



Mid-Atlantic Fishery Management Council

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MEMORANDUM

Date: June 29, 2021
To: Council
From: José Montañez, Staff
Subject: Tilefish - Multi-year Specifications Framework – Meeting #2

Council staff is developing a framework document to make two minor process related modifications to the golden tilefish management system. In addition, this framework document will be used to set specifications for the 2022-2024 fishing seasons. The Council selected the preferred process related alternatives at the first framework meeting (April 17, 2021). At the second framework meeting, the Council is expected to review alternatives, select preferred catch and landings limits for the 2022-2024 fishing years, and approve the framework document for submission (final action).

The following materials are enclosed on this subject:

- 1) Report of the July 2021 Meeting of the MAFMC Tilefish MC
- 2) July 2021 SSC Report – See Committee Reports Tab
- 3) Draft 2021 Golden Tilefish Management Track Stock Assessment Report
- 4) [Draft 2021 Management Track Peer Review Panel Summary Report](#) (available online only)
- 5) 2021 Golden Tilefish Advisory Panel Fishery Performance Report
- 6) 2021 Golden Tilefish Fishery Information Document (version 2)
- 7) Staff Memo: 2022-2024 Golden Tilefish Specifications Recommendations
- 8) [Multi-year Specifications Framework Document \(Draft Environmental Assessment\)](#)
(available online only)



**Tilefish Monitoring Committee
Webinar Meeting Summary
July 22, 2021**

Attendees: José Montañez (Council Staff), Douglas Potts (GARFO), Michael Auriemma (NJ Division of Fish and Wildlife), John Maniscalco (NYSDEC Division of Marine Resources), Paul Nitschke (NEFSC), and Laurie Nolan (Golden Tilefish Fishing Industry). **Others in attendance:** Scott Lenox (Vice-Chair of the MAFMC Tilefish Committee), and Dewey Hemilright (MAFMC Tilefish Committee).

Discussion: The Tilefish Monitoring Committee (MC) was presented with a summary of the Scientific and Statistical Committee (SSC) deliberations of the July 21, 2021 SSC meeting, where the SSC reviewed the 2021 Golden Tilefish Management Track Assessment, the 2021 Golden Tilefish Advisory Panel Fishery Performance Report, and the 2021 Golden Tilefish Advisory Panel Information Document. The SSC made recommendations to change the 2022 interim acceptable biological catch or ABC (previously set in 2020) and set new ABCs for 2023-2024. Based on the updated information presented, the SSC derived ABC recommendations based on the traditional approach of varying ABCs in each year, and a constant ABC approach derived from the projected ABCs (as requested under ToR #3). The SSC accepted the CV of 100% in the OFL as the foundation for the ABC. Using the Council’s published risk policy, the recommended ABCs are as follows:

	Traditional - ABC	Constant – ABC (Staff/MC recommended)
2022	1,911,408 pounds (867 mt)	1,964,319 pounds (891 mt)
2023	2,021,639 pounds (917 mt)	1,964,319 pounds (891 mt)
2024	1,962,114 pounds (890 mt)	1,964,319 pounds (891 mt)

While the SSC reported ABC values under two scenarios, they mentioned the benefits of a constant ABC in providing fishery stability. The monitoring committee discussed the different components of the golden tilefish catch and recent fishery trends.

The Monitoring Committee’s Comments and Recommendations

Annual Catch Targets and Landings Limits and Basis for Derivation

The recommendations in this section were made for the next three years (2022-2024). The MC recommended catch and landings limits for the 2022-2024 period that slightly vary from the staff recommendation (Tables 1 and 2). The MC recommended the use of the ABCs from the constant approach to derive annual catch limits (ACLs), annual catch targets (ACTs), and total allowable landings (TALs) for 2022-2024. As defined in Framework Adjustment 2 to the Tilefish FMP, ABC

is equivalent to the ACL. The MC did not recommend an adjustment for management uncertainty (reduction from ACL to derive ACT). However, they recommended an overall ACT that is lower than ABC/ACL recommended by the SSC (basis for this recommendation are detailed in the next three paragraphs below). The overall ACT is 1,856,293 pounds (842 mt) for each year 2022, 2023, and 2024 (i.e., ~108,000 pounds lower than the ABC/ACL). The IFQ fishery ACT is 1,763,478 pounds (800 mt) and the incidental fishery ACT is 92,815 pounds (42 mt) for each year 2022, 2023, and 2024. The committee recommended a reduction in catch from the incidental ACT of 17,405 pounds (7.895 mt)¹ to account for discards in that component of the fishery. The MC recommended no reduction in catch from the individual fishing quota (IFQ) ACT. The MC recommended an IFQ fishery TAL of 1,763,478 pounds (799.9 mt) and an incidental TAL of 75,410 pounds (34.205 mt) for each year 2022, 2023, and 2024. The overall TAL (IFQ + incidental) recommended by the MC is slightly lower (5.5% lower) than the overall TAL recommended by staff.

The MC recommends a TAL of 1,763,478 pounds (799.9 mt) for the IFQ fishery and a TAL of 75,410 pounds (34.205 mt) for the incidental fishery. This is a 13% increase in the overall TAL from 2021. The MC recommends that TALs should be set more in line with the long-term productivity of the stock at $MSY_{40\%}$. An increase in the TAL is supported by the positive results from the 2021 management track assessment. However, the MC does not recommend basing the TAL on the short-term projections from the 2021 management track ASAP model given the concerns that these projections rely on limited, uncertain information. Sensitivity analyses indicate that the large increase in catch advice is due to an initial indication of a stronger than average 2017 year class based upon 2 samples from the terminal year (2020) of unclassified market category fish from the incidental fishery (16 measurements). Unclassified fish tend to be very small fish (25-35 centimeters or ~ 10-14 inches) that come from incidental trawl fisheries as they have not yet recruited to the directed fishery. The larger increase in the projection based catch advice recommended by staff rely on this strong year class materializing in the population and these short-term, higher catches (2022-2024) are expected to fish the stock back down to the SSB_{MSY} reference point in the long term. The MC therefore suggest a TAL that is more in line with the long-term productivity of the stock at $MSY_{40\%}$ rather than higher estimates which rely on uncertain indications of stronger than average year class strength since the potential consequence of being wrong with regards to the uncertain year class estimates from the model could result in more severe future reductions after the next assessment.

