition where the fishery is not operating. This fishery has occurred for many decades and are expected to continue into the foreseeable future. The nature and extent of the management programs for this fishery has been examined in detail in an EA prepared for previously implemented management actions under the Tilefish FMP.

Catch Limits and Commercial Trip Limit Alternative Impacts on VECs

Since a set of alternatives has been proposed for both catch limits and the commercial trip limit, the alternatives will be analyzed by drawing conclusions within each set of alternatives. Comparisons between the two sets of alternatives are not necessary and will not be made. Both the 2019-2021 TALs for the catch limit set of alternatives and the proposed commercial trip limit set of alternatives are identified in Section 5. They are compared to the current specifications (s*tatus quo*) and to each other only within each set of alternatives.

When considering overall impacts on each VEC, not all components of the blueline tilefish fishery are weighted equally in drawing conclusions about the magnitude and direction of impacts. Blueline tilefish support commercial and recreational fisheries in the Mid-Atlantic. The vast majority of blueline tilefish catch comes from the recreational fishery, as they are allocated 73% of the ABC, while the commercial fishery is only allocated 27% of the ABC. In 2017, the recreational fishery landed ~50,000 lbs (assuming roughly 4 lbs/fish) and the commercial fishery landed ~10,000 lbs. Thus, the recreational fishery has accounted for approximately 83% of landings in 2017.

Bottom longlines are the predominant commercial gear type used to harvest blueline tilefish and account for 81% of all commercial blueline tilefish landings (see sections 6.2.2 and 6.2.3). The other commercial gear types that catch blueline tilefish are bottom trawl, handline, and pot/trap, yet most of these landings are incidental. These commercial gear types are all responsible for a total landing of less than 20%. The recreational fishery is almost exclusively a hook and line fishery. Most recreationally-harvested blueline tilefish are caught from private or for-hire vessels.

In general, alternatives which may result in overfishing or an overfished status for target and non-target species may have negative biological impacts for those species, compared to the current condition of the VEC. Conversely, alternatives which may result in a decrease in fishing effort, resulting in ending overfishing or rebuilding to the biomass target, may result in positive impacts for those species by resulting in a decrease in fishing mortality (Table 11).

For the physical environment and habitat, alternatives that improve the quality or quantity of habitat or allow for recovery are expected to have positive impacts. Alternatives that degrade the quality or quantity, or increase disturbance of habitat are expected to have negative impacts (Table 11**)**. A reduction in fishing effort is likely to decrease the time that fishing gear is in the water, thus reducing the potential for interactions between fishing gear and habitat; however, most habitat areas where blueline tilefish are fished have been heavily fished by multiple fishing fleets over many decades and are unlikely to see a measurable improvement in their condition in response to a short-term decrease in effort for an individual fishery.

For protected species, consideration is given to both ESA-listed species and MMPA-protected species. ESA-listed species include populations of fish, marine mammals, or turtles at risk of extinction (endangered) or endangerment (threatened). For endangered or threatened species, any

action that results in interactions with or take of ESA-listed resources is expected to have negative impacts, including actions that reduce interactions. Actions expected to result in positive impacts on ESA-listed species include only those that contain specific measures to ensure no interactions with protected species (i.e., no take). By definition, all species listed under the ESA are in poor condition and any take has the potential to negatively impact that species' recovery. Under the MMPA, the stock condition of each protected species varies, but all are in need of protection.

For marine mammal stocks/species that have their potential biological removal (PBR) level reached or exceeded, negative impacts would be expected from any alternative that has the potential to interact with these species or stocks. For species that are at more sustainable levels (i.e., PBR levels have not been exceeded), actions not expected to change fishing behavior or effort such that interaction risks increase relative to what has been in the fishery previously, may have positive impacts by maintaining takes below the PBR level and approaching the Zero Mortality Rate Goal (Table 11). Thus, the overall impacts on the protected resources VEC for each alternative take into account impacts on ESA-listed species, impacts on marine mammal stocks in good condition (i.e., PBR level has not been exceeded), and marine mammal stocks that have exceeded or are in danger of exceeding their PBR level.

Socioeconomic impacts are considered in relation to potential changes in landings and prices, and by extension, revenues, compared the current fishery conditions. Alternatives which could lead to increased availability of target species and/or an increase in catch per unit effort (CPUE) could lead to increased landings. Alternatives which could result in an increase in landings are generally considered to have positive socioeconomic impacts because they could result in increased revenues; however, if an increase in landings leads to a decrease in price or a decrease in SSB for any of the landed species, then negative socioeconomic impacts could occur. Alternatives resulting in an increase in landings are generally associated with higher angler satisfaction for the recreational fishery.

Expected Changes in Fishing Effort Under Alternatives Considered

The expected impacts to each VEC are derived from both consideration of the current condition of the VEC and the expected changes in fishing effort under each of the alternatives. It is not possible to quantify with confidence how effort will change under each alternative; therefore, expected changes are described qualitatively. A general summary of how fishing effort may change in response to changes in quotas and fish availability is included in Table 13. A summary of expected effects on fishing effort resulting from the alternatives in this document is provided here to provide context for various impacts conclusions in section 7.

Two of the alternatives (1B and 1C) would increase the ABCs/TALs in 2019-2021 when compared to 2018 and the *status quo* alternative (alternative 1A). However, under these alternatives, the relatively small increase in quota is not expected to substantially alter effort since the overall quota is still relatively small. Recent commercial and recreational landings have remained relatively constant in recent years and well below annual landings limits since the MAFMC initiated the emergency action.

Part of the fisheries' response to increases in catch limits under alternatives 1B and 1C would depend on how associated commercial and recreational management measures (e.g., possession limits) may change. If alternative 2B or 2C are selected (shifting the commercial trip limit), the number of blueline tilefish directed trips may increase and result in achieving the TAL without

exceeding the ACL. Since the increase in trip limit is associated with a trigger once 70% of the quota has been landed, there should be a large enough buffer to adequately monitor and conserve the fishery.

Under the *status quo* (most restrictive) alternatives (alternative 1A and 2A) catch and commercial trip limits would be the same as those implemented for 2018.

Table 11: General definitions for impacts and qualifiers relative to resource condition (i.e., baselines) summarized in Table 12 below.

General Definitions				
VEC	**Resource Condition**	**Impact of Action**		
		Positive (+)	Negative (-)	No Impact (0)
Target and non-target Species	Overfished status defined by the MSA	Alternatives that would maintain or are projected to result in a stock status above an overfished condition*	Alternatives that would maintain or are projected to result in a stock status below an overfished condition*	Alternatives that do not impact stock / populations
ESA-listed protected species (endangered or threatened)	Populations at risk of extinction (endangered) or endangerment (threatened)	Alternatives that contain specific measures to ensure no interactions with protected species (i.e., no take)	Alternatives that result in interactions/take of listed species, including actions that reduce interactions	Alternatives that do not impact ESA listed species
MMPA protected species (not also ESA listed)	Stock health may vary but populations remain impacted	Alternatives that maintain takes below PBR and approaching the Zero Mortality Rate Goal	Alternatives that result in interactions with/take of marine mammals that could result in takes above PBR	Alternatives that do not impact MMPA protected species
Physical environment / habitat / EFH	Many habitats degraded from historical effort and slow recovery time (see condition of the resources table for details)	Alternatives that improve the quality or quantity of habitat or allow for recovery	Alternatives that degrade the quality/quantity or increase disturbance of habitat	Alternatives that do not impact habitat quality
Human communities (socioeconomic)	Highly variable but generally stable in recent years (see condition of the resources table for details)	Alternatives that increase revenue and social well-being of fishermen and/or communities	Alternatives that decrease revenue and social well-being of fishermen and/or communities	Alternatives that do not impact revenue and social well-being of fishermen and/or communities

	Impact Qualifiers	
A range of impact qualifiers is used to indicate any existing uncertainty	Negligible	To such a small degree to be indistinguishable from no impact
	Slight (sl), as in slight positive or slight negative	To a lesser degree / minor
	Moderate (M) 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 (not significant unless stated)
	Significant (in the case of an EIS)	Affecting the resource condition to a great degree, see 40 CFR 1508.27.
	Likely	Some degree of uncertainty associated with the impact

*Actions that will substantially increase or decrease stock size, but do not change a stock status may have different impacts depending on the particular action and stock. Meaningful differences between alternatives may be illustrated by using another resource attribute aside from the MSA status, but this must be justified within the impact analysis.

Table 12: Baseline conditions of VECs considered in this action, as summarized in Section 6.

VEC		Baseline Condition	
		Status/Trends, Overfishing?	**Status/Trends, Overfished?**
Target stock (section 6.1.1)	**Blueline tilefish**	Unknown	Unknown
Non-target species (principal species listed in section 6.1.2)	**Golden Tilefish**	No	No
	Spiny Dogfish	No	No
	Black Bellied Rosefish	Unassessed	Unassessed
	Snowy Grouper	No	Yes (SEDAR 36)
	Smooth Dogfish	No	No (SEDAR 39)
	Hake	Unassessed	Unassessed
	Barrelfish	Unassessed	Unassessed
	Wreckfish	No	No (SEDAR)
	Dolphinfish[13]	No	No
Habitat (section 6.2)		Commercial fishing impacts are complex and variable and typically adverse; Non-fishing activities had historically negative but site-specific effects on habitat quality.	
Protected resources (section 6.3)	**Sea turtles**	Leatherback and Kemp's ridley sea turtles are classified as endangered under the ESA; loggerhead (NW Atlantic DPS) and green (North Atlantic DPS) sea turtles are classified as threatened.	
	Fish	Atlantic salmon, shortnose sturgeon, and the New York Bight, Chesapeake, Carolina, and South Atlantic DPSs of Atlantic sturgeon are classified as endangered under the ESA; the Atlantic sturgeon Gulf of Maine DPS is listed as threatened; cusk are a candidate species	
	Large whales	All large whales in the Northwest Atlantic are protected under the MMPA. North Atlantic right, fin, blue, sei, and sperm whales are also listed as endangered under the ESA. Pursuant to section 118 of the MMPA, the Large Whale Take Reduction Plan was implemented to reduce humpback, North Atlantic right, and fin whale entanglement in vertical lines associated with fixed fishing gear (sink gillnet and trap/pot) and sinking groundlines.	
	Small cetaceans	Pilot whales, dolphins, and harbor porpoise are all protected under the MMPA. Pursuant to section 118 of the MMPA, the HPTRP and BDTRP was implemented to reduce bycatch of harbor porpoise and bottlenose dolphin stocks, respectively, in gillnet gear.	
	Pinnipeds	Gray, harbor, hooded, and harp seals are protected under the MMPA.	
Human communities (section 6.4)		2017 data: • Ex-vessel value of blueline tilefish landings = $21,183 • 2120 vessels held commercial tilefish permits • 176 commercial trips • 629 vessels held party/charter permits	

[13] https://www.fisheries.noaa.gov/species/atlantic-mahimahi

Table 13. Changes in fishing effort resulting from adjustments to quota and/or fish availability.

Change in quota	Change in fish abundance/availability		
	Decrease in availability	**No change in availability**	**Increase in availability**
Decrease in quota	**A)** Fishing effort (number of trips) may decrease as a result of a decrease in quota; however, because of the decrease in availability (trips catching fewer fish), fishermen may need to take additional trips to offset 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 more fish to be caught with fewer trips; therefore, fishing effort may be the same or increase.	**H)** Fishing effort may increase in response to the increase in quota under similar fish availability due to fishermen taking more trips to catch the quota; however, managers may increase trip limits or adjust regulations in response to the higher quota allowing more fish to be caught on fewer trips; 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 ACLs and ABCs

The two sets of alternatives for 2019-2021 (see Section 5) have potential impacts on blueline tilefish and non-target species that can range from no impact to high positive relative to the current condition of the VEC. For blueline tilefish, almost all alternatives are expected to have positive impacts, though to varying degrees. Since stock status is unknown, all alternatives are expected to maintain the current status.

The alternatives are unlikely to have a meaningful impact on non-target species caught in the blueline tilefish fishery. Most of the species that are caught on "directed" (see Section 6.1.2) blueline tilefish trips have a positive stock status; those that do not are caught in very small quantities, and removals are accounted for and constrained by ACLs and AMs for those species. Given the likelihood that effort is not expected to change substantially under any of the alternatives (see introduction to section 7 above), impacts on non-target species are expected to be positive.

