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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
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MEMORANDUM

Date: 22 March 2021

To: Council

From: José Montañez

Subject: Tilefish Multi-Year Specifications Framework (FW) – Meeting 1.

In this tab, please find the Draft FW Document for Council review. The purpose of this first framework meeting is for the Council to review the range of alternatives presented in the document and if possible, identify preferred alternatives. Staff will also discuss the timeline for document completion.

This FW considers measures to revise the specifications process by considering the duration for setting multi-year management measures and the timing of the fishing year. In addition, this FW will set new specifications for 2023-2024.

MULTI-YEAR SPECIFICATIONS FRAMEWORK

FRAMEWORK ADJUSTMENT #X TO THE TILEFISH FISHERY MANAGEMENT PLAN

DRAFT ENVIRONMENTAL ASSESSMENT (EA)
(Including a Regulatory Impact Review, Regulatory Flexibility Act Analysis)

April 2021

Mid-Atlantic Fishery Management Council

in cooperation with

the National Marine Fisheries Service

First Framework Meeting: April 7, 2021
Second Framework Meeting and Council Action: August XX, 2021
Draft EA submitted to NOAA: XXXXXXX
Final approved by NOAA: XXXXXXX (Effective XXXXXXX)

Council Address	NMFS Address
Mid-Atlantic Fishery Management Council	Greater Atlantic Regional Fisheries Office
800 North State Street, Suite 201	55 Great Republic Drive
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1.0 EXECUTIVE SUMMARY

In this Framework Adjustment to the Tilefish Fishery Management Plan (FMP), the Mid-Atlantic Fishery Management Council (MAFMC or Council) considered measures to revise the specifications process by considering the duration for setting multi-year management measures and the timing of the fishing year. In addition, this framework will set new specifications for 2023-2024.

The first action would change the process by altering the duration that multi-year management measures for golden tilefish can be set (currently 3 year maximum) . This action would modify the annual specifications process, so that they could be set for the maximum number of years needed to be consistent with the Northeast Region Coordinating Council (NRCC) approved stock assessment schedule. This action will address an approved Council directive to "Initiate a framework to allow golden tilefish specifications to be set for more than 3 years" which was included in the Council's 2021 Implementation Plan. This issue was included in the Council's 2021 Implementation Plan in response to Executive Order (EO) 13921 (Promoting American Seafood Competitiveness and Economic Growth). The purpose of this EO is, "to strengthen the American economy; improve the competitiveness of American industry; ensure food security; provide environmentally safe and sustainable seafood; support American workers; ensure coordinated, predictable, and transparent Federal actions; and remove unnecessary regulatory burdens."

The second action would change the timing of the fishing year. Current regulations define the golden tilefish fishing year as the 12-month period from November 1 – October 31. The Golden Tilefish Individual Fishing Quota 5-Year Review recommended that the fishing year be changed to January 1 – December 31 to ease the administration of cost recovery in the golden tilefish IFQ fishery (which is calculated on a calendar year basis; January 1 – December 31). Unifying the allocation usage monitoring and the cost recovery time periods to a single 12-month period would reduce administrative burden and potentially decrease administrative costs recovered from the industry. In addition, the calendar year is the time period upon which stock assessments are based. Lastly, industry members have indicated that ending the fishing year in December, rather than October, will create more stability in harvesting their full allocation. October can be a very stormy, and unpredictable month with fish on the move in response to weather conditions.

In addition to the specification process related issues described above, this framework will set annual specification measures for the 2023 and 2024 fishing seasons. The 2021 management track assessment will be used to revise the interim 2022 specifications and set specifications for the 2023 and 2024 fishing seasons. The purpose of this action (setting specifications) is to implement commercial quotas for the golden tilefish fishery in 2023-2024 that are necessary to prevent overfishing and ensure annual catch limits (ACLs) are not exceeded.

The Council will submit this framework to NOAA Fisheries for approval and implementation. NOAA Fisheries will publish a proposed rule along with this Environmental Assessment (EA) for public comment. After considering public comments

on the proposed rule, NOAA Fisheries will publish a final rule with implementation details, if the action is approved by NOAA Fisheries.

This document describes all evaluated management alternatives and their expected impacts on five aspects of the affected environment, which are defined as valued ecosystem components (VECs; sections 6.0 and 7.0). Summaries of the preferred alternative and expected impacts are below. A detailed description and discussion of the expected environmental impacts resulting from each of the alternatives, as well as any cumulative impacts, considered in this document are provided in section 7.0. For purposes of impact evaluation, No action (*Status Quo*) alternatives are compared to the current baseline condition, while all other alternatives are compared to the No action/*Status Quo* alternative. This framework document was developed in accordance with all applicable laws and statutes as described in section 8.0.

Summary of Alternatives

The multi-year specifications framework (Framework #X) alternatives are summarized in Box ES-1 to Box ES-3 and described in more detail in section 5.0.

Box ES-1. Summary of the multi-year specification alternatives.

Alternatives	Summary of Alternatives
Alternative 1 (No Action/*Status Quo*)	No changes to the process to set golden tilefish management specifications for up to 3 years.
Alternative 2 (Specifications to be set for maximum number of years needed to be consistent with the Northeast Regional Coordinating Council (NRCC)-approved stock assessment schedule)	Specifications could be set for the maximum number of years needed to be consistent with the NRCC-approved stock assessment schedule. This alternative would provide additional flexibility as specifications could be set to cover the time period until a new golden tilefish assessment is produced.

Box ES-2. Summary of the fishing year alternatives.

Alternatives	Summary of Alternatives
Alternative 1 (No Action/*Status Quo*)	No changes to the current golden tilefish fishing year. The golden tilefish fishing year will continue to be November 1 - October 31.
Alternative 2 (The golden tilefish fishing year is the 12-month period beginning with January 1, annually)	The golden tilefish fishing year is the twelve (12) month period beginning January 1, annually. Therefore, the fishing year is from January 1 – December 31.

Box ES-3. Summary of the 2023-2024 golden tilefish quota alternatives.

Alternatives	Commercial Component	2023 Quotas	2024 Quotas
Alternative 1 (*Status Quo/No Action*)	**IFQ vessels**	1,554,038	1,554,038
	Incidental vessels	72,397	72,397
Alternative 2 (TBD, for example, allowing quotas to change from year to year, such as time varying quotas)	**IFQ vessels**	TBD	TBD
	Incidental vessels	TBD	TBD
Alternative 3 (TBD, for example, average quotas for the 2023-2024 period)	**IFQ vessels**	TBD	TBD
	Incidental vessels	TBD	TBD

TBD = To be determined. The results of the 2021 golden tilefish management track assessment and projections to calculate commercial quotas will be available for management use in July 2021. Therefore, specific quota alternatives (quota values) will not be made available until the second framework meeting.

Summary of Impacts

The following section presents a qualitative summary of expected impacts alternatives under consideration (Boxes ES-1 to ES3). For purposes of impact evaluation, *status quo* alternatives are compared to the current conditions, while all other alternatives are compared to the *status quo* alternative. The expected impacts of the alternatives in this document on the VECs are summarized in Box ES-4 to Box ES-6 and described in more detail in section 7.1 and 7.2.

Multi-Year Specification Alternatives

None of the multi-year specification alternatives are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices.

Under alternative 1 (no action/status quo), there would be no changes to the process to set golden tilefish management specifications for up to 3 years. The no action alternative is expected to have no impact (direct or indirect) on the target species (managed species) when compared to the current condition of the stock. Alternative 2 would change the process the annual multi-year specifications are set; it would simply change the number of years (time period) for which those measures could be set. Under alternative 2, specifications could be set for up to the maximum number of years needed to be consistent with the NRCC-approved stock assessment schedule. Both, alternatives are expected to have no impact (direct or indirect) on the target species (managed species) when compared to the current condition of the stock.

The no action alternative and the action that would only change the process the annual multi-year specifications are set are expected to have no impact (direct or indirect) on the physical habitat when compared to the current conditions.

The no action alternative and the action that would only change the process the annual multi-year specifications are set are expected to have no impact (direct or indirect) on the protected resources when compared to the current conditions.

The no action alternative and the action that would only change the process the annual multi-year specifications are set are expected to have no impact (direct or indirect) on the human communities when compared to the current conditions.

Although there are no impacts on the VECs, alternative 2 would provide for some administrative efficiencies by reducing the need to create and implement multiple specification documents to set management measures for the fishery between stock assessments; thus, improving the management process (i.e., efficient use of Council and NOAA staff time and reducing management costs). It is possible that this could in turn decrease administrative burden and the IFQ cost recovery fee.

Fishing Year Timing Alternatives

None of the fishing year alternatives are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices.

Under alternative 1 (no action/*status quo*), there would be no changes to current golden tilefish fishing year. The golden tilefish fishing year will continue to be November 1 - October 31. The no action alternative is expected to have no impact (direct or indirect) on the target species (managed species) when compared to the current condition of the stock.

Alternative 2 would change the process by which the current fishing year timing is set. Under alternative 2, the golden tilefish fishing year is the 12-month period beginning with January 1, annually. Therefore, the fishing year is from January 1 – December 31. Alternative 2 would result in quota specifications for the January 1 – December 31 periods, to be aligned the with the 12 month cycle for which stock projections are made (January 1 – December 31); thus, potentially reducing uncertainty in the long-term.[1] This is expected to result in impacts to the stock that range from no impacts to slightly positive impacts when compared to the current conditions.

The no action alternative and the action that would only change the process by which the current fishing year timing is set are expected to have no impact (direct or indirect) on the physical habitat when compared to the current conditions.

The no action alternative and the action that would only change the process by which the current fishing year timing is set are specified are expected to have no impact (direct or indirect) on the protected resources when compared to the current conditions.

Under alternative 1 (no action/*status quo*), there would be no changes to current golden tilefish fishing year. The golden tilefish fishing year will continue to be November 1 - October 31. The no action alternative is expected to have no impact (direct or indirect) on the human communities when compared to the current conditions. Alternative 2 would align the fishing year with cost recovery calculations associated with managing the IFQ system. This could in turn decrease administrative burden and the IFQ cost recovery fee. In addition, industry members have indicated that aligning the fishing year with the calendar year will create more stability in harvesting their full allocation. This is expected to result in impacts to the human communities that range from no impacts to slightly positive impacts when compared to the current conditions. When comparing across both alternative, alternative 2 is expected to result in impacts to human communities that range from no impacts to slightly positive impacts when compared to *status quo* measure (alternative 1).

2022-2023 Golden Tilefish Fishery Specifications (Catch, Landings Limits, and Quotas)

This section to be completed prior to the second required framework meeting.

Note: The results of the 2021 golden tilefish management track assessment and projections to calculate commercial quotas will be available for management use in July 2021. Therefore, specific quota alternatives (quota values) will not be made available until the second framework meeting.

[1] Currently, the fishing year starts on November 1 (November 1 – October 31), two months ahead of the yearly projections used to derived catch and landings limits (January 1 – December 31).

Box ES-4. Overall qualitative summary of the expected impacts of multi-year specification alternatives considered in this document. A minus sign (-) signifies an expected negative impact, a plus sign (+) signifies an expected positive impact, and zero (0) is used to indicate a null impact. A "sl" in front of a sign is used to convey a minor effect, such as slight positive (sl+).

Alternatives	Biological	Physical Habitat	Protected Resources	Human Communities
Alternative 1 (No Action/Status Quo)	0	0	0	0
Alternative 2 (Specifications to be set for maximum number of years needed to be consistent with the Northeast Regional Coordinating Council (NRCC)-approved stock assessment schedule)	0	0	0	0 However, some administra-tive efficiencies would result.

Box ES-5. Overall qualitative summary of the expected impacts of fishing year alternatives considered in this document. A minus sign (-) signifies an expected negative impact, a plus sign (+) signifies an expected positive impact, and zero (0) is used to indicate a null impact. A "sl" in front of a sign is used to convey a minor effect, such as slight positive (sl+).

Alternatives	Biological	Physical Habitat	Protected Resources	Human Communities
Alternative 1 (No Action/Status Quo)	0	0	0	0
Alternative 2 (The golden tilefish fishing year is the 12-month period beginning with January 1, annually)	0 to sl+	0	0	0 to sl+

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

Alternatives	Year	Biological	Physical Habitat	Protected Resources	Human Communities
Alternative 1 (Preferred: SSC and MC Recommended)	**2022-2023**	TBD	TBD	TBD	TBD
Alternative 2 (TBD, for example, allowing quotas to change from year to year, e.g., varying quotas)	**2022-2023**	TBD	TBD	TBD	TBD
Alternative 3 (TBD, for example, average quotas for the 2023-2024 period)	**2022-2023**	TBD	TBD	TBD	TBD

TBD = To be determined. The results of the 2021 golden tilefish management track assessment and projections to calculate commercial quotas will be available in July 2021. Therefore, specific quota alternatives (quota values) will not be made available until the second framework meeting.