The successful management of the tilefish fishery appears to be partly due to relatively stable constant quotas over long periods of time despite relatively large fluctuations in CPUE due to year class effects. This has also resulted in economic benefits to the fishery with stable, higher, prices and a more constant supply of fish to the markets. Large changes to the TAL could potentially result in sensitive market disruptions and lower prices. Large increases in the TAL relative to status quo could also encourage targeting of the smaller fish (smalls and kittens) in order to catch the TAL which may result in additional higher risk to the stock. The AP has recommended stability in

¹ According to the “Discard Estimation, Precision, and Sample Size Analysis” conducted by the NEFSC, an average of 17,405 pounds (7.895 mt) were discarded for the 2016-2020 period (mostly large/small mesh trawls and gillnets).

the TAL in a multiyear specification setting process. The TAL recommended by the MC should help achieve that goal with a more moderate increase rather than risk dramatic swings in the TAL in the future due to uncertain model projections. Basing the TAL on the longer term rebuilt sustainable level is also more likely to support stable quotas into the next specifications cycle as projections from the 2021 model indicate decreased TALs in the out years.

The tilefish fishery was managed under a constant TAL for 14 years starting in 2001 (approximately 1.995 million pounds or 905 mt). This TAL limited total effort on the golden tilefish stock and helped promote rebuilding from levels before the implementation of the FMP. However, two subsequent assessments (2014 SARC 58, 2017 operational assessment) resulted in further reductions from the 1.995 million pounds (905 mt) TAL to approximately 1.626 million pounds (736 mt) from 2018-2021. The 2021 management track assessment shows signs of improvement under the 1.626 million pounds (736 mt) TAL which suggests a higher TAL is now warranted. The MC is concerned that TALs approaching 1.995 million pounds (905 mt) seems to risk less stable TALs with more dramatic reductions in the future with the increased potential for less optimistic assessments given the long-standing history of management’s implementation of the 1.995 million pounds (905 mt) TAL. The 2021 management tracks assessment indicates that the golden tilefish stock has not crossed the SSB_{MSY} target since the implementation of the FMP in 2001, but is now approaching the SSB_{MSY} reference point in 2020 (96% of SSB_{MSY}). It is only in the projections that the SSB_{MSY} target is exceeded, allowing for the higher levels of landings needed to bring the stock back down to the SSB_{MSY} target. The MC recommends a TAL based on the more stable long-term productivity of the stock to acknowledge the positive development in the stock status but also to mitigate the potential risk to the stability and success in managing this relatively data poor fishery. The research track assessment scheduled for 2024 could further refine the productivity of the resource with the additional data collected under the more moderate increase in the TAL. All catch and landings limits recommended by the MC are shown in Table 1. Catch and landings limits for the current specifications cycle are shown in Table 3.

The difference between the MC overall TAL recommendation for 2022-2024 compared to the staff recommendation and current (2021) TAL level are as follows:

	Staff recommended overall TAL (pounds)	MC recommended overall TAL (pounds)	Percent difference of MC recommended TAL from staff recommended TAL	Percent difference of MC recommended TAL from 2021 overall TAL (1.625 million lb)
2022	1,946,914	1,838,888	-5.5%	+13.2%
2023	1,946,914	1,838,888	-5.5%	+13.2%
2024	1,946,914	1,838,888	-5.5%	+13.2%

The MC shares the SSC’s concern over the poorly described level of recreational catch for golden tilefish, and recreational catch is currently unaccounted for within the stock assessment. However, it was noted that the newly implemented (August 17, 2020) recreational fishing permitting and

reporting requirements for golden tilefish and blueline tilefish may improve quality of catch estimates.

Adjusted IFQ TAL and Incidental TAL for 2022

The MC discussed the framework document that considers measures to revise the specifications process by considering the duration for setting multi-year management measures and the timing of the fishing year. The MC noted that at the first framework meeting (April 2021), the Council selected preferred alternatives for these two process related issues. Regarding the issue of the timing of the fishing year, the Council selected an alternative that sets the golden tilefish fishing year as the 12-month period beginning with January 1, annually. Therefore, the fishing year will be from January 1 – December 31 (compared to the current November 1 – October 31 fishing year). The other 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 Regional Coordinating Council approved stock assessment schedule. In addition, this framework will set new specifications (catch and landings limits) for 2022-2024.

To facilitate the transition from the current fishing year (November 1 through October 31) to January 1 to December 31, a one-time only adjustment to bridge the gap will be necessary. More specifically, the 2022 fishing year will be extended from November 1, 2021 to December 31, 2022 (14-month period). Then, for 2023 and 2024, the Council would implement specifications starting on January 1 and ending in December 31.

When the MC recommended overall TAL for 2022 of 1,838,888 pounds (834.105 mt) is compared to the overall initial TAL for 2021 (1,624,305 pounds or 736.773 mt), it results in a 13% increase in the quota level between those two periods. In order to make a more robust comparison of quota changes as result of the proposed staff recommendations during the gap year, the fishing year quotas for 2021 and 2022 are broken down to a common monthly denominator basis to assess impacts of the 14-month 2022 fishing year compared to 2021 12-month fishing year. The current 2021 overall commercial quota of 1,624,305 pounds is equivalent to 135,359 pounds/month (1,624,305 pounds / 12 months) and the 2022 overall MC recommended quota is equivalent to 131,349 pounds/month (1,838,888 pounds / 14 months). Therefore, on a common monthly denominator basis, the overall commercial quota is slightly decreased (by only 3%) in gap 2022 fishing year compared to 2021 fishing year. For each, 2023 and 2024, the overall commercial quota is 13% higher compared to 2021 fishing year. The MC does not think that this small reduction in landings in gap fishing year 2022 will adversely impact the fishery given recent trends in commercial landings. In addition, the MC explicitly recommends that the overall 2022 TAL not be prorated to account for the longer 2022 fishing year.