7.1.1 Impacts of the Alternatives on Blueline Tilefish and Non-Target Species

Blueline Tilefish

Alt 1A: Under the status quo (most restrictive) alternative, the blueline tilefish recreational and commercial ACLs are equivalent to those previously implemented for the 2018 fishing year. These landings limits were based on the ABC recommended by the SSC in 2016. The status quo alternative (Alternative 1A) will range from moderate negative to moderate positive impacts on the target species since overall stock status is still unknown in the Mid-Atlantic. Under status quo, there is not a directed commercial fishery due to the low trip limit (300 pounds) and thus, results in landings below the sector-based ACLs.

Alt 1B: The preferred alternative will result in a 15% increase in the ABC. These landings limits were based on the ABC recommended by the SSC in 2018 as a result of an updated analysis using the DLMTool. This alternative was developed using the most recent and best available science as concluded by the SSC. Given the SSC's conclusion, it is very unlikely that the slight increase in ABC will contribute negative impacts on the stock. Since the initial quotas are relatively small, the 15% increase in ABC recommended by the SSC is still similar to previous year's quotas. Compared to the current condition of the VEC, the preferred alternative, Alternative 1B, will range from moderate negative to moderate positive impacts on the target species since overall stock status is still unknown in the Mid-Atlantic. Under the preferred alternative, a directed fishery may develop due to the increase in quota and thus, results in landings that may achieve TAL.

Alt 1C: The least restrictive alternative will result in a 52% increase in the ABC. The 132,344-pound ABC staff recommended to the SSC was calculated as 56% (Section 5.3) of the DLMTool output for the region north of Cape Hatteras (236,329 pounds) Compared to the current condition of the VEC, the least restrictive alternative (Alternative 1C) will range from moderate negative to moderate positive impacts on the target species since overall stock status is still unknown in the Mid-Atlantic.

The three alternatives each offer a different ABC with Alternative 1A being the lowest and ranging to Alternative 1C being the highest. Considering the unknown stock status and an understanding that a higher quota will lead to more harvested fish, the alternatives with higher quotas have the potential to impose more negative impacts than the alternatives with lower ABCs. The range of

impacts for the preferred alternative (Alternative 1B) would be similar to those under Alternative 1C, given the increase in ABCs from the status quo alternative. The biological impacts for blueline tilefish under the preferred alternative are expected to be slightly more positive than Alternative 1C (least restrictive) given that the SSC concluded there was too much uncertainty within the fishery to increase the ABC by 52%. Compared to Alternative 1A (*status quo*), Alternative 1B is expected to be slightly less positive, but more positive than Alternative 1C, again, due to the unknowns in the fishery. Ultimately, the broad range on the VECs is due to the unknown stock status.

Non-Target Species

Alt 1A: The dealer data (see Section 6.1.2) show minimal non-target interactions and/or discarding in the targeted blueline tilefish fishery. The *status quo* (most restrictive) alternative is expected to present a slight positive impact because positive stock statuses will be maintained and stocks currently presenting negative stock statuses will not be exacerbated. Under this alternative, fishing effort will remain similar to effort under the currently implemented measures.

Alt 1B: The dealer data (see Section 6.1.2) show minimal non-target interactions and/or discarding in the targeted blueline tilefish fishery. The preferred alternative will impose slight positive impacts on non-target species compared. The proposed 15% increase in quota is too small to negatively affect non-targets as most are listed with positive stock statuses and those without will not be exacerbated. The 15% increase in quota would be 13,489 pounds across the Mid-Atlantic. Furthermore, the small increase in quota will not change how the fishery is prosecuted, so interactions with non-target species will continue to be uncommon with the use of rod and reel and longline gear.

Alt 1C: The dealer data (see Section 6.1.2) show minimal non-target interactions and/or discarding in the targeted blueline tilefish fishery. The least restrictive alternative is expected to also impose slight positive impacts on non-target species. Again, the even greater increase in quota is still not enough to substantially affect non-targets since they currently have a positive stock status and those without will not be exacerbated. The 52% increase in quota would be 45,313 pounds across the Mid-Atlantic. Furthermore, the increase in quota will not change how the fishery is prosecuted, so interactions with non-target species will continue to be uncommon with the use of rod and reel and longline gear. A continuation of these low encounter rates will result in non-target species retaining their positive stock status.

The three alternatives will impose slight positive impacts on non-target species because they will not affect the current stock statuses, the majority of which are not overfished or experiencing overfishing. The proposed ABCs remain status quo or increase by 15% or 52%, respectively, across the Mid-Atlantic. The proposed increases will not alter how the fishery is prosecuted in terms of gear. Alternative 1A will have the most positive impacts on non-target species as the gears currently used to target blueline tilefish do not generate large quantities of bycatch. The impacts imposed by the preferred (Alternative 1B) and least restrictive alternatives (Alternative 1C) compared to Alternative 1A (*status quo*) are less positive as the increased quotas are expected to coincide with slight increased effort and number of interactions. Compared to Alternative 1C (52% increase to the ABC), Alternative 1B (15% increase to the ABC) will have more positive impacts due to the lower quota that coincides with less effort.

7.1.2 Impacts of the Alternatives on Physical Environment/Habitat/EFH

The primary gears used in the blueline tilefish fisheries are bottom longline, handline, and rod and reel, which are generally not associated with adverse impacts on habitat. Bottom trawling has the potential for negative habitat impacts, but less than 8% of blueline tilefish landings have been associated with bottom trawl in the Northeast region from 2013-2017, and these bottom trawl trips are not targeting blueline tilefish (see Section 6.2.2). Under the proposed specifications, the methods of fishing will not change and therefore, the impact on physical environment/habitat will not change.

Alt 1A: Under the *status quo* (most restrictive) alternative, the commercial and recreational blueline tilefish fisheries are expected to have slight negative impacts to no impact on the physical environment/habitat/EFH compared to the current condition of the VEC. Rod and reel and bottom longlines (which land the bulk of the blueline tilefish) cause some low degree impacts in mud, sand, and gravel habitats. Bottom trawls, which are not used in directed blueline tilefish trips account for about 8% of the landings, but trawl gear is not often used in the deep-water habitats where tilefish reside.

Alt 1B: Under the preferred alternative, the commercial and recreational blueline tilefish fisheries are expected to impose slight negative impacts to no impact on the physical environment/habitat/EFH compared to the current condition of the VEC. The slight increase in quota is not enough to significantly impact the fishing effort blueline tilefish are currently experiencing. Therefore, the interactions between gear and habitat should not deviate far from status quo. Furthermore, rod and reel and bottom longlines (which land the bulk of the blueline tilefish) have the potential to cause some low degree impacts in mud, sand, and gravel habitats. Bottom trawls, which are not used in directed blueline tilefish trips account for about 8% of the landings, but trawl gear is not often used in the deep-water habitats where tilefish reside. Overall, the impacts imposed by Alternative 1B will not results in significant shifts in fishing effort.

Alt 1C: Under the least restrictive alternative, the commercial and recreational blueline tilefish fisheries are expected to impose slight negative impacts to no impact on the physical environment/habitat/EFH compared to the current condition of the VEC. The larger increase in quota compared to Alternative 1B is still not enough to significantly impact the fishing effort blueline tilefish are currently experiencing. Therefore, the interactions between gear and habitat should not deviate far from status quo. Furthermore, rod and reel and bottom longlines (which land the bulk of the blueline tilefish) have the potential to cause some low degree impacts in mud, sand, and gravel habitats. Bottom trawls, which are not used in directed blueline tilefish trips account for about 8% of the landings, but trawl gear is not often used in the deep-water habitats where tilefish reside. Overall, the impacts imposed by Alternative 1C will not results in significant shifts in fishing effort.

The gears used to target blueline tilefish are generally not associated with adverse impacts on habitat. The status quo alternative (most restrictive) will have the least impact on habitat compared to Alternatives 1B and 1C. Due to the proposed small increases to the quota, the preferred alternative (Alternative 1B) will have a less negative effect on habitat compared to the least restrictive alternative (Alternative 1C). Overall, the higher quotas will result in more fishing effort, which constitutes increased pressure on the habitat. But, the effects on the environment due to the proposed increases in quota will not express insignificant changes from the status quo measures.

7.1.3 Impacts of the Alternatives on Protected Resources

As described above in section 6.3, the impacts on protected resources may vary between ESA-listed and MMPA-protected species. For ESA-listed species, any action that has the risk to result in take of ESA-listed species is expected to have negative impacts, including actions that reduce interactions. Under the MMPA, the impacts of the proposed alternatives would vary based on the stock condition of each protected species and the potential for each alternative to impact fishing effort. For marine mammal stocks/species that have their PBR level reached or exceeded, negative impacts would be expected from any alternative that has the potential to interact with these species or stocks. For marine mammal stocks/species that are at more sustainable levels (i.e., PBR levels have not been exceeded), any action not expected to change fishing behavior or effort such that interaction risks increase relative to what has been in the fishery previously, may have positive impacts by maintaining takes below the PBR level and approaching the Zero Mortality Rate Goal (see Section 6.3). Taking the latter into consideration, the impacts on the protected resources VEC for each alternative will take into account impacts on ESA-listed species, impacts on marine mammal stocks in good condition (i.e., PBR level has not been exceeded), and marine mammal stocks that have reached or exceeded their PBR level.

Alt 1A: ESA listed species of large whales, sea turtles, and Atlantic sturgeon, and MMPA protected (non-ESA listed) species of large whales and bottlenose dolphins are at risk of interacting with hook and line and/or bottom longline gear. As provided in section 6.3, hook and line interactions are possible with ESA listed species of large whales, sea turtles, and Atlantic sturgeon, and MMPA protected (non-ESA listed) species of large whales and bottlenose dolphins; for bottom longline gear, interactions are possible with ESA listed species of sea turtles. As the recreational blueline tilefish fishery uses hook and line gear and the commercial fishery uses longline gear, interactions with protected species are possible and therefore, depending on species and resource condition, some level of negative or positive impacts to protected species are possible. Taking into consideration fishing behavior/effort under alternative 1A, as well the fact that interaction risks with protected species are strongly associated with gear type, the amount of gear in the water, the time the gear is in the water (e.g., soak time, tow time), and the presence of protected species in the same area and time as the gear (with risk of an interaction increasing with increases in of any or all of these factors), the impacts to ESA listed species and MMPA protected species are expected to be slight negative to slight positive.

Under the no action *status quo* alternative, recreational and commercial fishing effort and participation in 2019-2021 is expected to be similar to patterns observed in 2018. The number of party/charter, private recreational trips, commercial trips, and thus, the presence and quantity of hook and line gear and bottom longline gear is also not expected to change significantly. As provided above, interaction risks with protected species (ESA listed and MMPA protected species) are strongly associated with gear: type, quantity, soak or tow ties, and area of overlap with protected species (with risk of an interaction increasing with increases of any or all of these factors). As continuation of *status quo* fishing behavior/effort is not expected to change any of these operating conditions, relative to current conditions, new or elevated (e.g., more gear) interaction risks to protected species (MMPA protected and ESA listed) are not expected.

Based on the above information and taking into consideration available information on hook and line and bottom longline interaction risks to ESA listed species provided in section 6.3, impacts to ESA listed species are expected to range from negligible to slight negative. For MMPA (non-ESA

listed) protected species, as there are non-ESA listed marine mammal stocks/species whose populations may or may not be at optimum sustainable levels, impacts of Alternative 1A on non-ESA listed MMPA protected species are likely to range from slight negative to slight positive. As noted above, some marine mammal stocks/species (i.e., humpback whale (West Indies DPS); bottlenose dolphin stocks; see section 6.3) are experiencing levels of interactions that have resulted in exceedance of their PBR levels. These stocks/populations are not at an optimum sustainable level and therefore, the continued existence of these stocks/species is at risk. As a result, any potential for an interaction that may result in the serious injury or mortality to the animal is a detriment to the species/stocks ability to recover from this condition. Although bottom longline interactions with humpback whales and bottlenose dolphin stocks have never been documented or observed, hook and line interactions with these species have been documented (see section 6.3). Based on this, and the fact that hook and line interactions are expected to be low source of serious injury and mortality to humpback whales and bottlenose dolphin stocks Alternative 1A is likely to result in negligible to slight negative impacts to these non-listed marine mammal stocks/species.