Cumulative Impacts

This section to be completed prior to the second required framework meeting.

Concussions

This section to be completed prior to the second required framework meeting.

2.0 LIST OF ACRONYMS

ABC	Acceptable Biological Catch
ACL	Annual Catch Limit
ACT	Annual Catch Target
CEQ	Council on Environmental Quality
CPUE	Catch Per Unit Effort
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EO	Executive Order
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act of 1973
F	Fishing Mortality Rate
FR	Federal Register
FMP	Fishery Management Plan
IFQ	Individual Fishing Quota
RFA	Regulatory Flexibility Act
M	Natural Mortality Rate
MAFMC	Mid-Atlantic Fishery Management Council
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistics Survey
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act (or MSA)
MSY	Maximum Sustainable Yield
mt	metric tons
NAO	NOAA Administrative Order
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	Overfishing Limit
OY	Optimal Yield
PRA	Paperwork Reduction Act
RIR	Regulatory Impact Review
RFA	Regulatory Flexibility Act
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SSB	Spawning Stock Biomass
SSC	Scientific and Statistical Committee
SFA	Sustainable Fisheries Act
TAL	Total Allowable Landings
US	United States
VEC	Valued Ecosystem Component
VPA	Virtual Population Analysis
VTR	Vessel Trip Report

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INSERT TABLES AND FIGURES

ENVIRONMENTAL ASSESSMENT

4.0 PURPOSE AND NEED FOR ACTION

The purpose of this framework is to address issues related to the administration of the golden tilefish fishery, while continuing to achieve the management objectives of the FMP. The need for this framework relates to a desire by the Council to optimize the management system for the golden tilefish fishery.

The FMP, which initiated the management for golden tilefish (*Lopholatilus chamaeleonticeps*), became effective November 1, 2001 (66 FR 49136; September 26, 2001) and included management and administrative measures to ensure effective management of the tilefish resource. Amendment 1 to the FMP implemented an Individual Fishing Quota in the directed golden tilefish fishery (74 FR 42580; August 24, 2009). It also implemented new reporting requirements and gear modifications, addressed recreational fishing issues, and reviewed the EFH components of the FMP, including implementing gear restricted areas to prevent bottom trawling in habitat areas of particular concern. Amendment 6 to the FMP incorporated blueline tilefish (*Caulolatilus microps*) as a managed species in the FMP and stablished blueline tilefish management measures, including, annual catch limit process, sector allocations, possession limits, fishing season, permitting, and reporting requirements (82 FR 52851; November 15, 2017). The management regime and objectives of the fishery are detailed in the FMP, including any subsequent amendments, and are available at: http://www.mafmc.org.

The need and purpose of this framework are summarized in Box 4.1. The full range of management issues addressed in this framework to better achieve the existing FMP management objectives, are described under the headings below.

Box 4.1. Framework #X Purpose and Need.

NEED	CORRESPONDING PURPOSE
1. Improve timing of multi-year specifications.	Implement multi-year specification measures to provide additional flexibility to the quota setting process.
2. Modify the fishing year.	Implement a fishing year that improves the administration the tilefish IFQ program, and aligns the quota setting process with stock assessment results/projections.
3. Prevent overfishing and ensure annual catch limits (ACLs) are not exceeded. Achieve maximum sustainable yield in the golden tilefish fishery.	Implement measures to specify levels of harvest and catch of golden tilefish consistent with the Magnuson-Stevens Act and the objectives of the FMP, including to prevent overfishing and set annual fishery specifications.

Multi-Year Specifications

At the October 2020 Council meeting, the Council approved a final list of recommendations in response to Executive Order (EO) 13921 (Promoting American Seafood Competitiveness and Economic Growth). The purpose of this EO is, "to strengthen the American economy; improve the competitiveness of American industry; ensure food security; provide environmentally safe and sustainable seafood; support American workers; ensure coordinated, predictable, and transparent Federal actions; and remove unnecessary regulatory burdens." Section 4 of the EO requires each Regional Fishery Management Council to submit to the Secretary of Commerce a prioritized list of recommended actions to reduce the burden on domestic fishing and to increase production within sustainable fisheries, including a proposal for initiating action by May 6, 2021. The Council approved 18 recommendations which cover a broad range of topics. For golden tilefish, the Council added a new initiative to the Council's 2021 Implementation Plan to address the objectives of the EO: "Initiate a framework to allow golden tilefish specifications to be set for more than 3 years."

Golden tilefish regulations allow multi-year annual specifications to be set for up to 3 years at a time (CFR §648.290 and 648.291). Therefore, current regulations allow, but do not obligate the Council to specify commercial quotas and other management measure for up to 3 years. Multi-year regulations have been implemented for all fisheries managed by the Mid-Atlantic Fishery Management Council (MAFMC or Council) to relieve administrative demands on the Council and NMFS imposed by annual specification requirements. Longer term specifications provide greater regulatory consistency and predictability to the fishing sectors. This action would modify the annual specifications process, so that they could be set for the maximum number of years needed to be consistent with the Northeast Region Coordinating Council (NRCC) approved stock assessment schedule. As a result, this action would provide additional flexibility as specifications could be set to cover the time period until a new golden tilefish stock assessment is produced.

Fishing Year Timing

Current regulations define the golden tilefish fishing year as the 12-month period beginning with November 1, annually (CFR §648.292). The current fishing year was initially established to correspond with the implementation date of the Fishery Management Plan (MAFMC 2000; 66 FR 49136, September 26, 2001). The final rule that initiated the Tilefish FMP became effective November 1, 2001. The Golden Tilefish Individual Fishing Quota 5-Year Review contains the following recommendation regarding changing the fishing year:

> *The golden tilefish fishing year, under which IFQ [Individual Fishing Quota] allocation usage is monitored, extends from November 1 – October 31 of the following year. However, costs are recovered in the Golden Tilefish IFQ fishery on a calendar-year basis. This discrepancy has, at times, caused some difficulties in the administration of the cost recovery program, as the cost recovery year traverses two fishing years, and vice versa. To ease the administration of the cost recovery in the*

Golden Tilefish IFQ fishery, unifying the allocation usage monitoring and the cost recovery time periods to a single 12-month period should be considered. The calendar year is strongly recommended as this is also the time period upon which stock assessments are based. Changing the golden tilefish fishing year could potentially decrease administrative costs recovered from the industry.

Furthermore, industry members have indicated that ending the fishing year in December, rather than October, will create more stability in harvesting their full allocation. October can be a very stormy, and unpredictable month with fish on the move in response to weather conditions.

Fishery Specifications (Catch, Landings Limits, and Quotas)

In addition to the two process related issues described above, this framework will set specifications for the 2023 and 2024 fishing seasons. The Council implemented interim specifications for 2022 due to the recently NRCC-approved new stock assessment process (MAFMC 2020). More specifically, under the new NRCC assessment schedule, the next management track assessment update for golden tilefish is currently scheduled for 2021. Therefore, in 2020, the Council specified management measures for 2021 and 2022 because of potential timing constraints with the 2021 management track assessment. If a peer review is needed for the 2021 management track assessment (peer review scheduled for June 2021), the Council will likely have to take final action in August of 2021. This may not provide adequate administrative time to have specifications in place for the 2022 fishing year which starts November 1, 2021. The 2021 management track assessment would then be used to revise the interim 2022 specifications and set specifications for the 2023 and 2024 fishing seasons. The Council approved catch and landings limits for 2021 are shown in Table 1. The Council adopted *status quo* catch and landings limits for 2021. Following approval of the proposed 2021-2022 specifications, the Council approved a motion to request NMFS take emergency action. The Council approved the following motion:

Move that given the COVID-19 national emergency, to request the service to consider an emergency action to allow a 5% rollover of unused IFQ 2020 quota allocation for the golden tilefish fishing year November 1, 2020 thru October 31, 2021.

NMFS has interpreted this request to mean each IFQ quota shareholder could carry over up to 5% of their unused, initial 2020 IFQ quota pounds into 2021. To assess the maximum potential impact, the full 5% of the 2020 IFQ TAL (total allowable landings) is assumed to be carried over into 2021. This would result in a maximum potential IFQ TAL for 2021 of 1.631 million pounds (740 mt). However, it is expected that actual carryover would end up being less than this full amount as not all quota shareholders will carryover the full 5% allowance. Even if the overall IFQ landings are more than 5% below the TAL some quota shareholders may harvest more than 95% of their initial quota pounds and would not be eligible for the full 5% carryover, while those that harvested less than 95% of their 2020 quota pounds would be limited to only 5% carryover.

Typically, the Council uses specifications packages to implement commercial quotas and other management measures that are necessary to prevent overfishing and ensure annual catch limits (ACLs) are not exceeded. However, due to the development of the framework document to address the multi-year annual specifications process and fishing year issues described above, this framework document will also address annual specifications to make revisions more efficient. To facilitate the transition from the current fishing year (November 1 to October 31) to January 1 to December 31, the Council will have to revise the 2022 (interim) regulations (starting on November 1, 2021 and ending on October 31, 2022). More specifically, the Council will have to set 2022 specifications from November 1, 2021 to December 31, 2022. This is a one-time only adjustment to bridge the gap as a result of the change to the current fishing year. Then, for 2023 and 2024, the Council would implement specifications starting on January 1 and ending in December 31.

The 2021 golden tilefish management track assessment results and stock projections to calculate commercial quotas will be available in July 2021. Therefore, specific quota alternatives (quota values) will not be made available until the second framework meeting.

Table 1. Current (2021) catch and landings limits compared to the proposed 2022 (interim) specifications.

Specifications	2021 (Current)*	2021 IFQ TAL w/ Max Carryover**	2022 (interim)	Basis
ABC	1.636 m lb (742 mt)	–	1.636 m lb (742 mt)	SSC recommendation, based on data update, recent fishing trends, and scheduled 2021 management track assessment update that will be used to revise 2022 interim specifications
ACL	1.636 m lb (742 mt)	–	1.636 m lb (742 mt)	ABC = ACL
Management Uncertainty	0	–	0	Derived by Monitoring Committee (MC)
IFQ ACT	1.554 m lb (705 mt)	–	1.554 m lb (705 mt)	95% ACL
Incidental ACT	0.082 m lb (37 mt)	–	0.082 m lb (37 mt)	5% ACL
IFQ Discards	0	–	0	Discards in the IFQ fishery are prohibited
Incidental Discards	0.011 m lb (5 mt)	–	0.011 m lb (5 mt)	Avg. discard (2015-2019) mostly sm/lg mesh OT and Gillnet gear. NEFSC
IFQ TAL	1.554 m lb (705 mt)	1.631 m lb (740 mt)	1.554 m lb (705 mt)	IFQ ACT - IFQ Discards
Incidental TAL	0.070 m lb (32 mt)	–	0.070 m lb (32 mt)	Incidental ACT - Incidental Discards

*SSC recommendations are made in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds (M lb) the numbers may change due to rounding. The conversion factor used is 1 mt = 2,204.6226 pounds. **Only the IFQ TAL would be affected by the requested emergency carryover. All other specifications would remain at proposed 2021 values.

[Describe SSC/MC recommendations/actions – This section to be completed prior to the second required framework meeting.]

This Environmental Assessment (EA) examines the impacts of each proposed action on the human environment. The aspects of the human environment that are likely to be directly or indirectly affected by the actions proposed in this document are described as *valued ecosystem components* (VECs; Beanlands and Duinker 1984). These VECs comprise the affected environment and are specifically defined as the managed resources (golden tilefish) and any non-target species; physical habitat, including EFH for the managed resource and non-target species; Endangered Species Act (ESA) listed and Marine Mammal Protection Act (MMPA) protected species; and any human communities (social and economic aspects of the environment). The impacts of the alternatives are evaluated with respect to these VECs.

A full description of each alternative and a discussion of a no action/*status quo* alternative are given in section 5.0. The Council-preferred alternatives has not yet been specified.