Relevant Sources of Management Uncertainty

Past sector-specific performance and catch performance can be used as a basis for qualifying management uncertainty (implementation error), and as an indicator of future availability to achieve the 2022-2024 ACTs. The commercial fishery landings performance has been in line with

expectations and the MC recommends that an adjustment to address this aspect of management uncertainty is not necessary. The MC noted that IFQ vessels have been landing nearly the entirety of the IFQ from 2018 to 2019. In 2020, commercial landings were 1.403 million pounds or 14% below the overall TAL (1.626 million pounds). Furthermore, since the IFQ system became effective, golden tilefish landings are closely scrutinized. The incidental fishery landed 25,864 pounds (37% of their allocation) in 2020 fishing year, and this year the landings trajectory is slightly ahead when compared to last year's landings trajectory.

Commercial Discards

Development of a time series of discards was not done in the assessment model since discarding was considered negligible and information on discards do not exist for most of the time series. The Monitoring Committee also discussed that commercial discards are not generated by the IFQ fishery. Very low or insignificant discards were estimated in other fisheries (incidental tilefish fisheries). There is higher uncertainty (high CVs) on some of the low recent discard estimates since the discarding of tilefish is a rare event on observed trips. Therefore, an average of several years was used to judge the recent relative magnitude of discarding in other fisheries. Following the process created by the ACL/AM Omnibus Amendment, the monitoring committee adjusted the incidental TAL from the incidental ACT using average annual discards for 2016-2020 as presented in "Discard Estimation, Precision, and Sample Size Analysis" conducted by the NEFSC (17,405 pounds or 7.895 mt). The MC recommends no reduction in catch from the IFQ ACT.

Other Management Measures

Incidental Trip Limit

The MC did not recommend changes to the current 500 pounds (227 kg) or 50 percent, by weight, of all fish, including the golden tilefish, on board the vessel, whichever is less.

Recreational Bag Limit

The MC discussed recent trends in recreational landings. The MC expressed concern about the increase in effort in the recreational fishery in recent years and the fact that we do not have a good understanding of the magnitude of those landings. The MC is hopeful that the recreational data collection requirements recently implemented for blueline and golden tilefish will provide additional information regarding tilefish landings in the recreational fishery. The MC also indicated that the fishery is performing well and no changes to the recreational management measures (i.e., 8-fish per angler per trip) are required at the moment.

Other Issues

Doug Potts provided a brief update on the new private recreational tilefish permit and reporting requirement. As of June 1, 2021, GARFO had issued 444 vessel permits for 2021. This is much higher than initially expected and may be a good sign that outreach efforts have been successful. The number of Vessel Trip Reports has been low, at just 23. It is not clear to what extent this

reflects a low level of activity in the recreational fishery versus poor compliance with the reporting requirement. Outreach efforts will continue, and the high number of permits could allow for targeted reminders about the need to report. GARFO will provide an update on the number of permits and trip reports at the August Council meeting, and has committed to giving a presentation on the early successes and challenges of this program at the October Council meeting. Dewey Hemilright asked if permit and trip report data will be broken out by state. Doug replied that level of detail may not be in the August update, which will be part of the Regional Administrator's report. However, that detail could be included in the presentation in October, barring any data confidentiality restrictions.

Lastly, the MC shares the SSC significant concern with reductions in the biological port sampling that may negatively affect future assessments, including the next research track assessment model in 2024. The MC recommends that the Council writes a letter to the port sampling program regarding the need to maintain/increase port sampling.

Table 1. Summary of MC recommended catch and landings limits (in pounds unless otherwise noted) for 2022 (revised), 2023, and 2024.

	2022 (revised)	2023	2024	Basis
OFL	2,228,873 (1,011 mt)	2,226,669 (1,010 mt)	2,151,712 (976 mt)	Projections
ABC	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	Staff recommendation based on overfishing probability averaging
ACL	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	ABC = ACL
IFQ fishery ACT	1,763,478 (800 mt)	1,763,478 (800 mt)	1,763,478 (800 mt)	Deduction from management uncertainty = 0. IFQ ACT = 95% of the ACL and incidental ACT = 5% of the ACL. However, the MC is recommending an ACT that is below the ABC/ACL derived from the SSC recommendation and it is based on the more stable long-term productivity of the stock to acknowledge the positive development in the stock status but also to mitigate the potential risk to the stability and success in managing this relative data poor fishery
Incidental fishery ACT	92,815 (42 mt)	92,815 (42 mt)	92,815 (42 mt)	
Projected IFQ fishery discards	0	0	0	Data indicates no discards in the IFQ fishery (directed fishery). IFQ fishery discards are prohibited in the FMP
Projected incidental fishery discards	17,405 (8 mt)	17,405 (8 mt)	17,405 (8 mt)	Average discards (2016-2020) mostly sm/lg mesh OT and Gillnet gear
IFQ fishery TAL = IFQ fishery quota	1,763,478 (799.900 mt)	1,763,478 (799.900 mt)	1,763,478 (799.900 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts
Incidental fishery TAL = incidental fishery quota	75,410 (34.205 mt)	75,410 (34.205 mt)	75,410 (34.205 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts

Note: Initial OFL and ABC values are in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds.

Table 2. Summary of staff recommended catch and landings limits (in pounds unless otherwise noted) for 2022 (revised), 2023, and 2024.