Alternatively, there are also many non-ESA listed marine mammals that, even with continued fishery interactions, are maintaining an optimum sustainable level (i.e., PBR levels have not been exceeded) over the last several years (i.e., minke whales). For these stocks/species, it appears that the fishery management measures that have been in place over this timeframe have resulted in levels of effort that equate to interaction levels that are not expected to impair the stocks/species ability to remain at an optimum sustainable level. These fishery management measures, therefore, have resulted in indirect slight positive impacts to these non-ESA listed marine mammal species/stocks. Should future fishery management actions maintain similar operating conditions as they have over the past few years, it is expected that these slight positive impacts would remain (i.e., continuation of current operating conditions is not expected to result in exceedance of any of these stocks/species PBR level). Based on this and taking into consideration marine mammal interaction risks associated with bottom longline gear and hook and line gear (see section 6.3), impacts to non-ESA listed marine mammals whose PBR levels have not been exceeded are expected to be negligible to slight positive.

Overall, Alternative 1A is expected to have slight negative to slight positive impacts on protected resources, with negligible to slight positive impacts for non-ESA listed marine mammal species in good condition (i.e., PBR levels have not been exceeded), and slight negative to negligible impacts likely for ESA listed species and non-ESA listed marine mammals in poor condition (i.e., PBR levels have been exceeded). Relative to Alternative 1B and 1C, Alternative 1A is expected to have the least impact to protected species as recreational and commercial fishing effort (see Section 7.2) is not expected to change.

Alt 1B: The preferred alternative will result in a 15% increase in the ABC, which equates to a 13,489-pound increase. The proposed increase in quota will offer more opportunity to target blueline tilefish; however, Alternative 1B will provide little incentive for effort to increase in the recreational and commercial fisheries because the slight increase in quota is too small to invoke substantial new increases in effort into the blueline tilefish fisheries.

Based on this information, impacts to protected species are not expected to be much greater than those under Alternative 1A. However, should the small increase in the ABC result in some slight increase in fishing effort, this potentially equates to slightly more fishing time, and therefore, gear being present in the water for a longer duration. As protected species (ESA listed and MMPA

species) interactions with gear is greatly influenced by the amount of gear in the water, the time the gear is in the water (e.g., soak time, tow time), and the presence of listed species in the same area and time as the gear, any increase in either of these factors will increase the potential for protected species interactions with gear and therefore, increase the potential for serious injury or mortality to these species. As a result, Alternative 1B may have a slightly greater degree of negative impacts on protected species relative to current operating conditions. Taking this into consideration, as well information provided in Alternative 1A, Alternative 1B is likely to have moderate negative to slight positive impacts on protected species, with slight negative to slight positive impacts for non-ESA listed marine mammal species in good condition (i.e., PBR levels have not been exceeded), and moderate negative to negligible impacts likely for ESA listed species and non-ESA listed marine mammals in poor condition (i.e., PBR levels have been exceeded).

Relative to Alternatives 1A and 1C, Alternative 1B is expected to have the same direction of impacts on protected species only to a slightly greater degree (more negative) than 1A and less degree than 1C as recreational and commercial fishing effort is not expected to significantly change between any of these alternatives despite the increase in quotas.

Alt 1C: The least restrictive alternative will result in a 52% increase in the ABC, which equates to a 45,313-pound increase. The proposed increase in quota will offer more opportunity to target blueline tilefish; however, Alternative 1C will provide little incentive for effort to increase in the recreational and commercial fisheries because the slight increase in quota is too small to invoke substantial new increases in effort into the blueline tilefish fisheries. Additionally, the fisheries operate far offshore where many anglers do not want to travel for recreational trips and/or because potential commercial sale often does not fully offset the cost of the trips.

Based on this information, impacts to protected species are not expected to be much greater than those under Alternative 1A or 1B. However, should the increase in the ABC result in some slight increase in fishing effort, this potentially equates to slightly more fishing time, and therefore, gear being present in the water for a longer duration. As protected species (ESA listed and MMPA species) interactions with gear is greatly influenced by the amount of gear in the water, the time the gear is in the water (e.g., soak time, tow time), and the presence of listed species in the same area and time as the gear, any increase in either of these factors will increase the potential for protected species interactions with gear and therefore, increase the potential for serious injury or mortality to these species. As a result, Alternative 1C may have a slightly greater degree of negative impacts on protected species relative to current operating conditions. Taking this into consideration, as well information provided in Alternative 1A and 1B, Alternative 1C is likely to have moderate negative to slight positive impacts on protected species, with slight negative to slight positive impacts for non-ESA listed marine mammal species in good condition (i.e., PBR levels have not been exceeded), and moderate negative to negligible impacts likely for ESA listed species and non-ESA listed marine mammals in poor condition (i.e., PBR levels have been exceeded).

In summary, despite the increase in quotas recreational and commercial fishing effort is not expected to significantly change between these alternatives since the fisheries operate so far offshore and the revenue produced on commercial trips rarely offsets the cost. Relative to Alternatives 1A and 1B, Alternative 1C is expected to have the same direction of impacts on protected species only to a slightly greater degree than 1B and 1A.

7.1.4 Human Communities (Socioeconomic) Impacts of the Alternatives

As described in section 6.4.2, the primary human communities affected by this action are private recreational anglers and party/charter operations targeting tilefish. Impacts to human communities are evaluated on the basis of how each alternative will impact revenues (for party/charter operations and associated businesses) and social well-being, including angler satisfaction (for all relevant human communities including private anglers).

Alt 1A: This most restrictive alternative would implement *status quo* measures and result in slight negative impacts to no impact compared to the current condition of the VEC. With the current ABC set at 87,031 pounds, commercial and recreational anglers have not been meeting their overall quota, ultimately perpetuating the effect of not achieving the TAL.

Alt 1B: Under the preferred alternative, slight positive impacts are expected compared to the current condition of the VEC. Increasing the overall quota can incentivize commercial and recreational anglers to direct more trips toward blueline tilefish, but this is unlikely since the increase in quotas is small. This can in turn lead to higher landings and ultimately a greater opportunity to achieve the TAL without exceeding the ACL. A higher quota will also allow anglers to increase their revenue and potentially the number of trips resulting in overall expansion of angler satisfaction for all relevant human communities.

Alt 1C: Under the least restrictive alternative, slight positive impacts are expected compared to the current condition of the VEC. A greater increase to the overall quota may incentivize commercial and recreational anglers to direct more trips toward blueline tilefish, but this is unlikely since the increase in quotas is small. This can in turn lead to higher landings and ultimately a greater opportunity to achieve the TAL without exceeding the ACL. A higher quota will also allow anglers to increase their revenue and potentially the number of trips resulting in overall expansion of angler satisfaction for all relevant human communities.

The *status quo* alternative (Alternative 1A) has slight negative to no impacts compared to the current condition of human communities. Both Alternatives 1B and 1C will result in slightly more positive impacts compared to Alternatives 1A, with Alternative 1B to a slightly lesser degree than Alternative 1C. The alternatives that would result in higher quotas (Alternatives 1B and 1C) that offer more opportunities for stakeholders to land more fish and increase revenue ultimately leads to increased social well-being and angler satisfaction.

Overall, landings have been under the catch limits since blueline tilefish have been managed by the MAFMC, and an increase in quota may lead to directed fisheries and ultimately a greater opportunity to achieve the TAL without exceeding the ACL.

7.2 Commercial Trip Limit

7.2.1 Impacts of the Alternatives on Blueline Tilefish and Non-Target Species

Blueline Tilefish

As described in section 6.1.1 blueline tilefish are targeted commercially but are most often landed incidentally. The current commercial trip limit is set at 300 pounds gutted weight and the head and fins must be attached.

Alt 2A: The current stock status is unknown and the opportunity to achieve the TAL without exceeding the ACL is hindered by the current trip limit. Under the *status quo* (most restrictive) alternative, the impacts from the commercial trip limit on blueline tilefish range from slight negative to slight positive. The current 300-pound trip limit is not high enough for vessels to make continuous directed trips for blueline tilefish. The distance that must be traveled and associated costs often outweigh the revenue per trip.

Alt 2B: The preferred alternative will result in an increase in commercial trip limit to 500 pounds. This 500-pound trip limit will be reduced to 300 pounds during the fishing year once 70% of the overall commercial quota has been landed. This reduction will act as a buffer to help monitor the quota and reduce the chances of an overage. Recommendations from stakeholders suggested that a trip limit of at least 500 pounds will lead to directed blueline tilefish fishing trips. As with the other alternatives in this section, the current blueline tilefish stock status is unknown and leads to a larger range of impacts. The impacts on blueline tilefish range from moderate negative to slight positive. Ideally, the increase in quota will lead to vessels conducting directed trips, which will result in more opportunity to achieve the TAL without exceeding the ACL.

Alt 2C: The least restrictive alternative will result in an increase in commercial trip limit to 900 pounds. This 900-pound trip limit will be reduced to 300 pounds during the fishing year once 70% of the overall commercial quota has been landed. This reduction will act as a buffer to help monitor the quota and reduce the chances of an overage. Recommendations from stakeholders suggested that a trip limit of at least 500 pounds will lead to directed blueline tilefish fishing trips. As with the other alternatives in this section, the current blueline tilefish stock status is unknown and leads to a larger range of impacts. The impacts on blueline tilefish range moderate negative to slight positive. Ideally, the increase in quota will lead to vessels conducting directed trips, which will result in more opportunity to achieve the TAL without exceeding the ACL.

Since the status of blueline tilefish is currently unknown, any changes to the commercial trip limit will result in a potential range of impacts. The impacts in Alternatives 2B and 2C range from slight positive to moderate negative, which is slightly larger and more negative range than Alternative 2A. The impacts in Alternative 2B should be interpreted as slightly less negative than Alternative 2C since the increase in commercial trip limit is 400 pounds lower. Overall, Alternative 2A is most positive compared to Alternatives 2B and 2C since it takes longer to reach the quota and induces a less concentrated effort on blueline tilefish. The 70% quota trigger will need to be monitored very closely by GARFO due to the relatively low ABC. Alternative 2C will approach the 70% trigger much more quickly than the preferred and most restrictive alternatives.

Non-Target Species

Alt 2A: The dealer data (see Section 6.1.2) show minimal non-target interactions and/or discarding in the targeted blueline tilefish fishery. Compared to the current condition of the VEC, the *status quo* (most restrictive) alternative is expected to present a slight positive impact because positive stock statuses will be maintained and stocks currently presenting negative stock statuses will not be exacerbated. Under this alternative, fishing effort will remain similar to the effort under the currently implemented measures.

Alt 2B: The preferred alternative will impose slight positive impacts on non-target species compared to the current condition of the VEC. The proposed 200-pound increase in commercial

trip limit is not enough to alter fishing effort due to the trigger once 70% of the quota has been landed, so the interactions with non-target species will not change. Of the non-targets that have been caught in the past, most have positive stock statuses and those without will not be exacerbated. Additionally, the reduction to a 300-pound trip limit from 500 pounds once 70% of the quota has been landed acts as a buffer to further monitor both blueline tilefish and non-target species. As the quotas are still relatively small, the increase in commercial trip limit could result in most of the quota being landed early in the season. The trigger to a lower trip limit (300 pounds) will then cause the fishery to experience similar impacts experienced in 2018.

Alt 2C: The least restrictive alternative will impose slight positive impacts on non-target species compared to the current condition of the VEC. The proposed 600-pound increase in commercial trip limit is not enough to significantly alter fishing effort due to the trigger once 70% of the quota has been landed, so the interactions with non-target species will not change. Of the non-targets that have been caught in the past, most have positive stock statuses and those without will not be exacerbated. Additionally, the reduction to a 300-pound trip limit from 900 pounds once 70% of the quota has been landed acts as a buffer to further monitor both blueline tilefish and non-target species. As the quotas are still relatively small, the increase in commercial trip limit will lead to much of the quota being used early on in the season. The trigger to a lower trip limit (300 pounds) will then cause the fishery to experience the same impacts that are currently in place.

Golden tilefish are the most commonly caught non-target species in the predominantly bottom longline prosecuted blueline tilefish fishery. The proposed increases for the commercial trip limit in Alternatives 2B and 2C will most likely induce directed trips on blueline tilefish, but the overall commercial quota is too low and the implementation of the trigger once 70% of the quota has been landed will constrain effort and ultimately, the number of interactions with non-target species. Additionally, golden tilefish have a positive stock status and the increase in commercial trip limit (Alternatives 2B and 2C) is not substantial enough to negatively impact stock status due to the 70% quota trigger. All alternatives have slight positive impacts on non-target species, with Alternative 1A will having slightly more positive impacts than Alternatives 2B and 2C because the lower trip limit is associated with low catch and less interactions with non-target species. Further, Alternative 2B has slightly more positive impacts than Alternative 2C due to the lower pre-trigger commercial trip limit and less targeted pressure per trip.