4.1 Management Objectives

The overall goal of the FMP is to rebuild tilefish so that the optimum yield can be obtained from this resource. To meet the overall goal, the following objectives are adopted:

1. Prevent overfishing and rebuild the resource to the biomass that would support MSY.
2. Prevent overcapitalization and limit new entrants.
3. Identify and describe essential tilefish habitat.
4. Collect necessary data to develop, monitor, and assess biological, economic, and social impacts of management measures designed to prevent overfishing and to reduce bycatch of tilefish in all fisheries.

5.0 MANAGEMENT ALTERNATIVES

5.1 Multi-Year Specifications

5.1.1 Alternative 1: No action/*Status Quo*

Under this no action alternative, there would be no changes to the process to set golden tilefish annual specifications for up to 3 years.

5.1.2 Alternative 2: Specifications to be set for maximum number of years needed to be consistent with the Northeast Regional Coordinating Council (NRCC)-approved stock assessment schedule

Under this alternative, annual specifications could be set for the maximum number of years needed to be consistent with the NRCC-approved stock assessment schedule.[2] This alternative would provide additional flexibility as specifications could be set to cover the time period until a new golden tilefish stock assessment is produced. New specifications of annual catch and landings limits(or other annual specifications measures) would be prepared in the final year of the quota period unless there is a need for interim quota modifications. Council staff would coordinate with Northeast Fisheries Science Center (NEFSC) staff, during the first quarter of each year (during the multi-year specifications period) to assess whether there is any relevant information regarding these fisheries that need to be addressed or used to produce interim quota modifications. The results would be provided to the Council in a memorandum. In the year in which a multi-year annual specifications expire, Council staff would produce a fishery information document and specification recommendation memorandum (as is done for all the Council managed FMPs) to provide to the SSC and the Council. None of the other existing catch and landings limits requirements, accountability measures, reporting requirements or ITQ system management procedures will change under alternative 2.

5.2. Fishing Year Timing

5.2.1 Alternative 1: No Action/*Status Quo*

Under this alternative, the fishing year requirements as established in the Tilefish FMP would continue to apply. Current regulations define the golden tilefish fishing year as the 12-month period beginning with November 1, annually (November 1 – October 31).

[2] For example, under the current schedule, management track assessments are scheduled every 3 years. However, as fishery independent data becomes available and/or stock assessment modeling improves, future management track assessments could be conducted every four years or so.

5.2.1 Alternative 2: The Golden Tilefish Fishing Year is the 12-Month Period Beginning With January 1, Annually

Under this alternative, the golden tilefish fishing year is the twelve (12) month period beginning January 1, annually. Therefore, the fishing year is from January 1 – December 31.

5.3 2023-2024 Fishery Specifications (Catch and Landings Limits)

This section to be completed prior to the second required framework meeting.

[Introductory text and Table(s) with catch and landings limits derivations (OFL, ABC, ACL, ACT, IFQ quota, incidental quota, etc.)].

5.3.1 Alternative 1: No Action/*Status Quo*

Alternative 1 would implement the same catch and landings levels implemented by the Council for the 2022 fishing year for the upcoming fishing years 2023 and 2024. More specifically, the Council adopted an ABC of 1.636 million pounds (742 mt). The Council also adopted the ABC = ACL. After considering relevant sources of management uncertainty, 5 percent of the annual catch target (ACT) was allocated to the incidental sector of the fishery and the remaining 95 percent to the individual fishing quota (IFQ) sector. After removing projected incidental discards, the resulting IFQ total allowable landings (TAL) was 1.554 million pounds (705 mt) and the resulting incidental TAL was 0.070 million pounds (32 mt).

5.3.2 Alternative 2: To Be Determined (for example, allowing quotas to change from year to year)

Note: The results of the 2021 golden tilefish management track assessment and projections to calculate commercial quotas will be available in July 2021. Therefore, specific quota alternatives (quota values) will not be made available until the second framework meeting.

5.3.3 Alternative 3: To Be Determined (for example, average quotas for the 2023-2024 period)

Note: The results of the 2021 golden tilefish management track assessment and projections to calculate commercial quotas will be available in July 2021. Therefore, specific quota alternatives (quota values) will not be made available until the second framework meeting.

6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES

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 VECs.

The VECs include:

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

The following sections describe the recent condition of the VECs.

6.1 Description of the Managed Resource and Non-Target Species

6.1.1 Description of the Fisheries

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

6.1.1.1 Basic Biology

Golden tilefish are found along the outer continental shelf and slope from Nova Scotia, Canada to Surinam on the northern coast of South America (Dooley 1978 and Markle et al. 1980) in depths of 250 to 1500 feet. In the southern New England/mid-Atlantic area, tilefish generally occur at depths of 250 to 1200 feet and at temperatures from 48°F to 62°F or 8.9°C to 16.7°C (Nelson and Carpenter 1968; Low et al. 1983; Grimes et al. 1986).

Tilefish are shelter seeking and perhaps habitat limited. There are indications that at least some of the population is relatively nonmigratory (Turner 1986). Warme et al. (1977) first reported that tilefish occupied excavations in submarine canyon walls along with a variety of other fishes and invertebrates, and they referred to these areas as "pueblo villages." Valentine et al. (1980) described tilefish use of scour depressions around boulders for shelter. Able et al. (1982) observed tilefish use of vertical burrows in Pleistocene clay substrates in the Hudson Canyon area, and Grimes et al. (1986) found vertical burrows to be the predominant type of shelter used by tilefish in the mid-Atlantic/southern New England region. Able et al. (1982) suggested that sediment type might control the distribution and abundance of the species, and the longline fishery for tilefish in the Hudson Canyon area is primarily restricted to areas with Pleistocene clay substrate (Turner 1986).

Males achieve larger sizes than females, but do not live as long (Turner 1986). The largest male reported by Turner was 44.1 inches at 20 years old, and the largest female was 39 years at 40.2 inches FL (fork length). The oldest fish was a 46-year old female of 33.5 inches, while the oldest male was 41.3 inches and 29 years.

Nothing is known about the diets and feeding habits of tilefish larvae, but they probably prey on zooplankton. The examination of stomach and intestinal contents by various investigators reveal that tilefish feed on a great variety of food items (Collins 1884, Linton 1901a,b, and Bigelow and Schroeder 1953). Among those items identified by Linton (1901a,b) were several species of crabs, mollusks, annelid worms, polychaetes, sea cucumbers, anemones, tunicates, and fish bones. Bigelow and Schroeder (1953) identified shrimp, sea urchins and several species of fishes in tilefish stomachs. Freeman and Turner (1977) reported examining nearly 150 tilefish ranging in length from 11.5 to 41.5 inches. Crustaceans were the principal food items of tilefish with squat lobster (*Munida*) and spider crabs (*Euprognatha*) the most important crustaceans. The authors report that crustaceans were the most important food item regardless of the size of tilefish, but that small tilefish fed more on mollusks and echinoderms than larger tilefish. Tilefish burrows provide habitat for numerous other species of fish and invertebrates (Able et al. 1982 and Grimes et al. 1986) and in this respect, they are similar to "pueblo villages" (Warme et al. 1977).

Able et al. (1982) and Grimes et al. (1986) concluded that a primary function of tilefish burrows was predator avoidance. The NEFSC database only notes goosefish as a predator. While tilefish are sometimes preyed upon by spiny dogfish and conger eels, by far the most important predator of tilefish is other tilefish (Freeman and Turner 1977). It is also probable that large bottom-dwelling sharks of the genus *Carcharhinus*, especially the dusky and sandbar, prey upon free swimming tilefish.

6.1.1.2 Commercial and Recreational Fishing Trends

For the 1970 to 2020 calendar years, golden tilefish landings have ranged from 128 thousand pounds live weight (1970) to 8.7 million pounds (1979). For the 2001 to 2020 period, golden tilefish landings have averaged 1.8 million pounds live weight, ranging from 1.1 (2016) to 2.5 (2004) million pounds. In 2020, commercial golden tilefish landings were 1.4 million pounds live weight (Figure 3).

The principal measure used to manage golden tilefish is monitoring via dealer weighout data that is submitted weekly to the Greater Atlantic Regional Fisheries Office (GARFO). The directed fishery is managed via an IFQ program. If a permanent IFQ allocation is exceeded, including any overage that results from golden tilefish landed by a lessee in excess of the lease amount, the permanent allocation will be reduced by the amount of the overage in the subsequent fishing year. If a permanent IFQ allocation overage is not deducted from the appropriate allocation before the IFQ allocation permit is issued for the subsequent fishing year, a revised IFQ allocation permit reflecting the deduction of the overage will be issued. If the allocation cannot be reduced in the subsequent fishing year because the full allocation had already been landed or transferred, the IFQ allocation permit would indicate a reduced allocation for the amount of the overage in the next fishing year.

The commercial/incidental trip limit (for vessels that possess a Commercial/Incidental Tilefish Permit without an IFQ Allocation Permit) is 500 pounds or 50 percent, by weight, of all fish (including the golden tilefish) onboard the vessel, whichever is less. If the incidental harvest exceeds 5 percent of the TAL for a given fishing year, the incidental trip limit of 500 pounds may be reduced in the following fishing year.

Table 2 summarizes the golden tilefish management measures for the 2005-2022 fishing years. Commercial golden tilefish landings have been below the commercial quota specified each year since the Tilefish FMP was first implemented except for fishing years 2003-2004 (not shown in Table 2), and 2010. In 2003 and 2004, the commercial quota was exceeded by 0.3 (16 percent) and 0.6 (31 percent) million pounds, respectively.[3] In 2019 and 2020, 1.4 million pounds (96 percent of the quota) and 1.6 million pounds (86 percent of the quota) of golden tilefish were landed, respectively.

A small recreational fishery briefly occurred during the mid-1970's, with less than 100,000 pounds landed annually (MAFMC 2001). Subsequent recreational catches have been low for the 1982 - 2020 period, ranging from zero for most years to approximately 213,000 fish in 2010 according to NMFS recreational statistics. In 2019, approximately 11,000 fish were landed. No landings were reported in 2020. In addition, the 2016 golden tilefish stock assessment update indicates that recreational catches appear to be a minor component of the total removals (Nitschke 2017).

VTR data indicates that the number of golden tilefish kept by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 8,297 fish in 2015. Mean party/charter effort ranged from less than one fish per angler in 1999 throughout 2002 and 2005 to approximately eight fish per angler in 1998, averaging 2.8 fish for the 1996-2020 period.

To improve tilefish management and reporting, GARFO implemented mandatory private recreational permitting and reporting for tilefish anglers in August 2020. This action was approved in late 2017, but with delayed implementation. Outreach materials and webinars were provided by GARFO and the Council leading up to the final rule and will continue to be circulated as these regulations become commonplace.

Under this rule, private recreational vessels (including for-hire operators using their vessels for non-charter, recreational trips) are required to obtain a federal vessel permit to target or retain golden or blueline tilefish north of the Virginia/North Carolina border. These vessel operators would also be required to submit VTRs electronically within 24 hours of returning to port for trips where tilefish were targeted or retained. This permit allows recreational anglers to land both golden and blueline tilefish. For the 2020 fishing year (August – December), 50 fish were reported landed on 4 private recreational trips (with 5 fish discarded). The low landings associated with private anglers may be attributed to the

[3] As a result of the decision of the Hadaja v. Evans lawsuit, the permitting and reporting requirements for the FMP were postponed for close to a year (May 15, 2003 through May 31, 2004). During that time period, it was not mandatory for permitted golden tilefish vessels to report their landings. In addition, during that time period, vessels that were not part of the golden tilefish limited entry program also landed golden tilefish.

short fishing season (as a result of when implementation occurred), this being the first-time recreational anglers are required to report.