	2022 (revised)	2023	2024	Basis
OFL	2,228,873 (1,011 mt)	2,226,669 (1,010 mt)	2,151,712 (976 mt)	Projections
ABC	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	Staff recommendation based on overfishing probability averaging
ACL	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	ABC = ACL
IFQ fishery ACT	1,866,103 (846 mt)	1,866,103 (846 mt)	1,866,103 (846 mt)	Deduction from management uncertainty = 0. ACT = 95% of the ACL
Incidental fishery ACT	98,216 (45 mt)	98,216 (45 mt)	98,216 (45 mt)	Deduction from management uncertainty = 0. ACT = 5% of the ACL
Projected IFQ fishery discards	0	0	0	Data indicates no discards in the IFQ fishery (directed fishery). IFQ fishery discards are prohibited in the FMP
Projected incidental fishery discards	17,405 (8 mt)	17,405 (8 mt)	17,405 (8 mt)	Average discards (2016-2020) mostly sm/lg mesh OT and Gillnet gear
IFQ fishery TAL = IFQ fishery quota	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts
Incidental fishery TAL = incidental fishery quota	80,811 (36.665 mt)	80,811 (36.655 mt)	80,811 (36.655 mt)	Incidental fishery TAL = incidental fishery ACT – incidental fishery discards. No additional reductions applied between incidental TAL amounts and final incidental fishery quota amounts

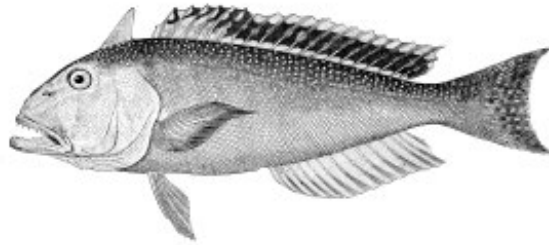
Note: Initial OFL and ABC values are in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds.

Table 3. Catch and landings limits (in million pounds unless otherwise noted) for the current specifications cycle (2021-2022).

	2021 (initial values)*	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)	1.601 m lb (726 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

*ABC values are typically reported 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. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds. **Due to the COVID-19 national emergency, the Council requested 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 through October 31, 2021. Only the IFQ TAL would be affected by the requested emergency carryover. All other specifications would remain at proposed 2021 values.

Golden Tilefish, *Lopholatilus chamaeleonticeps*, Management
Track Assessment through 2020 in the Middle Atlantic-Southern
New England Region



Paul Nitschke
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, MA 02543
June 23, 2021

This information is distributed solely for the purpose of pre-dissemination peer review. It has not been formally disseminated by NOAA. It does not represent any final agency determination or policy.

State of Stock: This assessment of Golden tilefish is an update through 2020 of commercial fishery landings and size and age data, commercial catch per unit effort (CPUE) indices of abundance, and the analyses of those data. The Golden tilefish stock was not overfished and overfishing was not occurring in 2020 relative to the newly updated biological reference points (Figure 1).

The 2017 operational assessment ASAP model was updated with landings, catch at length distributions, catch at age and mean weights at age using updated pooled and year specific age-length keys, and commercial CPUE data from 2017-2020 (Figures 2 to 7). The ASAP model developed at the SARC 58 benchmark assessment and updated at the 2017 operational assessment used a pool age-length-key due to the lack of age data during the development of the analytical model. Increases in available age data with this management track assessment allowed for the use of additional age data within the pooled age-length-key and the use of year specific age keys for more recent years.

The F_{MSY} proxy was updated using the new average of the fishing mortality during 2002-2012 (a period when the stock was rebuilding under constant quota = 905 mt or metric ton), providing an updated F_{MSY} proxy of 0.261 (equal to $F_{40\%}$), compared to the 2017 operational assessment value of 0.310 (equal to $F_{38\%}$). The SSB_{MSY} and MSY proxies were also updated using the same procedures as in the SARC 58 assessment. The updated SSB target = $SSB_{MSY} = SSB_{40\%} = 10,995$ mt (compared to the 2017 operational assessment $SSB_{38\%} = 9,492$ mt) and the updated SSB threshold = one-half $SSB_{40\%} = 5,498$ mt (compared to the 2017 operational assessment one-half $SSB_{38\%} = 4,746$ mt). The updated $MSY_{40\%} = 935$ mt (compared to the 2017 operational assessment $MSY_{38\%} = 957$ mt).

Based on the ASAP model the stock was at high biomass and lightly exploited during the early 1970s. As the longline fishery developed during the late 1970s, fishing mortality rates increased and stock biomass decreased to a time series low by 1998. Since the implementation of constant landings quota of 905 mt in 2002, the stock has increased approaching the biomass target reference point (SSB_{MSY} proxy).

The fishing mortality rate was estimated to be 0.160 in 2020, below the updated reference point F_{MSY} proxy = 0.261. There is a 90% probability that the fishing mortality rate in 2020 was between 0.110 and 0.222 (Figures 8 and 9). SSB was estimated to be 10,562 mt in 2020, 96% of the updated biomass target reference point SSB_{MSY} proxy = 10,995 mt. There is a 90% chance that SSB in 2020 was between 6,238 and 16,438 mt (Figures 8 and 9). Average recruitment from 1971 to 2020 was 1.48 million fish at age-1. Recent large year classes occurred in 1998 (3.0 million), 1999 (2.9 million) and 2005 (2.6 million). A recent large year class is estimated at 2.5 million in 2014. This year class has started to recruit to the large-medium market category in 2020. The updated 2020 final run had a minor retrospective pattern in fishing mortality (Mohn's $Rho = -0.09$), spawning stock biomass (Mohn's $Rho = +0.02$) and age-1 recruitment (Mohn's $Rho = +0.03$) (Figures 10 to 12).

Catch: Total commercial landings (live weight) increased from less than 125 mt during 1967-1972 to more than 3,900 mt in 1979 during the development of the directed longline fishery (Figure 2). Landings prior to the mid-1960s were landed as a bycatch in the trawl fishery. Annual landings ranged between 454 and 1,838 mt from 1988 to 1998. Landings from 1999 to 2002 were below 900 mt (ranging from 506 to 874 mt). An annual quota of 905 mt was implemented in November of 2001. Landings in 2003 and 2004 were slightly above the quota at 1,130 mt and 1,215 mt, respectively. Landings from 2005 to 2009 were at or below the quota, while landings in 2010 at 922 mt were slightly above the quota (Figure 2). Since 2010 landings have been below the quota and decreased to an estimated 494 mt in 2016. The landings have increase slightly to an average of 698 mt from 2017 to 2020. The Total Allowable Landings (TAL) was reduced for the first time in 2015 to 796 mt from the TAL of 905 mt which was in place from 2001-2014. The TAL in 2016 and 2017 was increased to 856 mt based on projections from the SARC 58 assessment. The TAL was then reduced to 738 mt from 2018 to 2021 based on the 2017 operational assessment.