7.2.2 Impacts of the Alternatives on Physical Environment/Habitat/EFH

As mentioned in section 6.2.2 the primary gears used in the blueline tilefish fisheries are bottom longline, handline, and rod and reel, which are generally not associated with adverse impacts on habitat. Bottom trawling has the potential for negative habitat impacts, but less than 8% of blueline tilefish landings have been associated with bottom trawl gear in the Northeast region from 2013-2017, and these bottom trawl trips are not targeting blueline tilefish. Under the proposed specifications, the methods of fishing will not change and therefore, the impact on physical environment/habitat will not change.

Alt 2A: Under the *status quo* (most restrictive) alternative, the commercial blueline tilefish fishery is expected to have slight negative impacts to no impact on the physical environment/habitat/EFH compared to the current condition of the VEC. Rod and reel and bottom longlines (which land the bulk of the blueline tilefish) cause some low degree impacts in mud, sand, and gravel habitats.

Bottom trawls, which are not used in directed blueline tilefish trips account for about 8% of the landings, but trawl gear is not often used in the deep-water habitats where tilefish reside.

Alt 2B: Under the preferred alternative, the commercial blueline tilefish fishery is expected to impose slight negative impacts to no impact on the physical environment/habitat/EFH compared to the current condition of the VEC. The 200-pound increase in commercial trip limit is not enough to significantly alter the fishing effort blueline tilefish are currently experiencing. Additionally, the reduction to a 300-pound trip limit from 500 pounds once 70% of the quota has been landed acts as a buffer to further limit effort on the fishery. Therefore, the interactions between gear and habitat should not deviate far from status quo. Furthermore, rod and reel and bottom longlines (which land the bulk of blueline tilefish) have the potential to cause some low degree impacts in mud, sand, and gravel habitats. Bottom trawls, which are not used in directed blueline tilefish trips account for about 8% of the landings, but trawl gear is not often used in the deep-water habitats where tilefish reside.

Alt 2C: Under the least restrictive alternative, the commercial blueline tilefish fishery is expected to impose slight negative impacts to no impact on the physical environment/habitat/EFH compared to the current condition of the VEC. The 600-pound increase in commercial trip limit is not enough to significantly alter the fishing effort blueline tilefish are currently experiencing. Additionally, the reduction to a 300-pound trip limit from 900 pounds once 70% of the quota has been landed acts as a buffer to further limit effort on the fishery. Therefore, the interactions between gear and habitat should not deviate far from status quo. Furthermore, rod and reel and bottom longlines (which land the bulk of blueline tilefish) have the potential to cause some low degree impacts in mud, sand, and gravel habitats. Bottom trawls, which are not used in directed blueline tilefish trips account for about 8% of the landings, but trawl gear is not often used in the deep-water habitats where tilefish reside.

The *status quo* (most restrictive) alternative will have the least negative impact on habitat compared to Alternatives 2B and 2C. The preferred alternative (Alternative 2B) will have a less negative effect on habitat compared to the least restrictive alternative (Alternative 2C) as the commercial trip limit is lower and fishing pressure would be more constrained. The higher commercial trip limits will result in more directed fishing effort during the pre-trigger portion of the fishing year, which constitutes increased pressure on habitat in a shorter amount of time. The resulting impacts may be more concentrated but would even out once 70% of the quota has been landed and the trigger to a 300-pound trip limit is enforced.

7.2.3 Impacts of the Alternatives on Protected Resources

See sections 6.3.3 and 7.1.3 for how the impacts on protected resources may vary between ESA-listed and MMPA-protected species. In summary, commercial fishing effort and participation in 2019-2021 is expected to be slightly higher than the patterns observed in 2018. The number of commercial trips, and thus, the presence and quantity of bottom longline gear is expected to slightly increase. This shift in effort is due to the proposed increases in commercial trip limit that will allow fishermen to more feasibly conduct directed blueline tilefish trips. Under Alternatives 2B and 2C, a trigger is proposed to allow GARFO to reduce the trip limit back to the status quo 300-pound limit once 70% of the quota has been harvested. This trigger was recommended due to the many unknowns within the blueline tilefish fishery such as maximum age and stock status. As

provided above, interaction risks with protected species (ESA listed and MMPA protected species) are strongly associated with gear: type, quantity, soak or tow ties, and area of overlap with protected species (with risk of an interaction increasing with increases of any or all of these factors).

Alt 2A: Alternative 2A (*status quo*) will result in a 300-pound commercial trip limit for the entire fishing year. The number of commercial trips, and thus, the presence and quantity of hook and line gear and bottom longline gear is not expected to change from the currently implemented measures.

ESA listed species of sea turtles are the only ESA listed species in which interactions with bottom longline gear, the gear type used to prosecute the commercial blueline tilefish fishery, have been observed or documented. However, based on the best available information (see section 6.3.3), although sea turtle interactions with bottom longline gear are possible, due to where and how the blueline tilefish fishery operates, the risk of an interaction is likely low. In regards to MMPA protected species, as provided in section 6.3, there have never been observed or documented interactions with MMPA protected species and bottom longline gear. As a result, marine mammal interactions with the commercial blueline tilefish fishery are not expected.

Based on the above information and taking into consideration the fact that *status quo* fishing effort and the associated gear is not expected to change, relative to current conditions, new or elevated (e.g., more gear) interaction risks to protected species (MMPA protected and ESA listed) are not expected. As a result, Alternative 2A is expected to have slight negative to negligible impacts on ESA-listed, and negligible impacts on MMPA protected species.

Alternative 2A is expected to have the same direction and magnitude of impacts to protected species as imposed in 2018 since commercial fishing effort is not expected to significantly change under this alternative. As a result, the risks and therefore, impacts to protected species are expected to remain status quo. Alternative 2A contains the lowest trip limit and will impose the least negative impacts on protected species compared to Alternatives 2B and 2C.

Alt 2B: The preferred alternative includes a 500-pound gutted weight (heads and fins must be attached) commercial trip limit that will be reduced to 300 pounds once 70% of the quota has been landed. This trigger was added due to the many unknowns in the blueline tilefish fishery such as maximum age and stock status. The trip limit reduction creates a necessary buffer in the fishery to assist in achieving the TAL without exceeding the ACL. The proposed increase in trip limit will offer more opportunity to target blueline tilefish, and therefore, Alternative 2B will provide some incentive for effort to initially increase in the commercial fisheries until 70% of the quota is met. Effort is then expected to return to the same levels experienced in 2018.

As provided in section 6.3, there have never been observed or documented interactions with MMPA protected species and bottom longline gear, and ESA listed species of sea turtles are the only ESA listed species in which interactions with bottom longline gear, the gear type used to prosecute the commercial blueline tilefish fishery, have been observed or documented. However, based on the best available information (see section 6.3.3), although sea turtle interactions with bottom longline gear are possible, due to where and how the blueline tilefish fishery operates, the risk of an interaction is likely low.

Based on the above information, impacts to protected species (ESA listed and MMPA protected) are not expected to be much greater than those under Alternative 2A. The initial increase in the commercial trip limit will result in some slight increase in fishing effort (until the 70% trigger to 300 pounds is landed), which equates to slightly more fishing time, and therefore, gear being present in the water for a longer duration. As protected species (ESA listed and MMPA species) interactions with gear is greatly influenced by the amount of gear in the water, the time the gear is in the water (e.g., soak time, tow time), and the presence of listed species in the same area and time as the gear, any increase in either of these factors will increase the potential for protected species interactions with gear and therefore, increase the potential for serious injury or mortality to these species. As a result, Alternative 1B may have a slightly greater degree of negative impacts on protected species relative to current operating conditions. Taking this into consideration, as well information provided in Alternative 2A, Alternative 2B is likely to have moderate negative to negligible impacts on ESA-listed species and negligible impacts on MMPA protected species.

Relative to Alternatives 2A and 2C, Alternative 2B is expected to have the same direction of impacts on protected species only to a slightly greater degree than 1A (more negative) and less degree (less negative) than 1C as commercial fishing effort is expected to slightly increase for only part of the fishing year before returning to levels experienced in 2018.

Alt 2C: The least restrictive, non-preferred alternative (Alternative 2C) was developed as an upper bound to the commercial trip limit, which was the same upper bound alternative analyzed in Amendment 6 to the Tilefish FMP. This alternative includes a 900-pound gutted weight (heads and fins must be attached) commercial trip limit that will be reduced to 300 pounds once 70% of the quota has been landed. The trigger used to decrease the trip limit was added due to the many unknowns in the blueline tilefish fishery such as maximum age and stock status. This trip limit reduction creates a necessary buffer in the fishery to assist in achieving the TAL without exceeding the ACL. The proposed increase in trip limit will offer more opportunity to target blueline tilefish during the pre-trigger quota period.

As provided in section 6.3, there have never been observed or documented interactions with MMPA protected species and bottom longline gear, and ESA listed species of sea turtles are the only ESA listed species in which interactions with bottom longline gear, the gear type used to prosecute the commercial blueline tilefish fishery, have been observed or documented. However, based on the best available information (see section 6.3.3), although sea turtle interactions with bottom longline gear are possible, due to where and how the blueline tilefish fishery operates, the risk of an interaction is likely low.

Based on the above information, impacts to protected species are not expected to be much greater than those under Alternative 2A and/or 2B. The initial increase in the commercial trip limit will result in some slight increase in fishing effort (until the 70% trigger to 300 pounds is landed), which equates to slightly more fishing time, and therefore, gear being present in the water for a longer duration. Effort is then expected to return to the same levels experienced in 2018. As protected species (ESA listed and MMPA species) interactions with gear is greatly influenced by the amount of gear in the water, the time the gear is in the water (e.g., soak time, tow time), and the presence of listed species in the same area and time as the gear, any increase in either of these factors will increase the potential for protected species interactions with gear and therefore, increase the potential for serious injury or mortality to these species. As a result, Alternative 1C may have a slightly greater degree of negative impacts on protected species relative to current

operating conditions. Taking this into consideration, as well information provided in Alternative 2A, Alternative 2C is likely to have moderate negative to negligible impacts on ESA-listed species and negligible impacts on MMPA protected species.

Relative to Alternatives 2A and 2B, Alternative 2C is expected to have the same direction of impacts on protected species only to a slightly greater degree (more negative) than 2B and 2A as commercial fishing effort is expected to slightly increase for only part of the fishing year before returning to levels experienced in 2018.

7.2.4 Human Communities (Socioeconomic) Impacts of the Alternatives

Alt 2A: This *status quo* alternative is most restrictive and would impose slight negative impacts to no impact compared to the current condition of the VEC. With the current commercial trip limit set at 300 pounds gutted weight (head and fins attached), commercial anglers have not been meeting their overall quota, ultimately perpetuating the effect of not achieving the TAL without exceeding the ACL. Commercial anglers often do not run directed trips with the 300-pound commercial trip limit because the revenue does not substantially outweigh the cost of the trips.

Alt 2B: The preferred alternative would impose slight negative to slight positive impacts compared to the current condition of the VEC. Stakeholder input suggests the increase in commercial trip limit to 500 pounds with a trigger reducing the commercial trip limit to 300 pounds once 70% of the quota has been landed will offer more directed fishing opportunities as the potential revenue per trip will most likely outweigh the costs. The 30% buffer is necessary to prevent too much increased effort as the stock status of blueline tilefish is still unknown. But, when the trip limit is reduced, effort will return to what was previously experienced in 2018.

Alt 2C: The least restrictive alternative would impose slight negative to slight positive impacts compared to the current condition of the VEC. Stakeholder input suggests the increase in commercial trip limit to 900 pounds with a trigger reducing the commercial trip limit to 300 pounds once 70% of the quota has been landed will offer more directed fishing opportunities as the potential revenue per trip will most likely outweigh the costs. The 30% buffer is necessary to prevent too much increased effort as the stock status of blueline tilefish is still unknown. But, when the trip limit is reduced, effort will return to what was previously experienced in 2018.

The increase in commercial trip limit proposed in Alternatives 2B and 2C would result in more potential revenue for fishermen and offers greater opportunity to achieve the TAL without exceeding the ACL. The quota will be reached much faster if fishermen are targeting blueline tilefish at the increased limit but will be monitored closely by GARFO through the buffers. Under the status quo alternative (Alternative 2A) the average catch per trip would be consistent with the 2017 average catch per trip of ~57 pounds (see section 6.4.2) and will have no impact to slight negative impacts on human communities. Both Alternatives 2B and 2C will result in slightly more positive impacts compared to Alternative 2A, with Alternative 2B to a slightly lesser degree than Alternative 2C. The alternatives that would result in higher commercial trip limits (Alternatives 2B and 2C) offer more opportunities for stakeholders to land more fish and increase revenue. The ex-vessel revenue in 2017 was ~$21,183. With an increased trip limit and more initial directed blueline tilefish trips, the ex-vessel revenue should increase and positively affect the human communities.