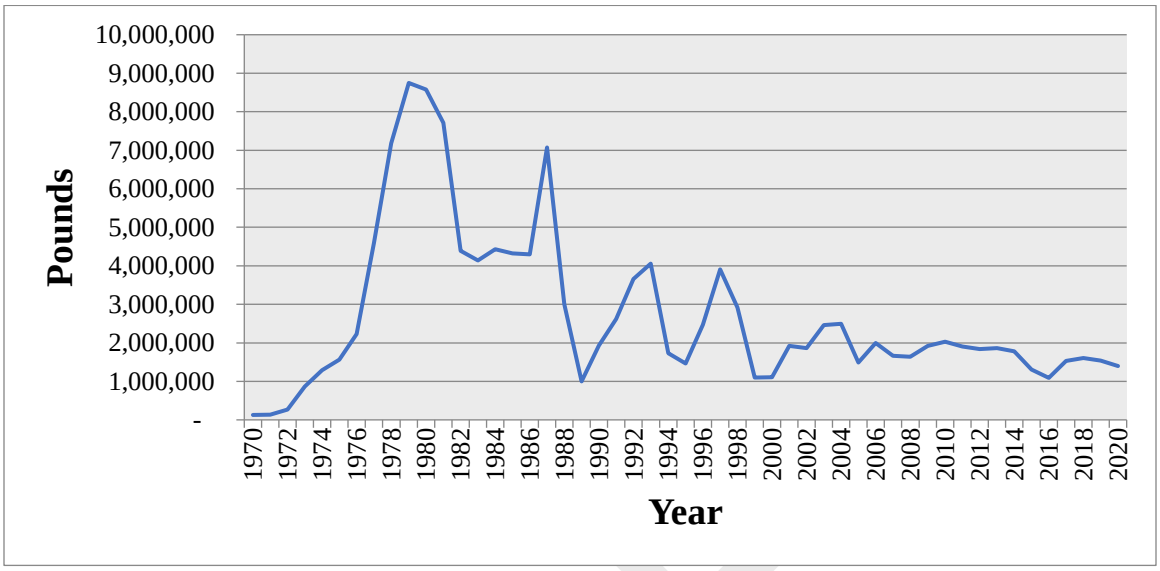

Figure 1. Commercial U.S. Golden Tilefish Landings (live weight) from Maine-Virginia, 1970-2020 (calendar year). Source: 1970-1993 Tilefish FMP. 1994-2020 NMFS unpublished dealer data.

Table 2. Summary of management measures and landings for fishing year 2005-2022.[a]

Management Measures	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ABC (m lb)	-	-	-	-	-	-	-	-	2.013	2.013	1.766	1.898	1.898	1.636	1.636	1.636	1.636	1.636
TAL (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.626	1.626	1.626	1.625	1.625
Com. quota- (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.626	1.626	1.626	1.625/ 1.701*	1.625
Com. landings	1.497	1.898	1.777	1.672	1.887	1.997	1.946	1.856	1.839	1.830	1.354	1.060	1.487	1.626	1.563	1.403	-	-
Com. Overage / underage (m lb)	-0.498	-0.097	-0.218	-0.323	-0.108	+0.002	-0.049	-0.139	-0.156	-0.165	-0.401	-0.827	-0.401	<-0.001	-0.064	-0.223	-	-
Incidental trip limit (lb)	133	300	300	300	300	300	300	500	500	500	500	500	500	500	500	500	500	500
Rec. possession limit	-	-	-	-	-	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]

[a] Fishing year 2005 (November 1, 2004 – October 31, 2005). [b] Eight fish per person per trip. *The Council requested for emergency action to allow unharvested 2020 IFQ pounds to be carried over into the 2021 fishing year, up to 5 percent of the quota shareholders initial 2020 allocation.

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

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

Biological Reference Points

The biological reference points for golden tilefish were updated during the 2017 stock assessment update (Nitschke 2017), as a result of a change to the recruitment penalty used in the assessment model (i.e., likelihood constant turned off).[4] The fishing mortality threshold for golden tilefish is $F_{38\%}$ (as $F_{MSY\ proxy}$) = 0.310, and $SSB_{38\%}$ ($SSB_{MSY\ proxy}$) is 21 million pounds (9,492 mt).

Stock Status

The last full assessment update 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 ($SSB_{MSY\ proxy}$).

6.1.3 Non-Target Species

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

According to VTR data, very little (0.03%) discarding was reported by longline vessels that targeted tilefish for the 2016 through 2020 period (Table 3). In addition, the 2017 stock assessment indicates that "most of the commercial landings are taken by the directed longline fishery," and that tilefish discards in the trawl and longline fishery are negligible (Nitschke 2017).

Status of Non-Target Species

In this section, the status of the more frequently encountered non-target species that are managed, those that account for 0.1 percent or more of the total catch in the golden tilefish trips, are described here (Table 3).

[4] Incorporation of likelihood constants into the objective function can cause biases in assessment models. This bias can result in reductions in the estimated recruitment and biomass. For additional details see: Nitschke, P. 2017. Golden Tilefish, *Lopholatilus chamaeleonticeps*, stock assessment update through 2016 in the Middle Atlantic-Southern New England Region. NMFS/NEFSC, Woods Hole, MA. Available at http://www.mafmc.org/council-events/2017/march-2017-ssc-meeting

Based on the spiny dogfish current biomass reference points and an assessment update considering data through spring of 2018,[5] the stock is not overfished or experiencing overfishing. A benchmark assessment for spiny dogfish is scheduled for 2022. The most recent stock assessment report for smooth dogfish (SEDAR 39)[6] conducted in 2015 indicates that the stock is not overfished and not subject to overfishing. The most recent benchmark assessment for blueline tilefish was SEDAR 50 (SEDAR 2017).[7] Genetic work conducted for SEDAR 50 suggests a genetically homogenous population off the entire Atlantic coast yet does not suggest what catch may be appropriate off various parts of the coast. In SEDAR 50, the blueline tilefish stock was split in two, north and south of Cape Hatteras to allow each Council (Mid and South Atlantic) to set their own specifications. The stock south of Cape Hatteras was determined to be not overfished with overfishing not occurring. The assessment did not provide stock status information relevant to the Mid-Atlantic management area due to insufficient data. The other species listed that constitute more than 0.1 percent of the total catch in Table 3 (e.g., conger eel) has not been assessed; therefore, their overfished and overfishing status is unknown.

[5] Available here (2018 Spiny Dogfish Assessment Update).
[6] Available here (SEDAR 39).
[7] Available here (SEDAR 50).

Table 3. Catch disposition for directed tilefish trips[a], Maine through Virginia, 2016-2020 combined.

Common Name	Kept lb	% species	% total	Discarded lb	% species	% total	Total lb	Disc: Kept Ratio
GOLDEN TILEFISH	5,627,411	100.00%	94.90%	0	0.00%	0.00%	5,627,411	0.00
SPINY DOGFISH	223,676	100.00%	3.77%	0	0.00%	0.00%	223,676	0.00
DOGFISH SMOOTH	30,292	97.43%	0.51%	800	2.57%	40.77%	31,092	0.03
BLUELINE TILEFISH	16,074	100.00%	0.27%	0	0.00%	0.00%	16,074	0.00
CONGER EEL	14,274	96.62%	0.24%	500	3.38%	25.48%	14,774	0.04
YELLOWFIN TUNA	4,480	99.01%	0.08%	45	0.99%	2.29%	4,525	0.01
DOLPHIN FISH	3,639	98.64%	0.06%	50	1.36%	2.55%	3,689	0.01
BLACK BELLIED ROSEFISH	2,293	99.91%	0.04%	2	0.09%	0.10%	2,295	0.00
SILVER HAKE (WHITING)	1,452	100.00%	0.02%	0	0.00%	0.00%	1,452	0.00
WRECKFISH	896	100.00%	0.02%	0	0.00%	0.00%	896	0.00
BIG EYE TUNA	814	100.00%	0.01%	0	0.00%	0.00%	814	0.00
BARRELFISH	699	100.00%	0.01%	0	0.00%	0.00%	699	0.00
RED HAKE	666	57.12%	0.01%	500	42.88%	25.48%	1,166	0.75
MAKO SHORTFIN SHARK	561	100.00%	0.01%	0	0.00%	0.00%	561	0.00
SAND TILEFISH	506	100.00%	0.01%	0	0.00%	0.00%	506	0.00
ANGLER	429	100.00%	0.01%	0	0.00%	0.00%	429	0.00
SKATES OTHER	378	100.00%	0.01%	0	0.00%	0.00%	378	0.00
BLUEFIN TUNA	251	100.00%	0.00%	0	0.00%	0.00%	251	0.00
BLUEFISH	232	100.00%	0.00%	0	0.00%	0.00%	232	0.00
MAKO SHARK	166	100.00%	0.00%	0	0.00%	0.00%	166	0.00
WHITE HAKE	146	100.00%	0.00%	0	0.00%	0.00%	146	0.00
BLACK SEA BASS	128	100.00%	0.00%	0	0.00%	0.00%	128	0.00
ALBACORE TUNA	110	100.00%	0.00%	0	0.00%	0.00%	110	0.00
SWORDFISH	102	100.00%	0.00%	0	0.00%	0.00%	102	0.00
BLACKFIN TUNA	92	100.00%	0.00%	0	0.00%	0.00%	92	0.00

Table 3 (continued). Catch disposition for directed tilefish trips[a], Maine through Virginia, 2016-2020 combined.

Common Name	Kept lb	% species	% total	Discarded lb	% species	% total	Total lb	Disc: Kept Ratio
SUMMER FLOUNDER	50	100.00%	0.00%	0	0.00%	0.00%	50	0.00
BLACK TIP SHARK	50	100.00%	0.00%	0	0.00%	0.00%	50	0.00
SKIPJACK TUNA	24	100.00%	0.00%	0	0.00%	0.00%	24	0.00
TRIGGERFISH	20	100.00%	0.00%	0	0.00%	0.00%	20	0.00
FISH OTHER	17	100.00%	0.00%	0	0.00%	0.00%	17	0.00
WEAKFISH SQUETEAGUE	16	100.00%	0.00%	0	0.00%	0.00%	16	0.00
HAGFISH	5	100.00%	0.00%	0	0.00%	0.00%	5	0.00
POLLOCK	0	0.00%	0.00%	65	100.00%	3.31%	65	--
ALL SPECIES	5,929,949	99.97%	100.00%	1,962	0.03%	100.00%	5,931,911	0.00

[a] Directed trips for tilefish were defined as trips comprising 75 percent or more by weight of tilefish landed.
Number of trips = 491.

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 the physical habitat 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

Golden tilefish inhabit the Northeast U.S. Shelf Ecosystem, which has been described as including the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. The northeast shelf ecosystem includes the Gulf of Maine, Georges Bank, the Mid-Atlantic Bight, and the continental slope.

The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with a patchwork of various sediment types.

Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and strong currents.

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

The continental slope begins at the continental shelf break and continues eastward with increasing depth until it becomes the continental rise. It is homogenous, with exceptions at the shelf break, some of the canyons, the Hudson Shelf Valley, and in areas of glacially rafted hard bottom. The continental shelf in this region was shaped largely by sea level fluctuations caused by past ice ages. The shelf's basic morphology and sediments derive from the retreat of the last ice sheet and the subsequent rise in sea level. Currents and waves have since modified this basic structure.

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 (2-4 in/s) at the surface and 2 cm/s (1 in/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 (8 in/s) that increases to 100 cm/s (39 in/s) near inlets.

The shelf slopes gently from shore out to between 100 and 200 km (62 and 124 miles) offshore where it transforms to the slope (100-200 m water depth or 328-656 ft) 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 (33 ft) into the shelf; however, the Hudson Shelf Valley is about 35 m (115 ft) 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 (33 ft), lengths of 10-50 km (6-31 miles) and spacing of 2 km (1 mile). 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 (7 ft), lengths of 50-100 m (164-328 ft) and 1-2 km (0.6-1 mile) 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 percent 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 (20-39 in) 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 (0.4-59 in) 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 (0-33 ft) 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 percent fine on the slope. On the slope, silty sand, silt, and clay predominate (Stevenson et al. 2004).

Greene et al. (2010) identified and described Ecological Marine Units (EMUs) in New England and the Mid-Atlantic based on sediment type, seabed form (a combination of slope and relative depth), and benthic organisms. According to this classification scheme, the sediment composition off New England and the Mid-Atlantic is about 68 percent sand, 26 percent gravel, and 6 percent silt/mud. The seafloor is classified as about 52 percent flat, 26 percent depression, 19 percent slope, and 3 percent steep (Table 4).

Artificial reefs are another significant Mid-Atlantic habitat. These localized areas of hard structure were formed by shipwrecks, lost cargoes, disposed solid materials, shoreline jetties and groins, submerged pipelines, cables, and other materials (Steimle and Zetlin 2000). While some of these materials were deposited specifically for use as fish habitat, most have an alternative primary purpose; however, they have all become an integral part of the coastal and shelf ecosystem. In general, reefs are important for attachment sites, shelter, and food for many species, and fish predators such as tunas may be attracted by prey aggregations or may be behaviorally attracted to the reef structure.

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).

Table 4. Composition of EMUs off New England and the Mid-Atlantic (Greene et al. 2010). EMUs which account for less than 1% of the surface area of these regions are not shown.