During the late 1970s and early 1980s Barnegat, NJ was the principal tilefish port; more recently Montauk, NY has accounted for most of the landings. Most of the commercial landings are taken by the directed longline fishery. Discards in the trawl and longline fishery appear to be a minor component of the catch. Recreational catches are estimated to be low and were not included as a component of the removals in the assessment model.

Catch and Status Table: Golden Tilefish. Landings, SSB, Recruitment (age-1), and Fishing Mortality (FMULT) (weights in '000 mt live, recruitment in millions)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Max ¹	Min ¹	Mean ¹
Commercial landings	0.9	0.8	0.8	0.8	0.6	0.5	0.7	0.7	0.7	0.6	4.0	0.1	1.3
SSB	9.8	9.9	9.0	7.2	8.1	10.0	8.4	9.2	9.5	10.6	31.9	3.0	9.4
Recruitment	0.8	0.5	0.9	2.2	2.5	0.8	0.7	2.1	1.4	1.2	4.0	0.4	1.5
Fishing mortality	0.199	0.207	0.264	0.400	0.313	0.220	0.267	0.191	0.159	0.160	1.058	0.005	0.375

¹ Over period 1971-2020.

Commercial CPUE, market category and size composition data: Changes in the CPUE can be generally explained by the impact of strong incoming year classes that track through the landings size composition over time. Since the SARC 58 assessment there appear to be increases in CPUE due to one or two new strong year classes. In general, strong year classes and proportion of larger fish in the catch appear to persist longer in the fishery after the FMP’s quota based management came into effect, which is evident in both the CPUE and size composition data. The decrease in the CPUE from 2011 to 2016 is consistent with the ageing of the strong year class in 2005. The CPUE has increased since 2016 with another strong year class in 2014.

A recent broad size distribution and market category proportions show evidence of small fish while also showing the presence of larger fish in the catch. The increases in CPUE from the last strong year class in 2014 appears to be persisting longer than past increases cause by year class effects.

Projections: The projections are conditioned on the ABC being taken (742 mt) in 2021 and fishing at the F_{MSY} proxy = 0.261 from 2022 to 2026. Overfishing is not projected to occur in 2021 at a 17% probability with the removals of 742 mt.

Catch, Fishing Mortality (F), Spawning Stock Biomass (SSB),
Probability of $F > F_{MSY}$ and $SSB < SSB_{MSY}/2$
Catch and SSB in metric tons

Year	Total Catch	F	SSB	P($F > F_{MSY}$)	P($SSB < SSB_{MSY}/2$)
2021	742	0.207	10,061	0.172	0.026
2022	1,011	0.261	10,491	-	0.015
2023	991	0.261	11,165	-	0.004
2024	949	0.261	11,586	-	0.001

Stock Distribution and Identification: Golden Tilefish, *Lopholatilus chamaeleonticeps*, inhabit the outer continental shelf from Nova Scotia to South America and are relatively abundant in the Southern New England to Mid-Atlantic region at depths of 80 to 440 m. Tilefish have a relatively narrow temperature preference of 9 to 14 °C. The Virginia- North Carolina border defines the boundary between the northern and southern Golden Tilefish management units.

Data, Assessment Model and Model Sensitivity Runs: The surplus production model ASPIC was used to assess the Golden Tilefish stock in assessments previous (Nitschke et al. 1998, NEFSC 2005, 2009) to SARC 58 (NEFSC 2014). The availability of length and age data facilitated application of a forward projecting age-structured model ASAP (Legault and Restrepo 1998; NFT 2013) using a pooled age-length key in the SARC 58 stock assessment. The same pooled age-length key was used in the 2017 model update. However, new age data was available through 2020 for this 2021 management track assessment. Due to the additional age information the pooled age-length-key was updated to provide a more comprehensive key for use in years where age data did not exist. Actual year specific keys were used for 2007, 2009 to 2012, and 2014 to 2020 since improvements in age data now exists with efforts made towards production aging for golden tilefish (run2).

First, a bridge year run was made which used the existing data through 2016 from the 2017 operational assessment and used all available age data in the pooled age-length-key for years 2017 through 2020 (Figure 13). Then the first updated run used the new updated pooled age-length-key for all years (run 1, Figure 1). The final run takes one step further and used the updated pooled age-length-key for years with age data gaps and uses the year specific information in the recent years as production aging continues for golden tilefish. In general, there were similar trends among the model runs (Figure 1). The final run 2 does produce slightly lower Fishing mortality, a larger buildup of SSB in recent years with a slight shift to higher recruitment. The final run 2 that uses the available year specific data results in slightly more optimistic stock status ($F/F_{MSY} = 0.615$ and $SSB/SSB_{MSY} = 0.961$) relative to run one which used the update pooled age key for all year ($F/F_{MSY} = 0.670$ and $SSB/SSB_{MSY} = 0.852$). An additional sensitivity model run was made to determine the sensitivity of the model results to the estimated dome shaped selectivity assumption through an assumed shift of the age of full selection. This sensitivity tested the influence of a shift in fully selection from age 5 to 6 in the second selectivity block (Figure 14). However, the sensitivity run 3 still estimated full selectivity at age 5 (Figure 15). Forcing full selectivity at age 6 resulted in a shift to lower estimates of SSB. Not

surprising, the scaling of SSB estimates will be sensitivity to assumptions surrounding the dome shaped selectivity since the commercial CPUE index of abundance possesses the same selectivity assumption. Run 3 is only used to illustrate the uncertainty with regards to the selectivity assumption since there is no justification to change full selection to age 6 and because the model still estimates full selection at age 5 in the second selectivity block.

There are no fishery independent surveys available for this stock, so commercial CPUE is relied upon for indications of population abundance. Over the last twenty years, the commercial length and more recent age data indicate that increases in fishery CPUE and model estimated biomass are predominantly due to the influence of strong year classes in 1998, 1999, 2005 and 2014 (Figure 3). The 2014 year class is now passing through the fishery with predicted lower selection as the year class ages. Given the historical pattern, CPUE would be expected to decline in next few years with the aging of the strong 2014 year class if another new strong year class does not materialize. Review of commercial fishery practices and markets help justify the use of a dome-shaped selectivity pattern used in the assessment model developed at SARC 58. There is an indication for a dome shape selectivity pattern from spatial effects and from possible gear hook size selection from the 2017 pilot and 2020 tilefish longline surveys. This work has not been fully completed at this time. Uncertainty remains with the ability to quantify the degree of doming in the fishery.