7.3 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. Rather, the intent is to focus on those effects that are truly meaningful. A formal cumulative impact assessment is not necessarily required under NEPA as part of an EA if 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 blueline tilefish fisheries.

7.3.1 Consideration of the VECs

The following sections discuss the significance of the cumulative effects on the following VECs:

- Managed resource (i.e. blueline tilefish) and non-target species
- Physical environment
- Protected species
- Human communities

7.3.2 Geographic Boundaries

The analysis of impacts focuses on actions related to the harvest of blueline tilefish. The Western Atlantic Ocean is the core geographic scope for each of the VECs. The core geographic scopes for the managed species are the management units (section 6.1). For non-target species, those ranges may be expanded and would depend on the range of each 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 blueline tilefish and non-target species in the Western Atlantic Ocean. The core geographic scope for protected species is their range in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities in coastal states from Maine through Virginia directly involved in the harvest or processing of the managed species (section 6.4).

7.3.3 Temporal Boundaries

The temporal scope of past and present actions is primarily focused on actions that occurred after Tilefish FMP implementation (2001) and Amendment 6, which added blueline tilefish to the FMP (2017). For protected species, the scope of past and present actions is focused on the 1980s and 1990s (when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ) through the present. The temporal scope of future actions for all VECs extends about five years (2022) into the future beyond the analyzed time frame of the alternatives described in this document. The dynamic nature of resource management for these species and lack of information on projects that may occur in the future make it difficult to predict impacts beyond this timeframe with any certainty. The impacts discussed in section 7.3.5 are focused on the cumulative effects of the proposed action in combination with the relevant past, present, and reasonably foreseeable future actions over these time scales.

7.3.4 Actions Other Than Those Proposed in this Document

The impacts of the alternatives considered in this document are described in sections 7.1 and 7.2. Table 14 presents meaningful past (P), present (Pr), or reasonably foreseeable future (RFF) actions other than those considered in this document. The impacts of these actions are described qualitatively as the actual impacts are too complex to be quantified in a meaningful way. When any of these abbreviations (P, Pr, or RFF), occur together it indicates that some past actions are still relevant to the present and/or future actions.

Fishery Management Actions

(Blueline) Tilefish FMP Actions

Past, present, and reasonably foreseeable future actions for blueline tilefish management include the establishment of the original FMPs, all subsequent amendments and frameworks, and the setting of annual specifications (annual catch limits and measures to constrain catch and harvest). The Council has taken many actions to manage the associated commercial and recreational fisheries. The MSA is the statutory basis for federal fisheries management. To the degree with which this regulatory regime is complied, the cumulative impacts of past, present, and reasonably foreseeable future federal fishery management actions on the VECs should generally be associated with positive long-term outcomes. Constraining fishing effort through regulatory actions can have negative short-term socioeconomic impacts. These impacts are sometimes necessary to bring about long-term sustainability of a resource, and as such should, in the long-term, promote positive effects on human communities.

Other FMP Actions

In addition to the Tilefish FMP, there are many other FMPs and associated fishery management actions for other species that have impacted these VECs over the temporal scale described in section 7.3.3. These include FMPs managed by the Mid-Atlantic Fishery Management Council, New England Fishery Management Council, Atlantic States Marine Fisheries Commission, and the South Atlantic Fishery Management Council. Omnibus amendments are also frequently developed to amend multiple FMPs at once. Actions associated with other FMPs and omnibus amendments have included measures to regulate fishing effort for other species, measures to protect habitat and forage species, and fishery monitoring and reporting requirements.

As with the blueline tilefish actions described above, other FMP actions developed by Fishery Management Councils or GARFO have been developed in compliance with the MSA and have had positive long-term cumulative impacts on managed and non-target species, habitat, and protected resources because they constrain fishing effort and manage stocks at sustainable levels. However, constraining fishing effort through regulatory actions can have negative short-term socioeconomic impacts. These impacts are sometimes necessary to bring about long-term sustainability of a resource, and as such should, in the long-term, promote positive effects on human communities.

Non-Fishing Impacts

Other Human Activities

Non-fishing activities that introduce chemical pollutants, sewage, or suspended sediment into the marine environment or result in changes in water temperature, salinity, or dissolved oxygen, pose a risk to all 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 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 managed species, non-target species, and protected species. Decreased habitat suitability tends to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that reduce fishing effort could negatively impact human communities. The overall impact on the affected species and their habitats on a population level is unknown, but likely to range from no impact to slight negative, depending on the population, since a large portion of these populations have a limited or minor exposure to these local non-fishing perturbations.

Non-fishing activities permitted under other Federal agencies (e.g. beach nourishment, offshore wind facilities, etc.) require examinations of potential impacts on the VECs. The MSA imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH (50 CFR 600.930). The eight regional fishery management councils engage in this review process by making comments and recommendations on federal or state actions that may affect habitat for their managed species and by commenting on actions likely to substantially affect habitat.

In addition to the activities above, in recent years, offshore wind energy and oil and gas exploration have become more relevant activities in the Greater Atlantic region that are expected to impact all VECs, as described below. For potential biological impacts of wind, the turbines and cables may influence water currents and electromagnetic fields, respectively, which can affect patterns of movement for various species (target, non-target, protected). Habitats directly at the turbine and cable sites would be affected, and there could be scouring concerns around turbines. Impacts on human communities in a general sense will be mixed – there will be economic benefits in the form of jobs associated with construction and maintenance, and replacement of some electricity generated using fossil fuels with renewable sources. But there may be negative effects on fishing activities in terms of effort displacement or making fishing more difficult or expensive near the turbines or cables.

For oil and gas, this timeframe would include leasing and possible surveys. Seismic surveys impact the acoustic environment within which marine species live and have uncertain effects on fish behaviors that could cumulatively lead to negative population level impacts. The science on this is fairly uncertain. If marine resources are affected by seismic, then so in turn the fishermen targeting these resources would be affected. However, there would be an economic component in the form of increased jobs where there may be some positive effects on human communities.

While there are currently no operational wind farms in Mid-Atlantic waters, potential offshore wind energy sites have been identified off of Virginia, Maryland, New Jersey, Delaware, and New York, and there are several proposals to develop wind farms in both nearshore and offshore waters. In New England, offshore wind project construction south of Massachusetts/Rhode Island may begin as early as 2019 (three projects including Vineyard Wind, Bay State Wind, and South Fork Wind Farm). Additional areas have been leased and will have site assessment activities in the next

few years. These projects could have slight negative impacts on EFH, as well as blueline tilefish, non-target species, and fishing communities if there are any negative impacts on those resources. Furthermore, there could be negative impacts on protected species of birds and marine mammals if they interact with the wind farms.

The overall impact of offshore wind energy and oil and gas exploration on the affected species and their habitats on a population level is unknown, but likely to range from no impact to moderate negative, depending on the number and locations of projects that occur, as well as the effects of mitigation efforts.

Global Climate Change

Global climate change affects 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 ocean circulation; increased frequency, intensity and duration of extreme climate events; changing ocean 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 fishing and other non-fishing human activities and stressors.

Results from the Northeast Fisheries Climate Vulnerability Assessment indicate that climate change could have impacts on Council-managed species that range from negative to positive, depending on the adaptability of each species to the changing environment (Hare et al. 2016). Based on this assessment, blueline tilefish was determined to have a high vulnerability to climate change. The exposure of blueline tilefish to the effects of climate change was determined to be "high" since they are site specific fish and inhabit specialized benthic habitats (burrows in clay/silt). Additionally, they have planktonic larvae, but this stage is very rare in regional ichthyoplankton sampling suggesting limited dispersal (Steimle et al. 1999) [14].

Overall, climate change is expected to have impacts that range from positive to negative depending on the species. However, future mitigation and adaptation strategies to climate change may mitigate some of these impacts. The science of predicting, evaluating, monitoring and categorizing these changes continues to evolve.

[14] Climate vulnerability profiles for individual species are available at:
https://www.st.nmfs.noaa.gov/ecosystems/climate/northeast-fish-and-shellfish-climate-vulnerability/index

Table 14: Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the VECs (not including those actions considered in this document).

Action	Description	Impacts on Blueline Tilefish and Non-Target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr, RFF **Original Tilefish FMP and subsequent FMP Amendments and Frameworks**	Established and modified commercial and recreational management measures	**Direct Positive** Regulatory tool available to rebuild and manage stocks and to regulate fishing effort	**Indirect Positive** Reduced fishing effort, implemented gear requirements and restricted areas	**Indirect Positive** Regulated fishing effort, implemented gear requirements	**Mixed** Benefited some domestic businesses; negative impacts on some participants due to limited access and constraints on landings and revenues
P, Pr, RFF **Specifications for managed resources**	Establish quotas, recreational harvest limits, and other fishery regulations (commercial and recreational)	**Direct Positive** Regulatory tool to specify catch limits, and other regulations; allows response to annual stock updates	**Indirect Positive** Reduced effort levels; gear requirements and restricted areas	**Indirect Positive** Regulated fishing effort; gear requirements	**Mixed** Benefited some domestic businesses; negative impacts on some participants due to limited access and constraints on landings and revenues
P, Pr, RFF **Other FMPs and Omnibus Actions**	Regulating fishing effort in other FMPs, habitat and forage species protection, industry monitoring and reporting	**Direct and Indirect Positive** Regulatory tool available to rebuild and manage stocks and to regulate fishing effort	**Indirect Positive** Reduced fishing effort, implemented gear requirements	**Indirect Positive** Regulated fishing effort, implemented gear requirements	**Mixed** Benefited some domestic businesses; negative impacts on some participants due to limited access and constraints on landings and revenues
P, Pr, RFF **Agricultural runoff**	Nutrients applied to agricultural land are introduced into aquatic systems	**Indirect Negative** Reduced habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality negatively affects resource

Table 14 (continued): Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the VECs (not including those actions considered in this document).

Action	Description	Impacts on Blueline Tilefish and Non-Target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr, RFF **Climate change**	Wide-ranging impacts including changes in ocean chemistry, temperatures, sea-level, and ocean circulation; increased frequency, intensity, and duration of extreme climate events.	**Negative to positive** Some species will benefit, others will see negative impacts, depending on the adaptability of each species to the changing environment	**Negative to positive** Decreased habitat quality, suitability and/or availability for some species; increased quality/suitability/availability for others	**Negative to positive** Depending on impacts to habitat and prey availability	**Negative to positive** Depending on resiliency of individual communities and mitigation/adaptation
P, Pr, RFF **Port maintenance**	Dredging of coastal, port and harbor areas for port maintenance	**Indirect Negative** Dependent on mitigation effects	**Direct Negative** Dependent on mitigation effects	**Direct and Indirect Negative** Potential interactions with protected species; reduced habitat quality/availability; dependent on mitigation efforts	**Mixed** Dependent on economic benefits to ports and mitigation of potential negative environmental effects
P, Pr, RFF **Convening of Take Reduction Teams (periodically)**	Recommend measures to reduce mortality and injury to marine mammals and sea turtles	**Indirect Positive** Will improve data quality for monitoring total removals; Reducing availability of gear could reduce bycatch	**Indirect Positive** Reducing availability of gear could reduce gear impacts	**Direct Positive** Reducing amount of gear in water could reduce encounters	**Indirect Negative** Reducing availability of gear could reduce revenues

Table 14 (continued): Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Actions on the VECs (not including those actions considered in this document).

Action	Description	Impacts on Blueline Tilefish and 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 and placement of sand to nourish beach shorelines	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Direct and Indirect Negative** Reduced habitat quality; dredge interactions; dependent on mitigation efforts	**Mixed** Positive for mining companies, tourism; possibly negative for fishing industry if reduced landings result from negative habitat impacts
P, Pr, RFF **Marine transportation**	Expansion of port facilities, vessel operations and recreational marinas	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality	**Direct and Indirect Negative** Reduced habitat quality/availability; potential for interactions (ship strikes) with protected species	**Mixed** Positive for some interests, potential displacement for others
P, Pr, RFF **Offshore disposal of dredged materials**	Disposal of dredged materials	**Indirect Negative** Reduced habitat quality	**Direct Negative** Reduced habitat quality	**Indirect Negative** Reduced habitat quality; dependent on mitigation efforts	**Indirect Negative** Possible reduced landings due to reduced availability resulting from negative habitat impacts
P, Pr, RFF **Renewable and Non-renewable Offshore and Nearshore Energy Development**	Transportation of oil, gas, and electricity through pipelines & cables; Construction of oil platforms, wind facilities, liquefied natural gas facilities; Additional port development infrastructure	**Indirect Negative** Dependent on mitigation effects	**Direct Negative** Reduced habitat quality; offshore platforms may benefit structure-oriented fish species habitat	**Direct and Indirect Negative** Reduced habitat quality; Sound Exposure (physical injury or behavioral harassment); dependent on mitigation efforts	**Mixed** Dependent on mitigation effects

7.3.5 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 describes the expected effects of these actions on each VEC.