Ecological Marine Unit	Percent Coverage
High Flat Sand	13%
Moderate Flat Sand	10%
High Flat Gravel	8%
Side Slope Sand	6%
Somewhat Deep Flat Sand	5%
Low Slope Sand	5%
Moderate Depression Sand	4%
Very Shallow Flat Sand	4%
Side Slope Silt/Mud	4%
Moderate Flat Gravel	4%
Deeper Depression Sand	4%
Shallow Depression Sand	3%
Very Shallow Depression Sand	3%
Deeper Depression Gravel	3%
Shallow Flat Sand	3%
Steep Sand	3%
Side Slope Gravel	3%
High Flat Silt/Mud	2%
Shallow Depression Gravel	2%
Low Slope Gravel	2%
Moderate Depression Gravel	2%
Somewhat Deep Depression Sand	2%
Deeper Flat Sand	1%
Shallow Flat Gravel	1%
Deep Depression Gravel	1%
Deepest Depression Sand	1%
Very Shallow Depression Gravel	1%

6.2.2 Essential Fish Habitat (EFH)

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

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

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

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

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

Tilefish are primarily caught by bottom longline and otter trawl. Based on dealer data from 2016-2020, the bulk of the tilefish landings are taken by longline gear (97%) followed by bottom trawl gear (2%). No other gear had any significant commercial landings. Minimal catches were also recorded for hand line, gillnets, dredge (other), and pot/traps (Table 5).

Table 5. Golden tilefish commercial landings ('000 pounds live weight) by gear, Maine through Virginia, 2016-2020 (calendar year).

Gear	Pounds	Percent
Otter Trawl Bottom, Fish	126	1.8
Otter Trawl Bottom, Other	5	*
Gillnet, Anchored/Sink/Other	8	*
Lines, Hand	26	*
Lines, Long Set with Hooks	6,950	97.1
Pot & Trap	1	*
Dredge, other	6	*
Unknown, Other Combined Gears	38	*
All Gear	7,159	100.0

Note: * = less than 1,000 pounds or less than 1 percent. Source: NMFS unpublished dealer data.

There are other federally-managed species with life stages that occupy essential benthic habitats that may be susceptible to adverse impacts from otter trawl gear; those can be found in Appendix A as well as the NOAA Fisheries EFH Mapper, which is available at: https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper.

6.2.3 Fishery Impact Considerations

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

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

Golden tilefish are restricted to the continental shelf break south of the Gulf of Maine (Steimle et al. 1999). They occupy a number of habitats, including scour basins around rocks or other rough bottom areas that form burrow-like cavities, and pueblo habitats in clay substrate. The dominant habitat type is a vertical burrow in a substrate of semi-hard silt-clay, 6 to 10 feet deep and 12 to 16 feet in diameter with a funnel shape. These burrows are excavated by golden tilefish, secondary burrows are created by other organisms, including lobsters, conger eels, and galatheid crabs. Golden tilefish are visual daytime feeders on galatheid crabs, mollusks, shrimps, polychaetes, and occasionally fish. Mollusks and echinoderms are more important to smaller tilefish. Little is known about juveniles of this species. A report to the Mid-Atlantic Fishery Management Council (Able and Muzeni 2002), based upon a review of archived video surveys in areas of golden tilefish habitat, did not find visual evidence of direct impacts to burrows due to otter trawls. The Northeast Region EFH Steering Committee Workshop (NEFSC 2002) concluded that there was the potential for a high degree of impact to the physical structure of hard clay outcroppings (pueblo village habitat) by trawls that would result in permanent change to a major physical feature which provides shelter for 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 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, Veacth, and Norfolk canyons.[8] The gear

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

restricted areas in these four canyons were chosen to providing protection to areas that are known to have clay outcrop/pueblo habitats.

6.3 ESA-Listed Species and MMPA Protected Species

6.3.1 Species in the Fisheries Environment

There are numerous species inhabiting the environment, within the management unit of tilefish, that are afforded protection under the Endangered Species Act (ESA) of 1973 (i.e., for those designated as threatened or endangered) and the Marine Mammal Protection Act of 1972 (MMPA). Table 6 provides species listed as threatened or endangered under the ESA, as well as one candidate species, that occur within the management unit for golden tilefish. More detailed description of the species listed in Table 6, including their environment, ecological relationships and life history information including recent stock status, is available at http://www.greateratlantic.fisheries.noaa.gov/Protected/ and http://www.nmfs.noaa.gov/pr/sars/region.htm.

Cusk, a NMFS "candidate species" under the ESA, occurs in the affected environment of the golden tilefish fishery. Candidate species are those petitioned species that NMFS is actively considering for listing as endangered or threatened under the ESA and also include those species for which NMFS has initiated an ESA status review through an announcement in the *Federal Register*. The conference provisions of the ESA apply once a species is proposed for listing (see 50 CFR 402.10); however, candidate species receive no substantive or procedural protection under the ESA. As a result, this species will not be discussed further in this section. For additional information on cusk and proactive conservation efforts being initiated for the species: http://www.nero.noaa.gov/prot_res/CandidateSpeciesProgram/CuskSOC.html.

Table 6. Species Protected Under the ESA and/or MMPA that May Occur in the Affected Environment of the Golden Tilefish Fishery.

Species	Status	Potentially affected by this action?
Cetaceans		
North Atlantic right whale (*Eubalaena glacialis*)	Endangered	Yes
Humpback whale (*Megaptera novaeangliae*)[1]	Protected (MMPA)	Yes
Fin whale (*Balaenoptera physalus*)	Endangered	Yes
Sei whale (*Balaenoptera borealis*)	Endangered	No
Blue whale (*Balaenoptera musculus*)	Endangered	No
Sperm whale (*Physeter macrocephalus*	Endangered	No
Pygmy sperm whale (Kogia breviceps)	Protected (MMPA)	No
Dwarf sperm whale (Kogia sima)	Protected (MMPA)	No
Minke whale (*Balaenoptera acutorostrata*)	Protected (MMPA)	Yes
Pilot whale (*Globicephala spp*.)[2]	Protected (MMPA)	No
Risso's dolphin (*Grampus griseus*)	Protected (MMPA)	No
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected (MMPA)	No

Species	Status	Potentially affected by this action?
Short Beaked Common dolphin (*Delphinus delphis*)[3]	Protected (MMPA)	No
Atlantic Spotted dolphin (*Stenella frontalis*)	Protected (MMPA)	No
Striped dolphin (Stenella coeruleoalba)	Protected (MMPA)	No
Beaked whales (Ziphius and Mesoplodon spp)[4]	Protected (MMPA)	No
Bottlenose dolphin (*Tursiops truncatus*)[5]	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[6]	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
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		
Northwest Atlantic DPS of Loggerhead Sea Turtle	ESA-listed	No
North Atlantic right whale[7]	ESA-listed	No

Notes:

[1] On September 8, 2016, a final rule was issued revising the ESA listing status of humpback whales (81 FR 62259). Fourteen DPSs were designated: one as threatened, four as endangered, and nine as not warranting listing. The DPS found in U.S. Atlantic waters, the West Indies DPS, is delisted under the ESA; however, this DPS is still protected under the MMPA.

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

4 There are multiple species of beaked whales in the Northwest Atlantic. They include the cuvier's (*Ziphius cavirostris*), blainville's (*Mesoplodon densirostris*), gervais' (*Mesoplodon europaeus*), sowerbys' (*Mesoplodon bidens*), and trues' (*Mesoplodon mirus*) beaked whales. Species of Mesoplodon; however, are difficult to identify at sea, and therefore, much of the available characterization for beaked whales is to the genus level only.

[5] This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins.

Species	Status	Potentially affected by this action?

[6] On April 6, 2016, a final rule was issued removing the current range-wide listing of green sea turtles and, in its place, listing eight green sea turtle DPSs as threatened and three DPSs as endangered (81 FR 20057). The green sea turtle DPS located in the Northwest Atlantic is the North Atlantic DPS of green sea turtles; this DPS is considered threatened under the ESA.
[7] Originally designated June 3, 1994 (59 FR 28805); Expanded on January 27, 2016 (81 FR 4837).

6.3.2 Commercial Fisheries and Protected Species Interactions

The golden tilefish commercial fishery is prosecuted primarily with bottom longline gear. As provided in Table 6, species of large whales, dolphins, sea turtles, and Atlantic sturgeon have the potential to be affected by the operation of the golden tilefish fishery. The List of Fisheries (LOF) classifies U.S. commercial fisheries into Categories according to the level of interactions that result in incidental mortality or serious injury of marine mammals. There are no documented interactions with ESA-listed and MMPA protected species with bottom longline gear in the tilefish fishery. Below, information is provided on the risk of these species interacting with bottom longline gear.

Large Whales, Bottlenose Dolphins, and Atlantic sturgeon

Based on information provided by Waring et al. (2014), Waring et al. (2015), Waring et al. (2016), Hayes et al. (2017), NMFS NEFSC FSB (2015), NMFS NEFSC FSB (2016), the MMPA List of Fisheries (82 FR 3655; January 12, 2017) and information provided on the Northeast Fisheries Observer Program website (http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html), 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.

Sea Turtles

Sea turtles are vulnerable to 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)[9], 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

[9] 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

(GAR), no sea turtles have been observed in bottom longline gear from 1989-2015 (NMFS NEFSC FSB 2015, 2016). 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.

6.3.3 Recreational Fisheries and Protected Species Interactions

The golden tilefish recreational fishery has been prosecuted with hook and line gear. As provided in Table 6, species of large whales, dolphins, sea turtles, and Atlantic sturgeon have the potential to be affected by the operation of the golden tilefish fishery. Below information is provided on the risk of these species interacting with hook and line gear (i.e., rod and reel).

Large Whales

Large whales have been reported or observed with hook and line or monofilament line wrapped around or trailing from appendages of the whale's body. In the most recent (2010-2014) 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 (89.5% observed/reported whales had a serious injury value of 0; 10.5% had a serious injury value of 0.75; none of the cases resulted in mortality; Henry et al. 2016).[10] In fact, 85.0% 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 assessment (Henry et al. 2016). 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 known to result in the serious injury and mortality to large whales (i.e., fixed gear; Hayes et al. 2017; Henry et al. 2016; Palmer 2017), hook and line gear is expected to be low source serious injury or mortality to any large whale.

Small Cetaceans (Bottlenose Dolphins)

Over the past several years, observer coverage has been limited for fisheries prosecuted with hook and line or trap/pot 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

[10] 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); A value of "1" is set for cases determined to be a SI (Henry et al. 2016).

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.

Several bottlenose dolphin stocks have been identified as species at risk of becoming serious injured or killed by hook and line. Reviewing the stock assessment reports for each dolphin stock identified in Table 6, 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).[11] 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. 2017; Henry et al. 2016; Palmer 2017), hook and line gear represents a low source of serious injury or mortality to any small cetacean.

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). Serious injury and mortality to sea turtles can be incurred by interactions with hook 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. However, as with the commercial fishery (see section 6.3.2), the golden tilefish recreational fishery primarily operates in deep continental shelf edge/slope waters (>200 meters) which could reduce the potential for interaction.

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 (Network; NMFS 2013). Serious 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). Nevertheless, subadult and adult Atlantic sturgeon live in coastal waters and estuaries when not spawning (they spawn in freshwater), generally in

[11] Stranding data provided in Waring *et al*. (2015) and Hayes et al. (2017) 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.

shallow (10-50 meter depth) nearshore areas dominated by gravel and sand substrates. As with the commercial fishery (see section 6.3.2), the golden tilefish recreational fishery primarily operates in deep continental shelf edge/slope waters (>200 meters) which could reduce the potential for interaction.

6.4 Human Communities

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

Additional information on "Community Profiles for the Northeast U.S. Fisheries" can be found at: https://www.nefsc.noaa.gov/read/socialsci/communitySnapshots.php. In addition, Fishery Performance Reports prepared by industry advisors, provide additonal information on the social and economic environments from the industry members perspectives and are available at: http://www.mafmc.org. Recent trends in the fisheries are presented below and in Fishery Information Documents also available on the Council website.

6.4.1 Fishery Descriptions

In 2020, about 1.3 million pounds of tilefish were landed, slightly lower than 2018 at 1.4 million pounds. The average ex-vessel price of tilefish reported by processors was $3.75 in 2020, slightly lower than the $3.81 per pound seen in 2019. The total ex-vessel value of the 2020 harvest was approximately $4.8 million, slightly lower than $5.4 million in 2019 (Figure 2).