Biological Reference Points (BRPs): Golden Tilefish are estimated to live about 40 years, and this information along with the SARC 58 likelihood profiles of the ASAP model indicated that a value for instantaneous natural mortality (M) of 0.15 was appropriate (NEFSC 2014). The long lifespan and relatively low M would suggest that a fishing mortality rate BRP of $F_{40\%}$ or higher $\%MSP$ would be appropriate. Under a management regime using a constant landings quota of 905 mt from 2002-2012, with actual landings close to the quota each year, the stock increased to 9,883 mt in 2012. SARC 58 (NEFSC 2014) therefore recommended using the average of the fishing mortality during 2002-2012, a period when the stock was rebuilding under constant quota = 905 mt, as the F_{MSY} proxy for Golden Tilefish.

This update indicates that fishing mortality rates have averaged 0.261 from 2002-2012, and by coincidence the updated yield per recruit analysis shows that this fishing rate now corresponds to $F_{40\%}$, compared to the $F_{38\%}$ estimate calculated in the 2017 operational assessment. Therefore, the updated BRPs proxies using the same average F calculations as in SARC 58 and the 2017 operational assessment produced a F_{MSY} proxy = 0.261 (overfishing threshold), with corresponding SSB_{MSY} proxy = 10,995 mt (SSB target), one-half SSB_{MSY} = 5,498 mt (SSB threshold), and MSY = 935 mt. SSB_{MSY} was calculated from median estimates of long term (100 years) stochastic projections fishing at the F_{MSY} proxy = 0.261 which resampled from the CDF of empirical recruitment from 1971-2020.

Fishing Mortality: Fishing mortality on the fully selected age class (age 5, F_{MULT}) increased with the development of the directed longline fishing from near zero in 1971 to 1.058 in 1987 (Figure 8). Fishing mortality then remained relatively high through the 1990s. Fishing mortality has been lower since 1999 and was estimated to be 0.160 in 2020. F_{MULT} 90% confidence intervals were 0.110 and 0.222 in 2020 (Figure 9).

Spawning Stock Biomass: Spawning stock biomass decreased substantially early in the time series from 31,876 mt in 1974 to 4,375 mt in 1998, lowest in the time series (Figure 8). SSB has since increased to 10,562 mt in 2016. Spawning stock biomass 90% confidence intervals were 6,238 and 16,438 mt in 2020 (Figure 9).

Recruitment: Average recruitment from 1971 to 2020 was 1.48 million fish at age 1. Recent large year classes occurred in 1998 (3.0 million), 1999 (2.9 million) and 2005 (2.6 million). A recent large year class is estimated at 2.5 million in 2014 (Figure 1). An above average year class is estimated at 2.1 million in 2017. However, the size of the 2017 year class remains highly uncertain since it just began to enter the fishery in 2020.

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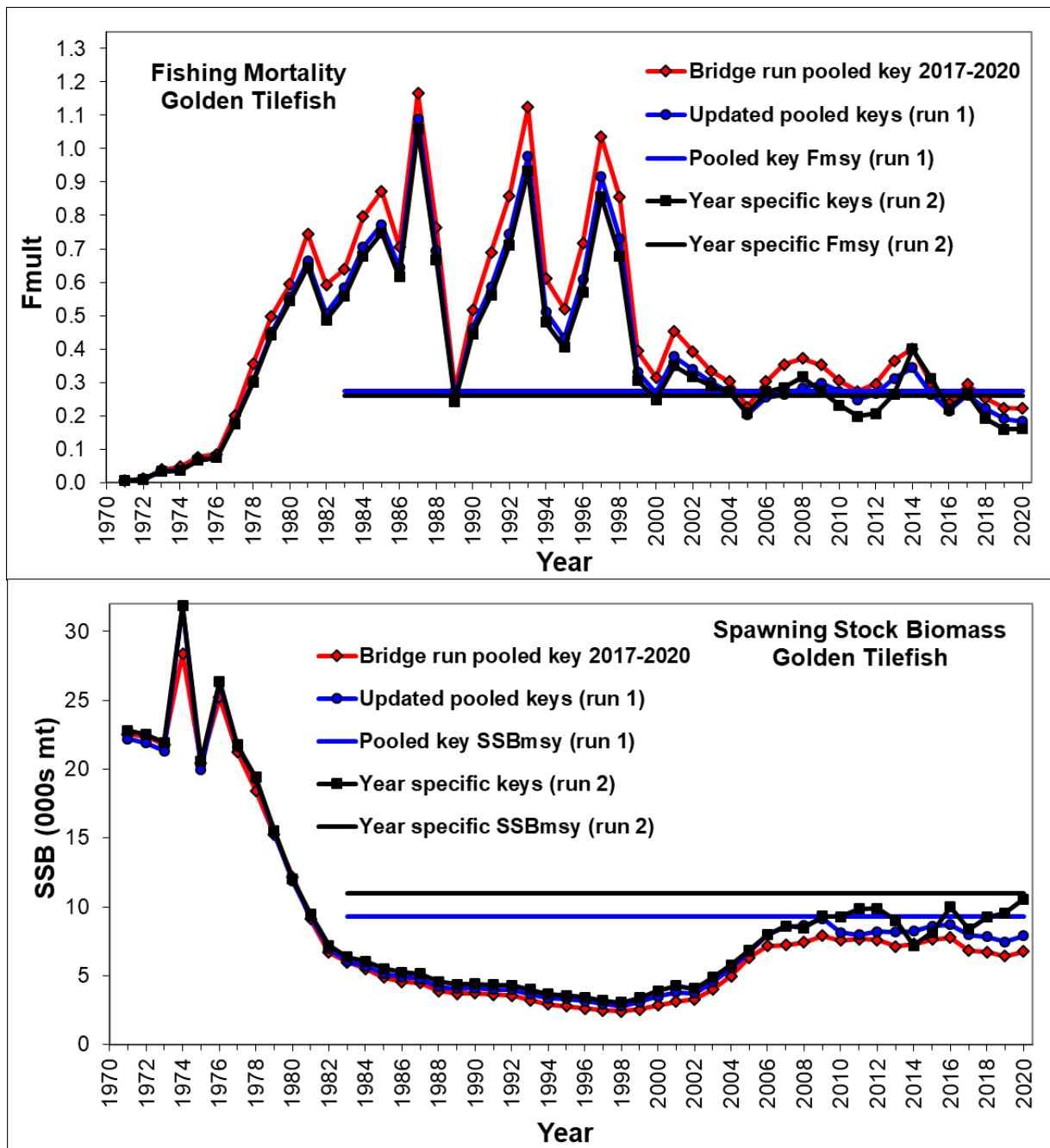