7.3.5.1 Magnitude and Significance of Cumulative Effects on Managed Species and Non-Target Species

Those past, present, and reasonably foreseeable future actions which may impact target species (blueline tilefish) and non-target species, and the direction of those potential impacts, are summarized in Table 14. The indirectly negative actions described in Table 14 are localized in nearshore and marine areas where the projects occur; therefore, the magnitude of those impacts on the managed resources is expected to be limited due to limited exposure to the populations at large. Agricultural runoff may be much broader in scope and the impacts of nutrient inputs to the coastal system may be larger in magnitude; however, the impact on productivity of the managed resources is not quantifiable.

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 respective FMPs and the annual specifications process have had a positive cumulative effect on the managed resources. It is anticipated that the future management actions described in Table 14 will have additional indirect positive effects on the managed resources through actions which reduce and monitor bycatch, protect habitat, and protect the ecosystem services on which the productivity of managed species depends. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to the managed resources have had positive cumulative effects.

Catch limits, commercial quotas, and RHLs that have been in place since 2017 for blueline tilefish and the associated non-target species have been specified to ensure that the stock is managed sustainably and that measures are consistent with the objectives of the FMP under the guidance of the MSA. These specifications have been set and modeled off the golden tilefish fisheries, which have been managed since 2001 and contribute more to past cumulative effects. Management measures such as those described in this document are designed to ensure that catch and landings limits are not exceeded and interactions with non-target species are minimized. The impacts of annual specification of management measures are largely dependent on how effective those measures are in meeting the objectives of preventing overfishing and achieving optimum yield, and on the extent to which mitigating measures are effective. The proposed actions described in this document would positively reinforce the past and anticipated positive cumulative effects on the managed resources by achieving the objectives specified in the respective FMPs. Therefore, the proposed action would not have any significant effect on the managed resources individually or in conjunction with other anthropogenic activities (Table 14).

7.3.5.2 Magnitude and Significance of Cumulative Effects on Physical Environment

Those past, present, and reasonably foreseeable future actions which may impact the physical environment and habitat (including EFH), and the direction of those potential impacts, are summarized in Table 14. The direct and indirect negative actions described in Table 14 are localized in nearshore and marine project areas where they occur; therefore, the magnitude of those impacts on habitat is expected to be limited due to limited exposure of habitat at large. Agricultural runoff may be much broader in scope and the impacts of nutrient inputs to the coastal system may be larger in magnitude; however, the impact on habitat is not quantifiable.

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 species under NMFS' jurisdiction.

Past fishery management actions taken through the respective FMPs and annual specifications process have had positive cumulative effects on habitat. The actions have constrained fishing effort both at a large scale and locally and have implemented gear requirements which may reduce impacts on habitat. As required under these FMP actions, EFH and Habitat Areas of Particular Concern were designated for the managed resources. It is anticipated that the future management actions described in Table 14 will result in additional direct or indirect positive effects on habitat through actions which protect EFH and protect ecosystem services on which blueline tilefish productivity depends. These impacts could be broad in scope. All the VECs are interrelated; therefore, the linkages among habitat quality, managed resources and non-target species productivity, and associated fishery yields should be considered. For habitat, there are direct and indirect negative effects from actions which may be localized or broad in scope; however, positive actions that have broad implications have been, and will likely continue to be, taken to improve the condition of habitat. Some actions, such as coastal population growth and climate change may indirectly impact habitat and ecosystem productivity; however, these actions are beyond the scope of NMFS and Council management. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to habitat have had positive cumulative effects.

The proposed actions described in this document would not significantly 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 14).

7.3.5.3 Magnitude and Significance of Cumulative Effects on Protected Species

Those past, present, and reasonably foreseeable future actions which may impact protected species, and the direction of those impacts, are summarized in Table 14. The indirectly negative actions described in Table 14 are localized in nearshore and marine project areas where they occur; therefore, the magnitude of those impacts on protected species is expected to be limited due to limited exposure of the populations at large. Agricultural runoff may be much broader in scope and the impacts of nutrient inputs to the coastal system may be larger in magnitude; however, the impact on protected species is not quantifiable.

NMFS has several means under which it can review non-fishing actions of other Federal or state agencies that may impact protected species 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 species under NMFS' jurisdiction.

Given their life history dynamics, large changes in protected species abundance over long time periods, and the multiple and wide-ranging fisheries management actions that have occurred, the cumulative impacts on protected species were evaluated over a long-time frame (i.e., from the 1970's through the present). While some protected species are doing better than others, overall the trend of stock condition for protected resources has improved over the long-term due to reductions in the number of interactions. Past fishery management actions taken through the respective FMPs and annual specifications process have contributed to this long-term trend toward positive cumulative effect on protected species through the reduction of fishing effort (and thus reduction in potential interactions) and implementation of gear requirements. It is anticipated that future management actions, described in Table 14, will result in additional indirect positive effects on protected species. These impacts could be broad in scope. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to protected species have had a positive cumulative effect.

The proposed actions described in this document would not change the past and anticipated cumulative effects on protected species and thus would not have any significant effect on protected species individually or in conjunction with other anthropogenic activities (Table 14). Overall, actions have had, or will have, positive impacts on protected species.

7.3.5.4 Magnitude and Significance of Cumulative Effects on Human Communities

Those past, present, and reasonably foreseeable future actions which may impact human communities and the direction of those potential impacts are summarized in Table 14. The indirectly negative actions described in Table 14 are localized in nearshore areas and marine project areas where they occur; therefore, the magnitude of those impacts on human communities is expected to be limited in scope. Those actions may displace fishermen from project areas. Agricultural runoff may be much broader in scope, and the impacts of nutrient inputs to the coastal ecosystem may larger in magnitude. This may result in indirect negative impacts on human communities by reducing resource availability; however, this effect is not quantifiable.

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 respective FMPs and annual specifications process have had both positive and negative cumulative effects by benefiting domestic fisheries through sustainable fishery management practices while also sometimes reducing the ability of some individuals to participate in fisheries. 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 14 will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on some human communities could occur if management actions result in reduced revenues. Overall, the past, present, and reasonably

foreseeable future actions that are truly meaningful to human communities have had overall positive cumulative effects.

Since 2017, catch limits, commercial quotas, and RHLs for blueline tilefish have been specified to ensure that the stock is managed in a sustainable manner and that management measures are consistent with the objectives of the FMPs under the guidance of the MSA. These specifications have been set and modeled off the golden tilefish fisheries, which have been managed since 2001 and contribute more to past cumulative effects. The impacts from annual specification of management measures on the managed species are largely dependent on how effective those measures are in meeting their intended objectives and the extent to which mitigating measures are effective.

Quota overages may alter the timing of commercial fishery revenues such that revenues can be realized a year earlier. Impacts to some fishermen may be caused by unexpected reductions in their opportunities to earn revenues from commercial fisheries in the year during which the overages are deducted. Similarly, recreational fisheries may have decreased harvest opportunities due to reduced harvest limits as a result of overages and more restrictive management measures (e.g. minimum fish size, possession limits, fishing seasons) implemented to address overages.

Despite the potential for negative short-term effects on human communities, positive long-term effects are expected due to the long-term sustainability of the managed stocks. Overall, the proposed actions described 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 14). Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had overall positive cumulative effects.

7.3.6 Proposed Action on all the VECs

The Council's preferred alternatives (i.e. the proposed action) are described in section 5. The direct and indirect impacts of the proposed action on the VECs are described in section 7 and are summarized in Table 15. The magnitude and significance of the cumulative effects, including additive and synergistic effects of the proposed actions, as well as past, present, and future actions, have been taken into account.

When considered in conjunction with all other pressures placed on the fisheries by past, present, and reasonably foreseeable future actions, the preferred alternatives are not expected to result in any significant impacts, positive or negative. The proposed action for blueline tilefish is simply a continuation of a management strategy used for many years for tilefish with only minor expected changes from 2017; therefore, impacts should be similar to those observed in recent years. This management scheme has helped to rebuild stocks and ensure long-term sustainability, while minimizing environmental impacts.

The regulatory atmosphere within which federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of managed species, habitat, and human communities. Consistent with NEPA, the MSA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because

fishery management actions must strive to create and maintain sustainable resources, impacts on all VECs from past, present and reasonably foreseeable future actions have generally been positive and are expected to continue in that manner for the foreseeable future. This is not to say that some aspects of the VECs are not experiencing negative impacts, but rather that when considered as a whole and as a result of the management measure implemented in these fisheries, the overall long-term trend is positive.

There are no significant cumulative effects associated with the preferred alternatives based on the information and analyses presented in this document and in past FMP documents (Table 15). Cumulatively, through 2022, it is anticipated that the preferred alternatives will result in generally positive, but not significant, impacts on the all VECs.

Table 15. Magnitude and significance of the cumulative, additive, and synergistic effects of the 2018 preferred alternatives, as well as past (P), present (PR), and reasonably foreseeable future (RFF) actions.

VEC	Current Status	Net Impact of P, Pr, and RFF Actions	Impact of the Preferred Actions for 2018	Significant Cumulative Effects
Managed Species	Complex and variable (section 6.1)	Positive (section 7.3.5.1)	Moderate positive (sections 7.1.1 and 7.2.1)	**None**
Non-target Species	Complex and variable (section 6.1)	Positive (section 7.3.5.1)	No impact (sections 7.1.1 and 7.2.1)	**None**
Habitat	Complex and variable (section 6.2)	No Impact to positive (section 7.3.5.2)	Slight negative to no impact (sections 7.1.2 and 7.2.2)	**None**
Protected Resources	Complex and variable (section 6.3)	Positive (section 7.3.5.3)	Slight negative to slight positive (sections 7.1.3 and 7.2.3)	**None**
Human Communities	Complex and variable (section 6.4)	Likely mixed (section 7.3.5.4)	Slight to moderate positive (sections 7.1.4 and 7.2.4)	**None**

8 APPLICABLE LAWS

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

8.1.1 National Standards

Section 301 of the MSA requires that FMPs contain conservation and management measures that are consistent with the ten National Standards. The most recent FMP amendments describe how the management actions implemented comply with the National Standards. The Council continues to meet the obligations of National Standard 1 by adopting and implementing conservation and management measures that will continue to prevent overfishing, while achieving, on a continuing

basis, the optimum yield (OY) for blueline tilefish and the U.S. fishing industry. To achieve the TAL without exceeding the ACL, both scientific and management uncertainty need to be addressed when establishing catch limits; therefore, the Council has developed recommendations that do not exceed the ABC recommendations of the SSC which explicitly address scientific uncertainty. In addition, the Council has considered relevant sources of management uncertainty and other social, economic, and ecological factors, which resulted in recommendations for annual catch targets for blueline tilefish. The Council uses the best scientific information available (National Standard 2) and manages blueline tilefish throughout its range (National Standard 3). These management measures do not discriminate among residents of different states (National Standard 4) and they do not have economic allocation as their sole purpose (National Standard 5). The measures account for variations in 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). The proposed actions are consistent with National Standard 9, which addresses bycatch in fisheries. The Council has implemented many regulations that have indirectly reduced fishing gear impacts on EFH. By continuing to meet the National Standards requirements of the MSA through future FMP amendments, framework actions, and the annual specification setting process, the Council will insure that cumulative impacts of these actions will remain positive overall for the managed resources, the ports and communities that depend on these fisheries, and the Nation as a whole.

8.1.2 Essential Fish Habitat Assessment

EFH assessments are required for any action that is expected to have an adverse impact on EFH, even if the impact is only minimal and/or temporary in nature (50 CFR Part 600.920 (e) (1-5)).

Description of Action

As previously described, the proposed action would implement catch and landings limits for the commercial and recreational blueline tilefish fisheries for 2019-2021 and implement changes to the commercial trip limit. Proposed measures include a commercial TAL of 27,140 pounds and recreational TAL of 71,912 pounds in 2019-2021. The commercial trip limit will be set at 500 pounds until 70% of the quota has been landed and will then be reduced to 300 pounds for the remainder of the fishing year. The proposed action is described in more detail in section 4 and section 5.