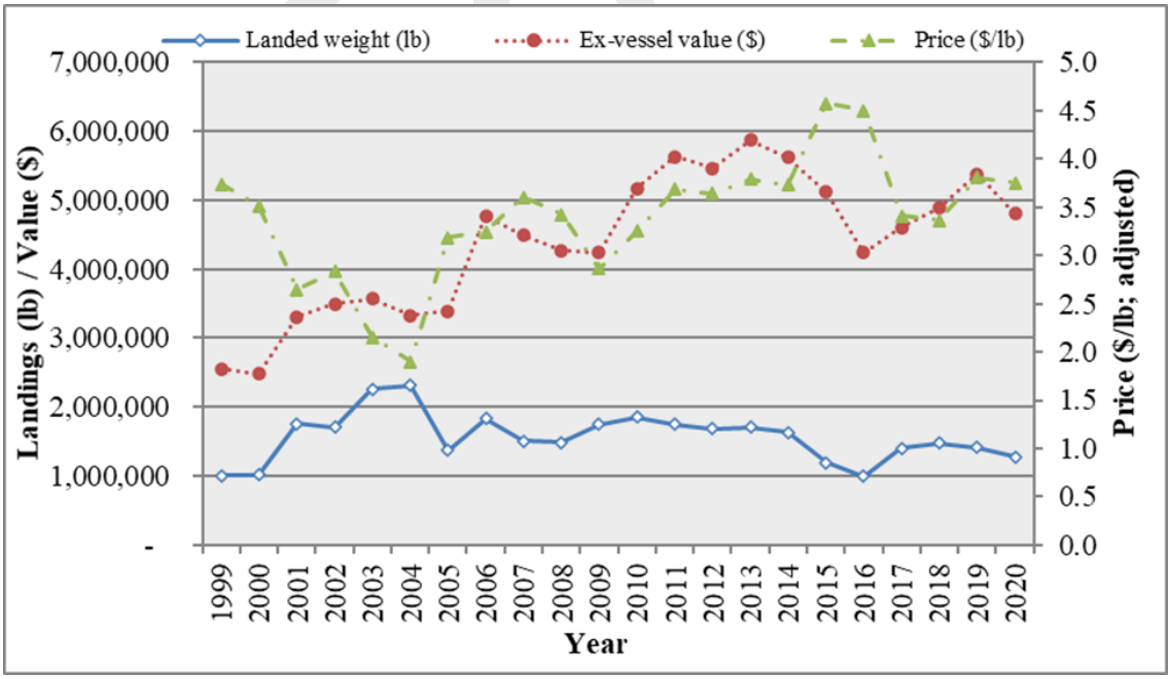

Figure 2. Landings (landed weight), ex-vessel value, and price for golden tilefish, Maine through Virginia combined, 1999-2020 (calendar year). Note: Price data have been adjusted by the GDP

deflator indexed for 2019. (2020 – unadjusted as GDP deflator for that year was not available when this figure was produced). Source: NMFS unpublished dealer data.

The 2016 through 2020 coastwide average ex-vessel price per pound for all market categories combined was $3.64. Price differentials for the 2016 through 2020 period combined indicate that larger fish tend to bring higher prices (Table 7). Nevertheless, even though there is a price differential for various sizes of tilefish landed, tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (L. Nolan 2006; Kitts et al. 2007).

Table 7. Landings, ex-vessel value, and price of golden tilefish by size category, from Maine thought Virginia, 2016-2020 (calendar year).

Market category	Landed weight (pounds)	Value ($)	Price ($/pound)	Approximate market size range (pounds)
Extra large	233,934	1,079,040	4.61	> 25
Large	1,543,603	7,448,229	4.83	7 – 24
Large/medium[a]	892,318	3,681,030	4.13	5 – 7
Medium	1,885,084	6,545,801	3.47	3.5 – 5
Small or kittens	1,747,962	4,507,553	2.58	2 – 3.5
Extra small	202,636	442,690	2.18	< 2
Unclassified	68,890	197,607	2.87	– – –
All	6,574,427	23,901,950	3.64	– – –

[a]Large/medium code was implemented on May 1, 2016. Prior to that, golden tilefish sold in the large/medium range were sold as unclassified fish. Source: NMFS unpublished dealer data.

The COVID-19 pandemic caused a large reduction in the demand for golden tilefish with restaurant closures in 2020. As a consequence, there was a dramatic reduction in effort by all vessels. Full-time vessels in New York capped their trips at about 16,000 pounds and only one vessel landed each week. Barnegat Light (New Jersey), capped landings at about 8,000 to 10,000 pounds per week. Spreading landings helped stabilize prices.

Tilefish prices have remained stable because the tilefish industry continues to coordinate times of landings to avoid market gluts and market floods and spread tilefish landings throughout the year. The ability to do this has improved since IFQs came into place. Overall, prices have been relatively stable in all market categories. However, due to COVID-19, large price reduction occurred, especially at the beginning of the pandemic in 2020.[12]

6.4.2 Description of the Areas Fished

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

Approximately 47 percent of the landings for 2020 were caught in statistical area 616; statistical area 537 had 37 percent; statistical areas 539 and 526 (includes Hydrographer and Veatch

[12] Source: 2021 Golden Tilefish Advisory Panel Fishery Performance Report

Canyons) had 5 and 3 percent, respectively; and statistical area 626 had 2 percent. Less than 1 percent of the total landings were caught in statistical area 525 (includes Oceanographer, Lydonia, and Gilbert Canyons), 612, and 622 (Table 8). NMFS statistical areas are shown in Figure 2.

For the 1999 to 2020 period, commercial golden tilefish landings are spread across the years with no strong seasonal variation (Tables 9 and 10). However, in recent years, a slight downward trend in the proportion of golden tilefish landed during the winter period (November-February) and a slight upward trend in the proportion of golden tilefish landed during the May-June period are evident when compared to earlier years (Table 10).

Table 8. Golden tilefish percent landings by statistical area and year, 1996-2020 (calendar year).

Year	525	526	537	539	612	613	616	622	626	Other
1996	0.05	5.21	64.04	0.39	*	1.09	27.81	0.01	-	1.40
1997	0.03	0.67	79.51	0.02	*	2.59	16.41	0.01	*	0.74
1998	1.26	2.19	81.95	0.04	0.02	5.45	8.55	*	*	0.53
1999	0.97	0.22	55.79	0.02	0.22	3.71	36.60	0.02	0.02	0.43
2000	0.36	3.79	46.10	0.01	0.05	2.36	43.94	0.47	0.14	2.78
2001	0.23	3.09	23.92	*	0.01	3.16	68.96	*	0.10	0.52
2002	0.12	8.73	35.86	0.07	0.01	18.50	36.54	0.02	0.02	0.14
2003	0.88	1.81	38.48	0.10	-	11.85	46.51	0.05	0.05	0.26
2004	1.03	2.59	62.85	0.05	5.28	0.70	25.95	0.03	0.06	1.66
2005	0.12	0.25	62.99	0.02	0.03	6.11	25.68	0.03	0.20	4.56
2006	*	1.54	64.30	0.50	1.24	0.71	30.09	0.04	0.05	1.53
2007	0.02	0.42	57.61	0.01	-	5.53	33.93	0.85	0.45	1.18
2008	1.09	0.06	44.07	0.01	-	4.62	46.94	2.05	0.02	1.14
2009	2.17	0.01	42.62	1.30	0.04	4.37	46.12	1.34	1.16	0.88
2010	0.01	0.01	57.14	0.55	0.02	8.39	32.83	0.69	0.04	0.31
2011	0.02	*	53.06	0.01	-	3.12	39.98	0.31	0.06	3.44
2012	0.01	0.01	52.54	0.03	*	0.58	43.92	0.20	0.10	2.62
2013	*	0.67	56.22	1.06	0.03	0.68	35.39	1.21	4.59	0.16
2014	0.01	0.52	49.36	1.89	0.01	1.29	42.85	2.67	0.35	1.06
2015	3.06	0.98	30.00	2.55	-	0.01	55.02	2.34	5.53	1.50
2016	1.03	4.77	32.33	0.01	-	0.98	54.50	0.17	5.81	0.39
2017	0.01	5.45	27.73	2.69	0.01	0.94	55.33	0.16	5.49	2.19
2018	*	1.65	46.99	3.27	-	0.06	41.18	0.57	6.13	0.15
2019	0.01	1.38	55.43	1.86	*	1.69	38.50	0.06	0.34	0.74
2020	0.02	3.45	36.79	4.92	0.02	1.42	47.03	0.10	2.20	4.07
All	0.48	1.90	53.28	0.75	0.42	3.64	36.64	0.48	1.09	1.31

Note: - = no landings; * = less than 0.01 percent. Source: NMFS unpublished VTR data.

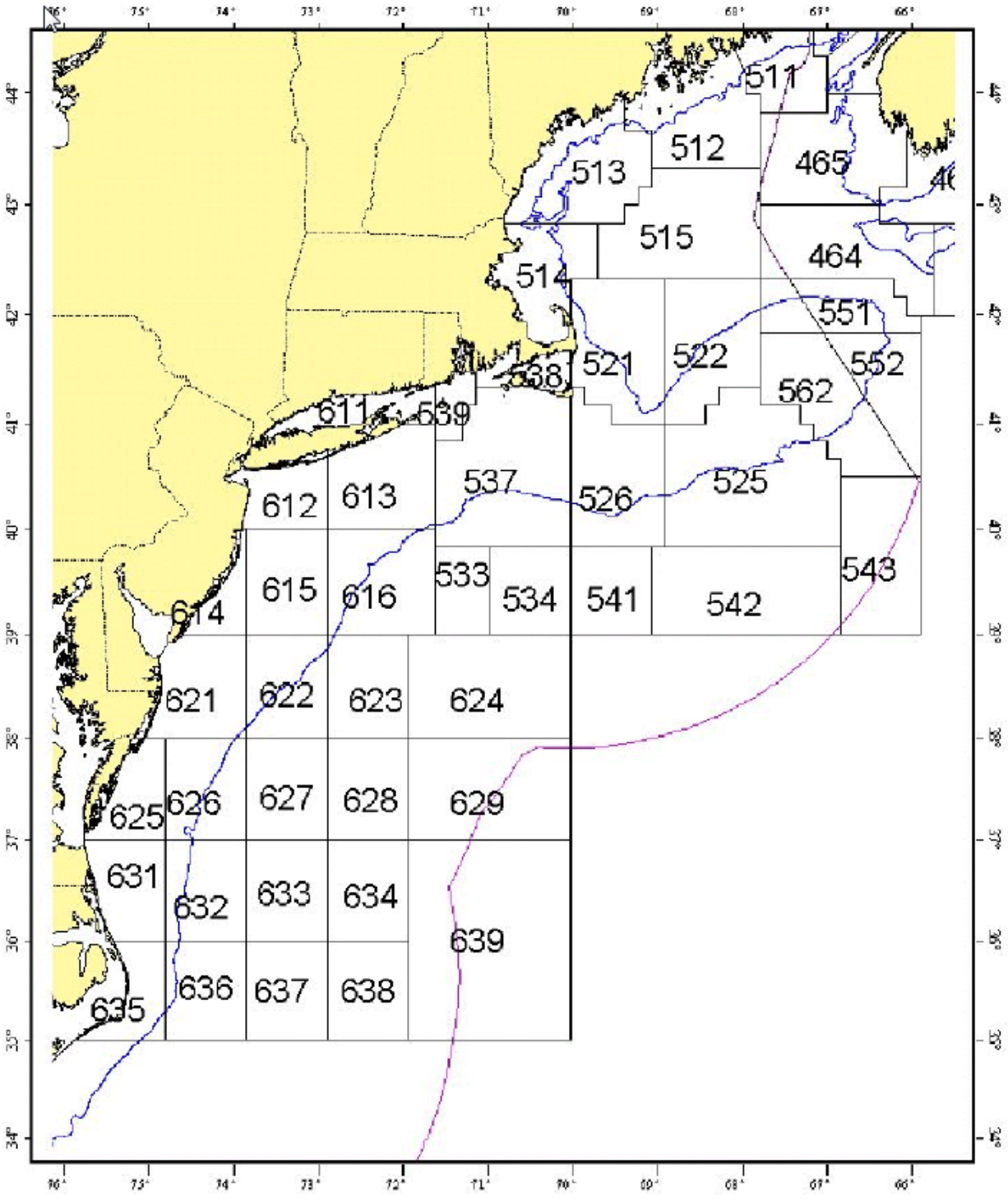

Figure 2. NMFS Statistical Areas.

Table 9. Golden tilefish commercial landings (‘000 pound live weight) by month and year, Maine through Virginia, 1999-2020 (calendar year).