Figure 1. F_{MULT} , spawning stock biomass (SSB), and age-1 recruitment comparison of the 2017 operational assessment model bridge ASAP model, updated pooled age key run (run 1) and the final update run 2 using the updated pooled-age-key and year specific keys for years where age data is available. The updated pooled key run 1 and final year specific key run 2 estimated F_{MSY} and SSB_{MSY} biological reference points during the second selectivity block are also shown for comparison.

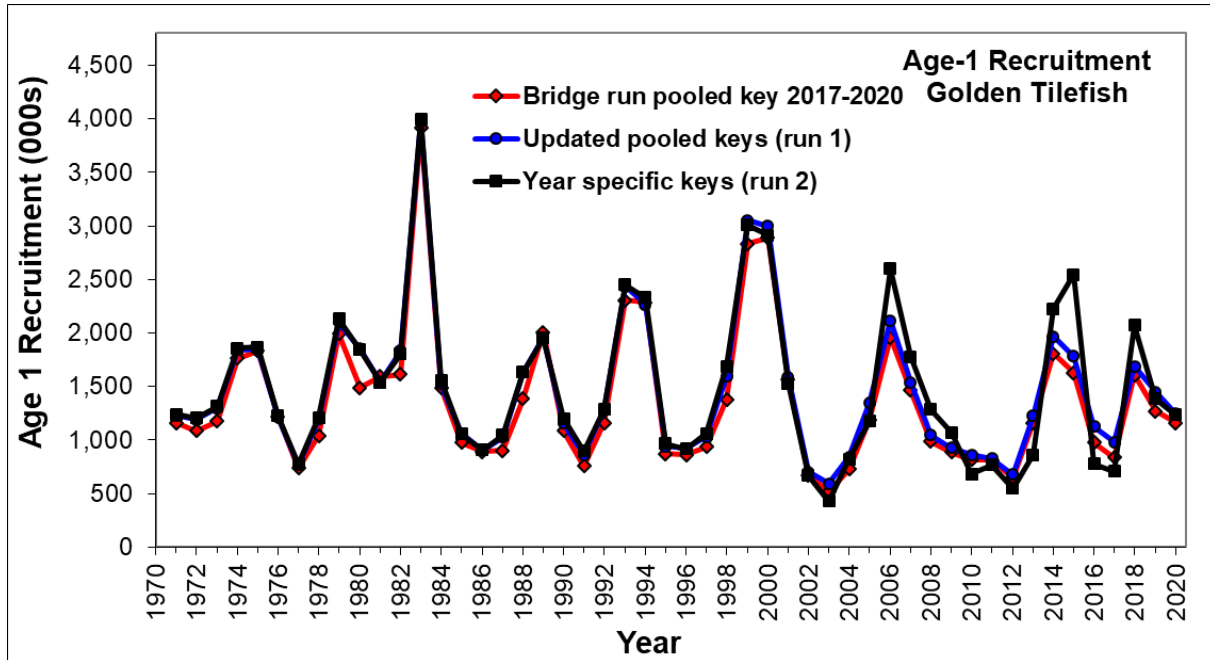


Figure 1. Cont. F_{MULT} , spawning stock biomass (SSB), and age-1 recruitment comparison of the 2017 operational assessment model bridge ASAP model, updated pooled age key run (run 1) and the final update run 2 using the updated pooled age key and year specific keys for years where age data is available. The updated final run 2 estimated F_{MSY} and SSB_{MSY} biological reference points during the second selectivity block are also shown for comparison.