Potential Adverse Effects of the Action on EFH

The types of habitat impacts caused by the gears used in blueline tilefish fisheries (predominantly bottom otter trawl in the commercial fishery and hook and line in the recreational fishery) are summarized in section 6.2.3.

As described in section 7, the increased quotas and commercial trip limit under the proposed actions creates the potential for increased fishing effort, compared to the *status quo*; however, fishing effort, the locations of fishing effort, the amount of gear in the water, and the duration of time that gear is in the water are not expected to change substantially given recent conditions in the fisheries. Both the commercial and recreational blueline tilefish fisheries have under-harvested their respective landings since amended to the Tilefish FMP.

The habitats that are impacted by blueline tilefish fisheries have been impacted by many fisheries over many years. The *status quo* levels of fishing effort expected under the proposed action are not expected to cause additional habitat damage, but they are expected to limit the recovery of previously impacted areas. In addition, the increased quotas and commercial trip limit create the potential for increased fishing effort, though, as stated above, this potential is not expected to be realized. For these reasons, the proposed action is expected to have no impact to slight negative impacts on habitat and EFH.

Proposed Measures to Avoid, Minimize, or Mitigate Adverse Impacts of This Action

Measures in the Tilefish FMP which impact EFH were considered Amendment 1 (MAFMC 2009). The analysis in Amendment 1 indicated that no management measures were needed to minimize impacts to EFH because the principal gear used in the commercial and recreational fisheries for tilefish are bottom longline and rod and reel. These gears have minimal adverse impacts on EFH in the region (Stevenson et al. 2004). These characteristics of the fisheries have not changed since Amendment 1. None of the alternatives included in this document were designed to avoid, minimize, or mitigate adverse impacts on EFH.

Conclusions

Overall, the proposed action is expected to have no impact to slight negative impacts on EFH; therefore, an EFH consultation is required.

8.2 NEPA Finding of No Significant Impact (FONSI)

The Council on Environmental Quality (CEQ) Regulations state that the determination of significance using an analysis of effects requires examination of both context and intensity, and lists ten criteria for intensity (40 CFR 1508.27). In addition, the Companion Manual for NOAA Administrative Order 216-6A provides sixteen criteria (the same ten as the CEQ Regulations and six additional) for determining whether the impacts of a proposed action are significant. Each criterion is discussed below with respect to the proposed action and considered individually as well as in combination with the others.

1. Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

The proposed specifications are not expected to result in significant impacts on any of the VECs, nor will they result in overall significant effects, either beneficial or adverse. The preferred alternative establishes 2019-2021 catch and landing limits as well as commercial trip limits for blueline tilefish that are consistent with FMP objectives and the recommendations of the Council's SSC. The proposed action includes increased catch and landings limits from the *status quo,* which could result in increased fishing effort; however, these limits are designed to prevent the target stock (blueline tilefish) from becoming overfished and to prevent overfishing from occurring in the future even though the current stock status is still unknown. As described in section 7.1.1, they are also not expected to have negative impacts on the stock status of any non-target stocks. Although the proposed measures include increased catch and landings limits, fishing effort is not expected to change substantially due to socioeconomic factors that have recently limited blueline tilefish landings. For this reason, the proposed action is not expected to result in substantial changes in revenues or angler satisfaction (section 7.1.4 or 7.2.4), nor is it expected to result in

increased interactions between fishing gear and protected species (section 7.1.3 or 7.2.3) or between fishing gear and physical habitat (section 7.1.2 or 7.2.2). The impacts of this action on all VECs are expected to be similar to the *status quo* measures, which do not currently have significant impacts on the VECs. The proposed action will ensure the long-term sustainability of blueline tilefish fisheries. The expected impacts of the preferred action are fully described in section 7.

2. Can the proposed action reasonably be expected to significantly affect public health or safety?

The proposed action is not expected to alter the manner in which the industry conducts fishing activities for the target species. Therefore, no changes in fishing behavior that would affect safety are anticipated. The overall effect of the proposed actions on these fisheries, including the communities in which they operate, will not adversely impact public health or safety.

3. Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

The proposed action is not expected to alter fishing methods or activities or to substantially increase fishing effort. Other types of commercial fishing already occur in the impacted area and although it is possible that historic or cultural resources such as shipwrecks could be present, vessels try to avoid fishing too close to wrecks due to possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would result in substantial impacts to unique areas.

4. Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

The proposed action is based on measures contained in the FMP, which have been in place for many years. The scientific information upon which the annual catch and landings limits are based has been peer reviewed and is the most recent information available (section 4.3). Thus, the measures contained in this action are not expected to be highly controversial.

5. Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The impacts of the proposed action on the human environment are described in section 7. The proposed action is not expected to alter fishing methods or activities or to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The effects of fishing are well studied and the impacts to managed species, non-target species, and protected resources will continue to be monitored. The proposed action is not expected to have highly uncertain effects or to involve unique or unknown risks on the human environment.

6. Can the proposed action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

The proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. When new stock assessments or other biological information on blueline tilefish and other impacted species become available in the future, the specifications will be adjusted consistent with the FMP and MSA. Specifications are routine adjustments and the adjustments undertaken herein are similar to those taken in the past. 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.

7. Is the proposed action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?

As discussed in section 7.3, 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 action, together with past, present, and reasonably foreseeable future actions, is not expected to result in significant cumulative impacts on the biological, physical, and human components of the environment.

8. Can the proposed action reasonably be expected 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 action on the human environment are described in section 7. The proposed action is not expected to alter fishing practices. Although there are shipwrecks present in the area where fishing occurs, including some registered on the National Register of Historic Places, vessels typically avoid fishing too close to wrecks due to possible loss or entanglement of fishing gear. Therefore, it is not likely that the proposed action would adversely affect the historic resources listed above.

9. Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973?

Bottom longline and rod and reel gear are used in the commercial and recreational blueline tilefish fisheries, respectively. Bottom longline and rod and reel gear, which have the potential to interact with endangered and threatened species, account for the majority of blueline tilefish catch and are thus the gears of primary concern for interactions with endangered and threatened species (section 6.3.2 and 6.3.3). However, risk of interacting with these gear types in not equal across all ESA listed species. ESA listed species of sea turtles are the only ESA listed species in which interactions with bottom longline gear, the gear used to prosecute the commercial blueline tilefish fishery, have been observed or documented. However, based on the best available information (see section 6.3), although sea turtle interactions with bottom longline gear are possible, due to where and how the blueline tilefish fishery operates, the risk of an interaction is likely low. In regards to rod and reel gear, degree of interaction risk varies across ESA listed species of cetaceans, sea turtles and fish (see section 6.3).

The proposed action is not expected to alter overall fishing operations, lead to a substantial increase of fishing effort, or alter the spatial and/or temporal distribution of current fishing effort in a manner that would significantly increase interaction rates with ESA listed species (see sections 7.1.3 and 7.2.3). Specifically, as described in section 7.1.3 and 7.2.3, depending on the action alternative, impacts to listed species are expected to change from negligible to moderately negative, with the latter level of negative impacts reflecting those alternatives that may equate to a negligible increase in fishing effort.

As described in section 7.1.3 and 7.2.3, the proposed action is not likely to adversely affect any critical habitat. Blueline tilefish fisheries will not affect the essential physical and biological features of North Atlantic right whale or loggerhead (Northwest Atlantic DPS) critical habitat and, and therefore, will not result in the destruction or adverse modification of critical habitat (NMFS 2013; NMFS 2014a; NMFS 2015a,b).

10. Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?

The proposed action is not expected to alter fishing methods or activities such that they threaten a violation of federal, State, or local law or requirements imposed for the protection of the environment. The proposed measures have been found to be consistent with other applicable laws.

11. Can the proposed action reasonably be expected to adversely affect stocks of marine mammals as defined in the Marine Mammal Protection Act?

The proposed action is not expected to alter overall fishing operations, lead to a substantial increase of fishing effort, or alter the spatial and/or temporal distribution of current fishing effort in a manner that would significantly increase interaction rates with MMPA protected species (see sections 7.1.3 and 7.2.3.

Bottom longline and rod and reel gear are used in the commercial and recreational blueline tilefish fisheries, respectively. Bottom longline and rod and reel gear, which have the potential to interact with MMPA protected species, account for the majority of blueline tilefish catch and are thus the gears of primary concern for interactions with endangered and threatened species (section 6.3.2 and 6.3.3). However, risk of interacting with these gear types is not equal across all MMPA protected species. As provided in section 6.3, there have never been observed or documented interactions with MMPA protected species in bottom longline gear. As a result, marine mammal interactions with the commercial blueline tilefish fishery are not expected. In regards to rod and reel gear, degree of interaction risk varies across MMPA protected species of cetaceans and pinnipeds; how available data indicates that, relative to other gear types known to result in the serious injury and mortality to MMPA protected species (i.e., trawl or fixed gears; Hayes et al. 2018; Palmer 2017), rod and reel gear represents a low source of serious injury or mortality to any MMPA protected species (see section 6.3).

As described in section 6.3, some marine mammal stocks/species are experiencing levels of interactions that have resulted in exceedance of their PBR levels. These stocks/populations are not at an optimum sustainable level and therefore, the continued existence of these stocks/species is at risk. As a result, any potential for an interaction is a detriment to the species/stocks ability to recover from this condition. As interactions with non-ESA listed marine mammals are possible under alternative sets 1 and 2, and for these species/stocks, alternative sets 1 and 2 are likely to result in negligible to moderately negative impacts to these non-listed marine mammal stocks/species in poor condition.

Alternatively, there are also many non-ESA listed marine mammals that, even with continued fishery interactions, are maintaining an optimum sustainable level (i.e., PBR levels have not been exceeded) over the last several years. For these stocks/species, it appears that the fishery management measures that have been in place over this timeframe have resulted in levels of effort

that equate to interaction levels that are not expected to impair the stocks/species ability to remain at an optimum sustainable level. These fishery management measures, therefore, have resulted in indirect slight positive impacts to these non-ESA listed marine mammal species/stocks. Should future fishery management actions maintain similar operating condition as they have over the past several years, it is expected that these slight positive impacts would remain. Thus, given that the proposed action is not expected to significantly change fishing effort relative to the *status quo*, alternative sets 1 and 2 are likely to result in slight negative to slight positive impacts to non-ESA listed marine mammal species in good condition.

12. Can the proposed action reasonably be expected to adversely affect managed fish species?

The impacts of this action on managed fish species, including target and non-target species, are described in section 7.1 and 7.2. The preferred measures are designed to prevent overfishing and overfished status of the blueline tilefish stock, resulting in expected positive, but insignificant, impacts on this managed resource. There are relatively few non-target fish species that are typically caught in meaningful numbers on blueline tilefish trips. The most commonly caught non-target species on blueline tilefish trips is golden tilefish, which is not currently overfished and the stock is not experiencing overfishing (section 6.1.2). As described in section 7, given recent trends in landings in the commercial and recreational fishery and the expectation that other management measures will remain unchanged, effort is not expected to increase substantially from current (2017) levels. The proposed action is not expected to have any significant adverse impacts on managed fish species.

13. Can the proposed action reasonably be expected to adversely affect essential fish habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act?

The proposed action is not expected to cause substantial damage to the ocean, coastal habitats, and/or EFH as defined under the MSA and identified in the FMP. The commercial blueline tilefish fishery is mostly a bottom long line fishery (section 6.2.3). As described throughout this document, the proposed action includes increased catch limits and commercial trip limits compared to the *status quo* alternative; therefore, it has the potential to result in increased fishing effort and increased damage to physical habitat, including EFH, as it could lead to an increase in the amount of interactions between gear and habitat. Both the commercial and recreational fisheries have been under-harvesting their landings limits since blueline tilefish has been managed (2016) and this pattern is expected to continue into the near future under the proposed action. As described in section 7.1.2 and 7.2.2, the areas fished for blueline tilefish have been heavily fished for many years, and are unlikely to be degraded further as the result of the *status quo* levels of fishing effort that are expected under the proposed action.

14. Can the proposed action reasonably be expected to adversely affect vulnerable marine or coastal ecosystems, including but not limited to, deep coral ecosystems?