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1999	118	114	124	103	93	91	55	106	83	59	77	75	1,096
2000	52	105	159	101	107	99	34	91	42	107	96	112	1,105
2001	107	151	159	188	153	179	177	157	156	156	161	176	1,920
2002	143	232	257	144	164	117	107	141	148	146	68	200	1,867
2003	183	181	295	254	209	185	152	180	210	202	189	223	2,463
2004	192	354	514	323	143	56	113	122	181	236	71	189	2,492
2005	127	159	234	168	33	57	117	104	96	94	141	158	1,487
2006	210	226	292	125	127	124	86	152	116	140	169	228	1,996
2007	122	118	192	147	159	96	131	133	125	174	77	189	1,664
2008	235	206	219	173	124	123	62	90	101	90	109	104	1,636
2009	90	145	185	200	237	211	184	157	157	128	94	134	1,922
2010	149	133	273	216	195	157	149	157	176	188	98	137	2,027
2011	152	94	269	209	227	137	138	149	120	194	65	150	1,905
2012	146	114	142	207	151	131	157	204	186	221	39	139	1,836
2013	105	115	146	269	234	193	147	157	126	169	67	133	1,862
2014	114	93	146	183	187	233	215	171	134	149	50	102	1,778
2015	68	70	144	128	181	146	130	127	123	82	48	62	1,308
2016	43	53	91	71	110	119	131	136	91	96	83	64	1,089
2017	86	69	77	193	195	179	135	134	105	180	47	133	1,533
2018	81	134	124	194	149	196	181	148	133	103	64	98	1,606
2019	91	106	131	130	234	164	131	137	158	119	40	96	1,537
2020	75	95	143	54	187	159	147	133	93	180	65	65	1,396
Total	2,687	3,067	4,319	3,780	3,601	3,151	2,878	3,086	2,860	3,212	1,918	2,966	37,523
Avg. 11-20	96	94	141	164	186	166	151	150	127	149	57	104	1,585

Source: NMFS unpublished dealer data.

Table 10. Percent of golden tilefish commercial landings (live weight) by month and year, Maine through Virginia, 1999-2020 (calendar year).

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1999	10.75	10.38	11.28	9.41	8.50	8.29	4.99	9.66	7.55	5.36	6.98	6.86	100.00
2000	4.68	9.48	14.41	9.13	9.67	8.95	3.05	8.26	3.78	9.71	8.70	10.18	100.00
2001	5.59	7.88	8.30	9.77	7.95	9.32	9.24	8.16	8.13	8.11	8.40	9.14	100.00
2002	7.64	12.43	13.76	7.73	8.78	6.28	5.74	7.56	7.91	7.85	3.63	10.70	100.00
2003	7.44	7.33	11.98	10.31	8.47	7.52	6.18	7.32	8.52	8.19	7.68	9.05	100.00
2004	7.69	14.21	20.64	12.95	5.74	2.23	4.52	4.88	7.25	9.46	2.87	7.57	100.00
2005	8.54	10.71	15.77	11.28	2.24	3.82	7.85	6.98	6.43	6.32	9.46	10.60	100.00
2006	10.50	11.32	14.65	6.28	6.38	6.22	4.33	7.60	5.82	7.04	8.46	11.41	100.00
2007	7.35	7.08	11.55	8.83	9.56	5.79	7.86	7.99	7.53	10.48	4.63	11.35	100.00
2008	14.37	12.59	13.40	10.56	7.60	7.50	3.77	5.53	6.18	5.49	6.66	6.35	100.00
2009	4.67	7.55	9.64	10.39	12.36	10.97	9.56	8.18	8.16	6.65	4.88	6.99	100.00
2010	7.35	6.54	13.49	10.68	9.61	7.73	7.37	7.75	8.68	9.25	4.81	6.74	100.00
2011	7.96	4.96	14.13	10.99	11.93	7.20	7.24	7.82	6.30	10.18	3.41	7.88	100.00
2012	7.94	6.22	7.72	11.26	8.22	7.11	8.57	11.09	10.14	12.03	2.15	7.55	100.00
2013	5.66	6.18	7.84	14.47	12.54	10.37	7.90	8.46	6.75	9.08	3.60	7.14	100.00
2014	6.41	5.25	8.20	10.31	10.50	13.09	12.07	9.63	7.55	8.40	2.84	5.74	100.00
2015	5.21	5.38	10.97	9.79	13.86	11.16	9.91	9.71	9.40	6.24	3.67	4.73	100.00
2016	3.94	4.85	8.34	6.52	10.11	10.97	12.00	12.47	8.39	8.85	7.66	5.91	100.00
2017	5.59	4.52	5.05	12.56	12.72	11.67	8.84	8.72	6.87	11.73	3.05	8.68	100.00
2018	5.02	8.37	7.73	12.07	9.31	12.20	11.28	9.22	8.31	6.40	3.99	6.10	100.00
2019	5.93	6.87	8.53	8.46	15.24	10.64	8.49	8.92	10.26	7.77	2.62	6.27	100.00
2020	5.39	6.78	10.27	3.86	13.43	11.40	10.52	9.52	6.67	12.86	4.62	4.68	100.00
Total	7.16	8.17	11.51	10.07	9.60	8.40	7.67	8.22	7.62	8.56	5.11	7.90	100.00

Source: NMFS unpublished dealer data.

6.4.3 Port and Community Description

The ports and communities that are dependent on golden tilefish are fully described in Amendment 1 to the FMP (section 6.5; MAFMC 2009; found at http://www.mafmc.org/fisheries/fmp/tilefish). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at https://apps-nefsc.fisheries.noaa.gov/read/socialsci/communitySnapshots.php.

To examine recent landings patterns among ports, 2019-2020 NMFS dealer data are used. The top commercial landings ports for golden tilefish are shown in Table 11. A "top port" is defined as any port that landed at least 10,000 pounds of golden tilefish. Ports that received 1 percent or greater of their total revenue from golden tilefish are shown in Table 12.

Table 11. Top ports (≥ 10,000 pounds per year) of landing (live weight) for golden tilefish, based on NMFS 2019-2020 dealer data (calendar year). Since this table includes only the "top ports," it may not include all of the landings for the year.

Port	2019		2020	
	Landings (pounds)	# Vessels	Landings (pounds)	# Vessels
Montauk, NY	910,338 (906,619)	16 (3)	782,026 (779,977)	13 (4)
Barnegat Light/Long Beach, NJ	398,374 (398,374)	5 (5)	376,294 (376,374)	5 (5)
Hampton Bays, NY	201,246 (C)	5 (C)	188,556 (C)	5 (C)
Point Judith, RI	5,763 (0)	51 (0)	9,792 (0)	52 (0)

[a]Values in parentheses correspond to IFQ vessels. Note: C = Confidential. Source: NMFS unpublished dealer data. Note: ports that may have had landings ≥ 10,000 pounds not added to this table due to confidentiality issues.

Table 12. Ports that generated 1 percent or greater of total revenues from golden tilefish, 2016-2020 (calendar year).

Port	State	Ex-vessel revenue all species combined	Ex-vessel revenue golden tilefish	Golden tilefish contribution to total port ex-vessel revenues
Ocean City	NJ	12,441	4,565	37%
East Hampton	NY	63,090	11,698	19%
Montauk	NY	84,058,877	13,381,066	16%
Hampton Bays	NY	30,107,477	3,924,172	13%
Lynnhaven	VA	552,687	45,679	8%
Barnegat & Barnegat Light/Long Beach	NJ	122,929,588	6,056,760	5%
Shinnecock	NY	6,153,917	203,603	3%

Source: NMFS unpublished dealer data.

6.4.4 IFQ Allocations, Vessels, Permits, Dealers, and Markets

There were 11 IFQ allocation holders in 2020. The average golden tilefish quota allocation percent was 10%, ranging from 2 to 28 percent. The bulk of the landings occur in New York and New Jersey, particularly Montauk, New York, and Barnegat Light , New Jersey.

Data from the Greater Atlantic permit application database shows that in 2020 there were 1,927 vessels that held a valid open access commercial/incidental permit (valid for both golden and blueline tilefish) and 606 vessels held a valid open access party/charter tilefish permit. However, not all of those vessels are active participants in the fishery.

In 2020 there were 50 federally permitted dealers who bought golden tilefish from 105 vessels that landed this species from Maine through Virginia. In addition, 54 dealers bought golden tilefish from 106 vessels in 2019. These dealers bought approximately $5.4 and $4.8 million of golden tilefish in 2019 and 2020, respectively, and are distributed by state as indicated in Table 13. Table 14 shows relative dealer dependence on tilefish.

Furthermore, according to vessel trip report (VTR) data, 26 party/charter vessels reported a total of 77 trips that landed golden tilefish in 2020. VTR data indicates that party/charter vessel landed 3,466 golden tilefish in 2020. This represented a 36 percent decrease from 2019 (5,424 fish landed).

Table 13. Dealers reporting buying golden tilefish, by state in 2019-2020 (calendar year).

Number of dealers	MA		RI		CT		NY		NJ		VA		Other	
	'19	'20	'19	'20	'19	'20	'19	'20	'19	'20	'19	'20	'19	'20
	4	6	10	10	10	6	16	13	8	7	C	4	6	4

Note: C = Confidential. Source: NMFS unpublished dealer data.

Table 14. Dealer dependence on golden tilefish, 2016-2020 (calendar year).

Number of dealers	Relative dependence on tilefish
67	<5%
7	5%-10%
2	10% - 25%
4	25% - 50%
2	50% - 75%
1	90%+

Source: NMFS unpublished dealer data.

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

7.0 ENVIROMENTAL CONSEQUENCES OF ALTERNATIVES

Environmental impacts are described both in terms of their direction (negative, positive, or no impact) and their magnitude (slight, moderate, or high). Table 15 summarizes the 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 target stocks, non-target stocks, and protected species over the most recent five years (sections 6.1 and 6.3). They also include the fishing practices and levels of effort and landings in the golden tilefish fishery over the most recent years, as well as the economic characteristics of the fisheries over the most 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 16.

This EA analyzes the impacts of the alternatives described fully under section 5.0 on each VEC. For ease of reference, those alternatives are listed here.

Multi-Year Specifications Alternatives

- Alternative 1: No Action/*Status Quo* – No changes to the process to set golden tilefish management specifications for up to 3 years
- Alternative 2: Specifications to be set for maximum number of years needed to be consistent with the Northeast Regional Coordinating Council (NRCC)-approved stock assessment schedule

Fishing Year Timing Alternatives

- Alternative 1: No Action/*Status Quo* – No changes to the current golden tilefish fishing year. The golden tilefish fishing year will continue to be November 1 - October 31
- Alternative 2: The golden tilefish fishing year is the 12-month period beginning with January 1, annually. Therefore, the fishing year is from January 1 – December 31

2023-2024 Golden Tilefish Commercial Quota Alternatives

- Alternative 1: No Action/*Status Quo*
- Alternative 2: TBD, for example, allowing quotas to change from year to year such as time varying quotas
- Alternative 3: TBD, for example, average quotas for the 2023-2024 period

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 alternatives are not compared to a theoretical condition where the fisheries are not operating. These fisheries have occurred for many decades and are expected to continue into the foreseeable future. The nature and extent of the management programs for these

fisheries have been examined in detail in EAs and Environmental Impact Statements (EISs) prepared for previously implemented management actions under the Tilefish FMP.

This action proposes modifications that revise the process for specifying multi-year management measures and the process for specifying the fishing year timing. In addition, this framework will set new specifications for 2023-2024.

In general, alternatives which may result in overfishing or an overfished status for target and non-target species may have negative 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 15).

For the physical environment and habitat, alternatives that improve the quality or quantity of habitat or result in a decrease in fishing effort 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 15). In addition, alternatives that result in continued fishing effort may result in slight negative impacts. 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. The directed commercial fishery for golden tilefish is largely by bottom longline gear. Otter trawls may also be used (incidental fisheries for tilefish), but have limited utility because of the habitat preferred by tilefish. Longlines (which land the bulk of the tilefish) cause some low degree impacts in mud, sand, and gravel habitats (section 6.2.3).

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 ESA-listed species, any action that results in interactions or takes 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 (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 15). The impacts of each alternative on the protected resources VEC 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 (human communities) impacts are considered in relation to potential changes in landings and prices, and by extension, revenues, compared to the current fisheries conditions. 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 stock biomass for any of the landed species, then negative socioeconomic impacts could occur.

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 typically described qualitatively.