The proposed action is not expected to have significant impacts on the natural or physical environment, including vulnerable marine or coastal ecosystems. The proposed action is not expected to alter fishing methods or activities or to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. The areas fished for blueline tilefish have been fished for many years, and for a variety of species, and this action is not expected to change the core locations of blueline tilefish fishing activity. While most blueline tilefish fishing takes place near the continental slope/shelf break where deep sea corals may be found in and

around the submarine canyons, much of this area in the Mid-Atlantic is now protected by a prohibition on bottom-tending gear in the Frank R. Lautenberg Deep Sea Coral Protection Area (81 FR 90246; December 14, 2016). The proposed action in this document is not expected to alter blueline tilefish fishing patterns relative to this protected area or in any other manner that would lead to adverse impacts on deep sea coral or other vulnerable marine or coastal ecosystems.

15. Can the proposed action reasonably be expected to adversely affect biodiversity or ecosystem functioning (e.g., benthic productivity, predator-prey relationships, etc.)?

The impacts of commercial and recreational blueline tilefish fisheries on biodiversity and ecosystem functioning have not been assessed; however, the impacts to components of the ecosystem (i.e. non-target species, habitat, and protected species) have been considered. As described in section 7, the proposed action is expected to result in limited increased levels of commercial and recreational blueline tilefish fishing effort and it is not expected to result in a change in the recent spatial/temporal distribution of effort. *Status quo* to slight increased levels of effort are not likely to negatively impact the stock status of non-target species (section 7.1.1 and 7.2.1), they are not likely to cause additional habitat damage beyond that previously caused by a variety of fisheries (section 7.1.2 and 7.2.2), and they are not expected to jeopardize any protected species (section 7.1.3 and 7.2.3). They are, however, expected to prevent recovery of damaged habitats and are not expected to contribute to the recovery of any endangered or threatened species. For these reasons, the proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. This action merely implements catch and landings limits and commercial trip limits for blueline tilefish for 2019-2021.

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

This action implements catch and landings limits and commercial trip limits for blueline tilefish for 2019-2021. There is no evidence or indication that these fisheries have ever resulted in the introduction or spread of nonindigenous species. The proposed action is not expected to alter fishing methods or activities and it is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, it is highly unlikely that the proposed action would result in the introduction or spread of a non-indigenous species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for 2019-2021 blueline tilefish specifications, it is hereby determined that the 2019-2021 blueline tilefish specifications will not significantly impact the quality of the human environment as described above and in the supporting Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an environmental impact statement for this action is not necessary.

Michael P. [illegible] 12/18/18

Regional Administrator for GARFO, NMFS, NOAA *Date*

8.3 Endangered Species Act (ESA)

Sections 7.1.3 and 7.2.3 should be referenced for an assessment of the impacts of the proposed action on ESA-listed species. None of the actions proposed in this document are expected to alter fishing methods or activities. Additionally, no action is expected to increase fishing effort or the spatial and/or temporal distribution of current fishing effort. Therefore, this action is not expected to affect endangered or threatened species or critical habitat in any manner not considered in previous consultations on these fisheries.

8.4 Marine Mammal Protection Act (MMPA)

Sections 7.1.3 and 7.2.3 contain an assessment of the impacts of the proposed action on marine mammals. A final determination of consistency with the MMPA will be made by the agency during rulemaking for this action.

8.5 Coastal Zone Management Act

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

8.6 Administrative Procedure Act

Sections 551-553 of the Federal Administrative Procedure Act establish procedural requirements applicable to informal rulemaking by federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process and to give the public notice and opportunity to comment before the agency promulgates new regulations.

The Administrative Procedure Act requires solicitation and review of public comments on actions taken in the development of an FMP and subsequent amendments and framework adjustments. There were many opportunities for public review, input, and access to the rulemaking process during the development of the proposed management measures described in this document and during the development of this document. This action 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 following meetings:

- Advisory Panel meetings on February 21, 2018 over webinar;
- SSC meeting held on March 13-14, 2018 in Baltimore, MD;
- Tilefish Monitoring Committee meeting held on March 16, 2018 over webinar;
- Council meeting held on August 10-12, 2018 in Montauk, NY.

The public will have further opportunity to comment on this document and the proposed management measures once NMFS publishes a request for comments notice in the *Federal Register*.

8.7 Section 515 (Data Quality Act)

Utility of Information Product

This action proposes annual catch limits and commercial trip limits for the blueline tilefish fisheries for 2019-2021. This document includes a description of the alternatives considered, the preferred action and rationale for selection, and any changes to the implementing regulations of the FMP. As such, this document enables the implementing agency (NMFS) to make a decision on implementation of annual specifications (i.e., management measures) and this document serves as a supporting document for the proposed rule.

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

Integrity of Information Product

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

Objectivity of Information Product

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

The review process for this specifications document involves Council, 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 Council review process involves public meetings at which affected stakeholders can comment on proposed management measures. Review by GARFO is conducted by those with expertise in fisheries management and policy, habitat conservation, protected resources, and compliance with the applicable law. Final approval of the specifications document and clearance of the rule is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

8.8 Paperwork Reduction Act (PRA)

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 Relative to Federalism/Executive Order 13132

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

8.10 Regulatory Impact Review (RIR)

Executive Order 12866 requires a Regulatory Impact Review (RIR) in order to enhance planning and coordination with respect to new and existing regulations. This Executive Order requires the Office of Management and Budget (OMB) to review regulatory programs that are considered to be "significant." The analysis included in this RIR further demonstrates that this action is not a "significant regulatory action" because it will not affect in a material way the economy or a sector of the economy.

Executive Order 12866 requires a review of proposed regulations to determine whether or not the expected effects would be significant, where a significant regulatory action is one that may:

> Have an annual effect on the economy of $100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
>
> Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
>
> Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
>
> Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Regulations were first put in place for blueline tilefish in June 2015, so landings and revenues from the dealer database presented in this section are averages from 2016-2017.

The proposed action does not constitute a significant regulatory action under EO 12866 for the following reasons.

First, blueline tilefish landings averaged only 12,080 pounds resulting in $30,864. Second, the increase in quota and trip limit is relatively small and should only have a small positive impact on revenues. Compared to the status quo alternative, Alternative 1B (preferred) has the potential to result in a $9,231 increase in ex-vessel revenue if the commercial quota is landed. The trip limit increase for Alternative 2B (preferred) offers the opportunity to more fully utilize the commercial quota than the status quo alternative. This will result in an ex-vessel value under the preferred alternative (Alternative 2B) that can increase from the 2016-2017 average of $31,746 to $68,785 should the commercial quota be landed. Overall, under the assumptions that quotas will be landed and an average price/pound from 2016-2017 is an appropriate representative of the commercial fishery, the proposed action can impose a small positive impact on revenues.

No management measures are changing for the recreational or for-hire fisheries.

Therefore, when considering the commercial/recreational impacts for this action, the proposed action is expected to have only a minimal impact in terms of EO 12866. In addition, there should be no interactions with activities of other agencies and no impacts on entitlements, grants, user fees, or loan programs. The proposed action is also similar to actions taken each year that set specifications, and as such does not raise novel legal or policy issues. As such, the Proposed Action is not considered significant as defined by EO 12866.

8.11 REGULATORY FLEXIBILITY ACT ANALYSIS

The Regulatory Flexibility Act (RFA), first enacted in 1980, and codified at 5 U.S.C. 600-611, was designed to place the burden on the government to review all new regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization can have a bearing on its ability to comply with Federal regulations. Major goals of the RFA are: 1) to increase agency awareness and understanding of the impact of their regulations on small business; 2) to require that agencies communicate and explain their findings to the public; and 3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts, while still achieving the stated objective of the action. When an agency publishes a proposed rule, it must either, (1) certify that the action will not have a significant adverse impact on a substantial number of small entities, and support such a certification declaration with a factual basis, demonstrating this outcome, or, (2) if such a certification cannot be supported by a factual basis, prepare and make available for public review an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact of the proposed rule on small entities.

The sections below provide the supporting analysis to assess whether the proposed regulations will have a "significant impact on a substantial number of small entities."

8.11.1 Basis and Purpose of the Rule

This action is taken under the authority of the MSA and regulations at 50 CFR part 648. A complete description of the purpose and need and objectives of this proposed rule is found in section 4. The proposed action would implement catch and landings limits and commercial trip limits for blueline tilefish for 2019-2021. Section 5 contains a full description of the alternatives analyzed in this section. Additional background information on the alternatives can be found in section 4.

As described in sections 4 and 5, for Alternative Set 1, the proposed catch and landings limits are consistent with the best scientific information available and the most recent catch limit recommendations of the Council's SSC. The proposed landings limits for 2019-2021 include a commercial TAL of 26,869 pounds and a recreational TAL of 71,912 (Alternative 1B).

In addition to the preferred alternative, one least restrictive and one most restrictive alternative are considered in the catch limit set of alternatives in this document. Alternative 1A is a *status quo* most restrictive alternative, consisting of landings limits identical to those previously implemented for blueline tilefish from 2016-2018 (see section 5). More specifically, Alternative 1A includes a commercial TAL of 23,263 pounds and a recreational TAL of 62,262 for 2019-2021. Alternative

1C is the least restrictive alternative, and it includes a commercial TAL of 35,736 pounds and a recreational TAL of 94,679 pounds for 2019-2021.

As described in sections 4 and 5, for Alternative Set 2, the commercial trip limits are consistent with the best scientific information available and the most recent commercial trip limit recommendations of the Council's SSC. The proposed trip limit for 2019-2021 is a 500-pound limit that will be reduced to 300 pounds once 70% of the quota has been landed (Alternative 2B).

In addition to the preferred alternative, one least restrictive and one most restrictive alternative are considered in the commercial trip limit set of alternatives in this document. Alternative 2A is a *status quo* most restrictive alternative, consisting of a commercial trip limit identical to that previously implemented for blueline tilefish from 2016-2018 (see section 5). More specifically, Alternative 2A includes a commercial trip limit of 300 pounds. Alternative 2C is the least restrictive alternative, and it includes a commercial trip limit of 900 pounds which will be reduced to 300 pounds once 70% of the quota has been landed for 2019-2021.

The preferred and least restrictive alternatives in both sets of alternatives are expected to result in similar fishing opportunities when compared to the current conditions of the VECs and the current quota conditions (*status quo*). However, as previously indicated, Alternatives 1C and 2C are inconsistent with the most recent advice of the Council's SSC. Because Alternatives 1C and 2C are inconsistent with the purpose and need of this action to implement catch and trip limits based on the best available scientific information, it is not further considered in this section.

None of the catch or trip limit alternatives would reduce fishing opportunities when compared to current quota conditions (*status quo*). Further, both the preferred and least restrictive alternatives in both sets of alternatives are expected to slightly increase landings within the blueline tilefish fisheries. The larger quotas and trip limits should induce a small directed fishery that will be heavily monitored and buffered once 70% of the quota has been landed. Ultimately, the proposed increases in quota and trip limit may result in slight positive economic impacts but are likely to be similar to those observed under current conditions.

8.11.2 Description and Estimate of the Number of Small Entities to Which the Rule Applies

The measures proposed in this action apply to vessels that hold any commercial permits for blueline tilefish. Some small entities own multiple vessels with tilefish permits. Staff queried NMFS databases for 2017 tilefish permit holders, and then cross-referenced those results with ownership data provided by the Social Science Branch of NMFS' Northeast Fisheries Science Center. This analysis found that 2028 separate vessels held tilefish permits in 2017. In 2017, 1519 entities owned those vessels and based on current SBA definitions (under $11 million to be a commercial fishing small business entity and $7.5 million for for-hire operations), 1508 are small business entities. Based on revenues, 886 were commercial fishing entities, 242 were for-hire entities, and 380 had no revenue (but are considered small businesses). For those small businesses with revenues, their average revenues were $0.55 million in 2017.

8.11.3 Description and Estimate of Economic Impacts on Small Entities

The economic impacts are described in Section 7.1.4 and 7.2.4 of this document, and summarized below for the preferred alternatives that would change management measures:

These actions would increase the blueline tilefish ABC to 100,520 pounds from 87,031 pounds (about 15%) and increase the commercial trip limit to 500 pounds from 300 pounds, but ultimately be reduced back to 300 pounds once 70% of the overall quota has been landed. Since this action could increase fishery revenues and access for all permit holders, most of which are small entities, the impact on small entities is positive.

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10 LIST OF AGENCIES AND PERSONS CONSULTED

In preparing this document, the Council consulted with NMFS, the New England and South Atlantic Fishery Management Councils, USFWS, and the states of Maine through North Carolina through their membership on the Mid-Atlantic and New England Fishery Management Councils. The advice of NMFS GARFO personnel was sought to ensure compliance with NMFS formatting requirements.

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