Table 15. General definitions for impacts and qualifiers relative to resource condition (i.e., baseline) summarized in Table 16 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 (e.g., no take)	Alternatives that result in interactions/take of listed resources, 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 will maintain takes below PBR and approaching the Zero Mortality Rate Goal	Alternatives that result in interactions with/take of marine mammal species 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 (see condition of the resources table for details)	Alternatives that improve the quality or quantity of habitat	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		
	Moderately (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 16. Baseline conditions of VECs considered in this action, as summarized in section 6.0.

VEC		Baseline Condition	
		Status/Trends, Overfishing?	**Status/Trends, Overfished?**
Target stock (section)	**Golden Tilefish**	No	No
Non-target species (principal species listed in section 6.1.3 that account for 0.1 percent or more of the total catch from golden tilefish trips)	**Spiny dogfish**	No	No
	Smooth dogfish	No	No
	Blueline tilefish (South Atlantic)	No	No
	Blueline tilefish (Mid-Atlantic)	Unknown	Unknown
	Conger eel	Unknown	Unknown
Habitat (section 6.2)		Commercial fishing impacts are complex and variable and typically non 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 Ocean 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 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.	
	Small cetaceans	Pilot whales, dolphins, and harbor porpoise are all protected under the MMPA.	
	Pinnipeds	Gray, harbor, hooded, and harp seals are protected under the MMPA.	
Human communities (section 6.4)		Golden tilefish stock support a small IFQ fishery and related support services. There were 11 IFQ allocation owners in 2020 and the number of active vessels participating in the IFQ fishery has ranged from 9 to 10 in recent years. 2020 estimated ex-vessel revenues was about 4.8 million. The bulk of the landings occur in New York and New Jersey, particularly Montauk, New York, and Barnegat Light , New Jersey. In addition, there is a small incidental fishery. In 2020 there were 50 federally permitted dealers who bought golden tilefish from 105 vessels that landed this species from Maine through Virginia. Most tilefish are sold fresh. The bulk of the catch is gutted at sea and iced during long trips. Incidental catches are not gutted. Tilefish supplies are very stable throughout the year as the IFQ participants spread their landings through the fishing season to avoid market gluts and price fluctuations.	

7.1 Multi-Year Specification Alternatives

7.1.1 Impacts on Golden Tilefish and Non-Target Species

The alternatives discussed in this section are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices, as they only address the process for the duration of setting multi-year management measures.

Under alternative 1 (no action/*status quo*), there would be no changes to the process to set golden tilefish management specifications for up to 3 years. The no action alternative is expected to have no impact (direct or indirect) on the target species (managed species) when compared to the current condition of the stock.

The no action alternative is not expected to impact (direct or indirect) non-target species caught in the golden tilefish commercial fishery. All of the species most commonly caught on directed tilefish trips have positive stock status, except for blueline tilefish in the Mid-Atlantic and conger eel which status are unknown. As indicated above, the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices are not expected to change under this alternative. Therefore, the no action alternative is expected to have no impact on interaction of this fishery with non-targeted species when compared to the current conditions.

Alternative 2 would change the process the annual multi-year specifications are set; it would simply change the number of years (time period) for which those measures could be set. Under alternative 2, specifications could be set for up to the maximum number of years needed to be consistent with the NRCC-approved stock assessment schedule. This alternative would provide additional flexibility as specifications could be set to cover the time period until a new golden tilefish stock assessment is produced. New specifications of annual catch and landings limits (or other annual specifications measures) would be prepared in the final year of the quota period unless there is a need for interim quota modifications. Specifications under the multi-year process described in alternative 2 would include all the environmental impact review procedures currently required under the MSA, and other applicable laws, including NEPA. These review procedures collectively ensure that impacts on fisheries resources be considered prior to implementation of the proposed harvest levels. In addition, under this alternative, Council staff will coordinate with NEFSC staff, during the first quarter of each year (during the multi-year specifications period) to assess if there is any information regarding these fisheries that needs to be brought to the attention of the SSC and Council. Alternative 2 is expected to have no impact (direct or indirect) on the target species (managed species) or non-target species caught in the golden tilefish fishery when compared to the current conditions. None of the other existing catch and landings limits requirements, accountability measures, reporting requirements or IFQ system management procedures will change under alternative 2. Alternative 2 is expected to have the same impacts on the target and non-target species as alternative 1 (*status quo*).

When comparing across both alternative, alternative 2 is expected to have no impacts when compared to *status quo* measures (alternative 1).

Although there are no impacts on the VECs, alternative 2 would provide for some administrative efficiencies by reducing the need to create and implement multiple specification documents to set management measures for the fishery between stock assessments; thus, improving the management process (i.e., efficient use of Council and NOAA staff time and reducing and management

7.1.2 Impacts on Physical Habitat

The alternatives discussed in this section are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices.

Under alternative 1 (no action/*status quo*), there would be no changes to the process to set golden tilefish management specifications for up to 3 years. The no action alternative is expected to have no impact (direct or indirect) on the physical habitat when compared to the current conditions.

Alternative 2 would change the process by which the periodicity of the annual multi-year specifications are set; it would simply change the number of years (time period) for which those measures could be set. Under alternative 2, specifications could be set for up to the maximum number of years needed to be consistent with the NRCC-approved stock assessment schedule. This alternative would provide additional flexibility as specifications could be set to cover the time period until a new golden tilefish stock assessment is produced. Any future specification set would still undergo environmental review (as noted under section 7.1.1). Alternative 2 is expected to have no impact (direct or indirect) on the target species (managed species) or non-target species caught in the golden tilefish fishery. None of the other existing catch and landings limits requirements, accountability measures, reporting requirements or IFQ system management procedures will change under alternative 2. Alternative 2 is expected to have the same impacts on the physical habitat as alternative 1 (*status quo*).

When comparing across both alternatives for habitat, alternative 2 is expected to have no impacts when compared to the *status quo* measures.

7.1.3 Impacts on Protected Species

The alternatives discussed in this section are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices.

Under alternative 1 (no action/*status quo*), there would be no changes to the process to set golden tilefish management specifications for up to 3 years. The no action alternative is

expected to have no impact (direct or indirect) on protected resources when compared to the current conditions.

Alternative 2 would change the process by which the periodicity of the annual multi-year specifications are set; it would simply change the number of years (time period) for which those measures could be set. Under alternative 2, specifications could be set for up to the maximum number of years needed to be consistent with the NRCC-approved stock assessment schedule. This alternative would provide additional flexibility as specifications could be set to cover the time period until a new golden tilefish stock assessment is produced. Any future specification set would still undergo environmental review (as noted under section 7.1.1). None of the other existing catch and landings limits requirements, accountability measures, reporting requirements or IFQ system management procedures will change under alternative 2. Alternative 2 is expected to have the same impacts on the protected resources as alternative 1 (*status quo*).

When comparing across both alternatives for protected resources, alternative 2 is expected to have no impacts when compared to the *status quo* measures.

7.1.4 Impacts on Human Communities

The alternatives discussed in this section are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices.

Under alternative 1 (no action/*status quo*), there would be no changes to the process to set golden tilefish management specifications for up to 3 years. The no action alternative is expected to have no impact (direct or indirect) on the human communities when compared to the current conditions.

Alternative 2 would change the process by which the periodicity of the annual multi-year specifications are specified. Under alternative 2, specifications could be set for up to the maximum number of years needed to be consistent with the NRCC-approved stock assessment schedule. This alternative would provide additional flexibility as specifications could be set to cover the time period until a new golden tilefish stock assessment is produced. Any future specification set would still undergo environmental review (as noted under section 7.1.1). Alternative 2 is expected to have no impact (direct or indirect) on the human communities when compared to the current conditions. None of the other existing catch and landings limits requirements, accountability measures, reporting requirements or IFQ system management procedures will change under alternative 2. Alternative 2 is expected to have the same impacts on the human communities as alternative 1 (*status quo*).

When comparing across both alternative, alternative 2 is expected to have no impacts when compared to *status quo* measures (alternative 1).

Although there are no impacts on the VECs, alternative 2 would provide for some administrative efficiencies by reducing the need to create and implement multiple

specification documents to set management measures for the fishery between stock assessments; thus, improving the management process (i.e., efficient use of Council and NOAA staff time and reducing management costs). It is possible that this could in turn decrease administrative burden and the IFQ cost recovery fee.

7.2 Fishing Year Timing Alternatives

7.2.1 Impacts on Golden Tilefish and Non-Target Species

The alternatives discussed in this section are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices, as they only address the process for setting the timing of the fishing year. As indicated in section 6.1.3, commercial golden tilefish landings are spread across the years with no strong seasonal variation.

Under alternative 1 (no action/*status quo*), there would be no changes to current golden tilefish fishing year. The golden tilefish fishing year will continue to be November 1 - October 31. The no action alternative is expected to have no impact (direct or indirect) on the target species (managed species) when compared to the current condition of the stock.

The no action alternative is not expected to impact non-target species caught in the golden tilefish commercial fishery (neither direct nor indirectly). All of the species most commonly caught on directed tilefish trips have positive stock status, except for blueline tilefish in the Mid-Atlantic and conger eel which status are unknown. As indicated above, the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices are not expected to change under this alternative. Therefore, the no action alternative is expected to have no impact on interaction of this fishery with non-targeted species.

Alternative 2 would change the process by which the current fishing year is set. Under alternative 2, the golden tilefish fishing year is the 12-month period beginning with January 1, annually. Therefore, the fishing year is from January 1 – December 31. This alternative would result in quota specifications for the January 1 – December 31, to be aligned the 12 month fishing year cycle with the 12 month cycle for which stock projections are made; thus, potentially reducing uncertainty in the long-term.[13] This is expected to result in impacts to the stock that range from no impacts to slightly positive impacts when compared to the current conditions.

When comparing across both alternatives, alternative 2 is expected to result in impacts that range from no impacts to slightly positive impacts when compared to *status quo* measure (alternative 1).

[13] Currently, the fishing year starts on November 1 (November 1 – October 31), two months ahead of the yearly projections used to derived catch and landings limits (January 1 – December 31).

7.2.2 Impacts on Physical Habitat

The impacts on habitat are identical to those described under section 7.1.2 above.

7.2.3 Impacts on Protected Species

The impacts on protected resources are identical to those described under section 7.1.3 above.

7.2.4 Impacts on Human Communities

The alternatives discussed in this section are expected to have no impact on the prosecution of the golden tilefish fishery, including landings levels, distribution of fishing effort, or fishing methods and practices.

Under alternative 1 (no action/*status quo*), there would be no changes to current golden tilefish fishing year. The golden tilefish fishing year will continue to be November 1 - October 31. The no action alternative is expected to have no impact (direct or indirect) on the human communities when compared to the current conditions.

Alternative 2 would change the process by which the current fishing year is set. Under alternative 2, the golden tilefish fishing year is the 12-month period beginning with January 1, annually. Therefore, the fishing year is from January 1 – December 31. This alternative would result in quota specifications for the January 1 – December 31, to be aligned with cost recovery calculations associated with managing the IFQ system. This could in turn decrease administrative burden and the IFQ cost recovery fee. In addition, industry members have indicated that aligning the fishing year with the calendar year will create more stability in harvesting their full allocation. This is expected to result in impacts to the human communities that range from no impacts to slightly positive impacts when compared to the current conditions.

When comparing across both alternative, alternative 2 is expected to result in impacts that range from no impacts to slightly positive impacts when compared to *status quo* measure (alternative 1).

7.3 Golden Tilefish Commercial Quota Alternatives for 2023-2024

Sections 7.3.1 to 7.3.4 to be completed. **Note:** The results of the 2021 golden tilefish management track assessment and projections to calculate commercial quotas will be available in July 2021. Therefore, specific quota alternatives (quota values) will not be made available until the second framework meeting.

7.3.1 Impacts on Golden Tilefish and Non-Target Species

7.3.2 Impacts on Physical Habitat

7.3.3 Impacts on Protected Species

7.3.4 Impacts on Human Communities

7.4 Cumulative Effects Analysis

This section to be completed once the Council selects preferred alternatives.

8.0 APPLICABLE LAWS

This section to be completed prior to the second required framework meeting.

9.0 LITERATURE CITED

This section to be completed prior to the second required framework meeting.

10.0 LIST OF AGENCIES AND PERSONS CONSULTED

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

Copies of the framework document, including the Environmental Assessment and Regulatory Flexibility Analysis and other supporting documents for the framework are available from Dr. Christopher M. Moore, Executive Director, Mid-Atlantic Fishery Management Council, Suite 201, 800 North State Street, Dover, DE 19901