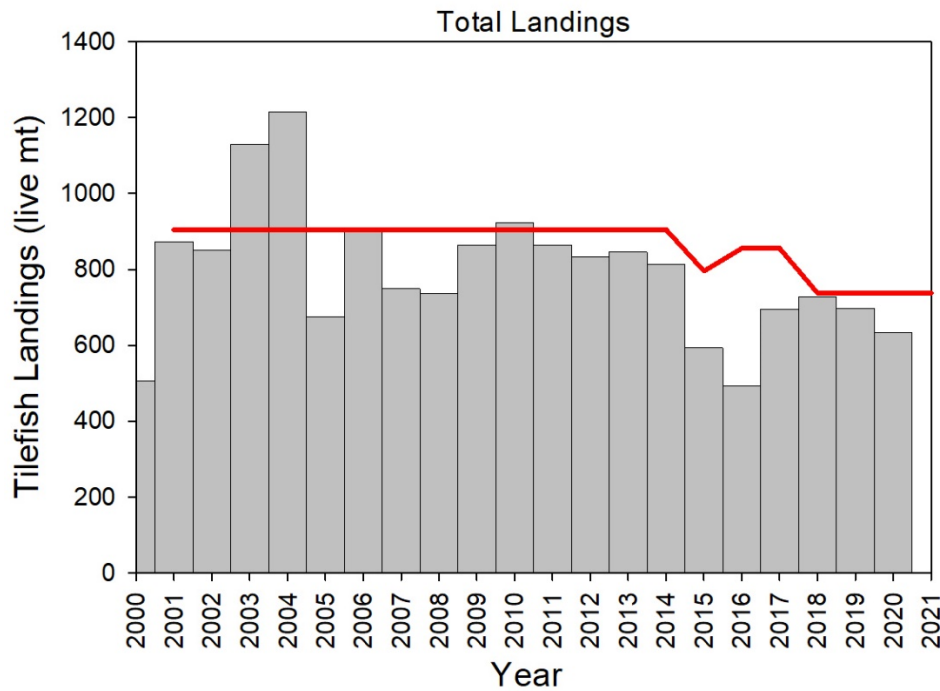
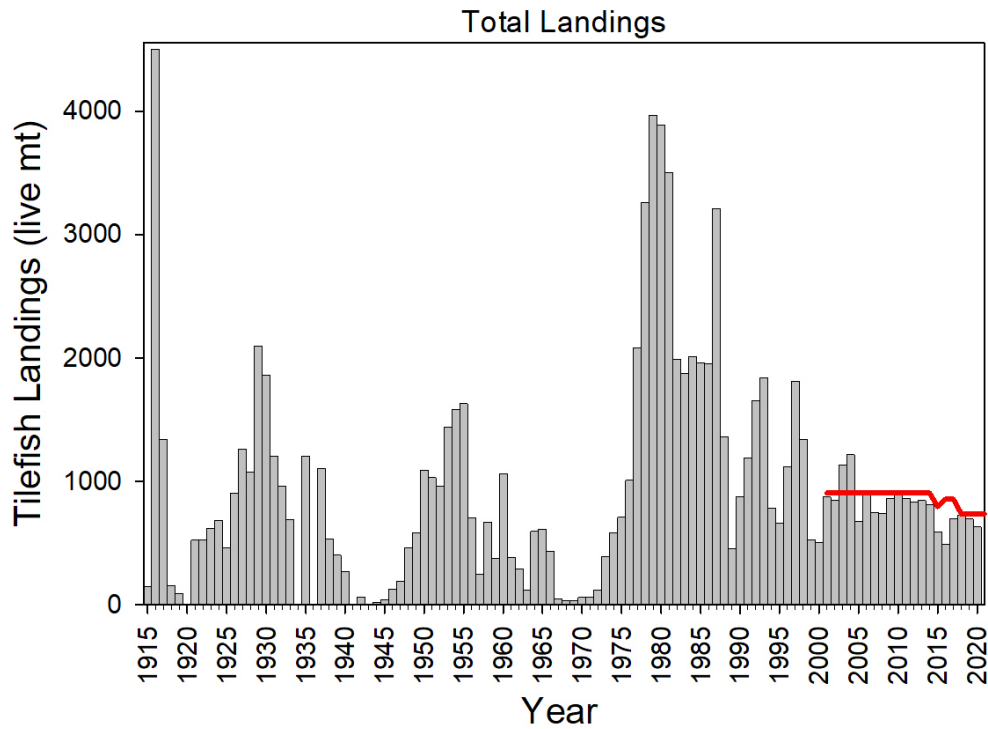


Figure 2. Landings of tilefish in metric tons from 1915-2020 (top) and from 2000-2020 (bottom). Landings in 1915-1972 are from Freeman and Turner (1977), 1973-1989 are from the general canvas data, 1990-1993 are from the weighout system, 1994-2003 are from the dealer reported data, and 2004-2020 is from dealer electronic reporting. Red line is the Total Allowable Landings (TAL) from 2001-2021.

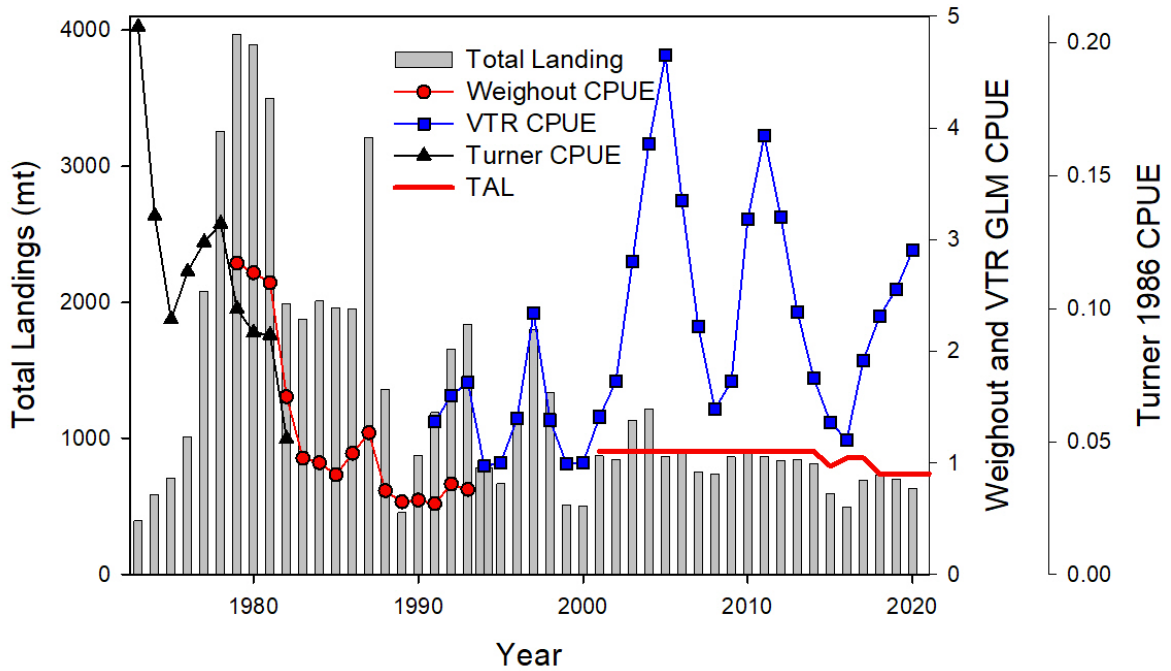


Figure 3. General Linear Model (GLM) Catch Per Unit Effort (CPUE) for the Weighout and Vessel Trip report (VTR) data split into two series with additional New York logbook CPUE data from three vessels (1991-1994) added to the VTR series. Four years of overlap between the Turner (1986) and Weighout CPUE series can also be seen. ASAP relative changes in q_s among CPUE series were not incorporated into the plot. Assumed total landings are also shown. Landings in 2005 were taken from the Interactive Voice Reporting (IVR) system. Red line is the Total Allowable Landings (TAL).

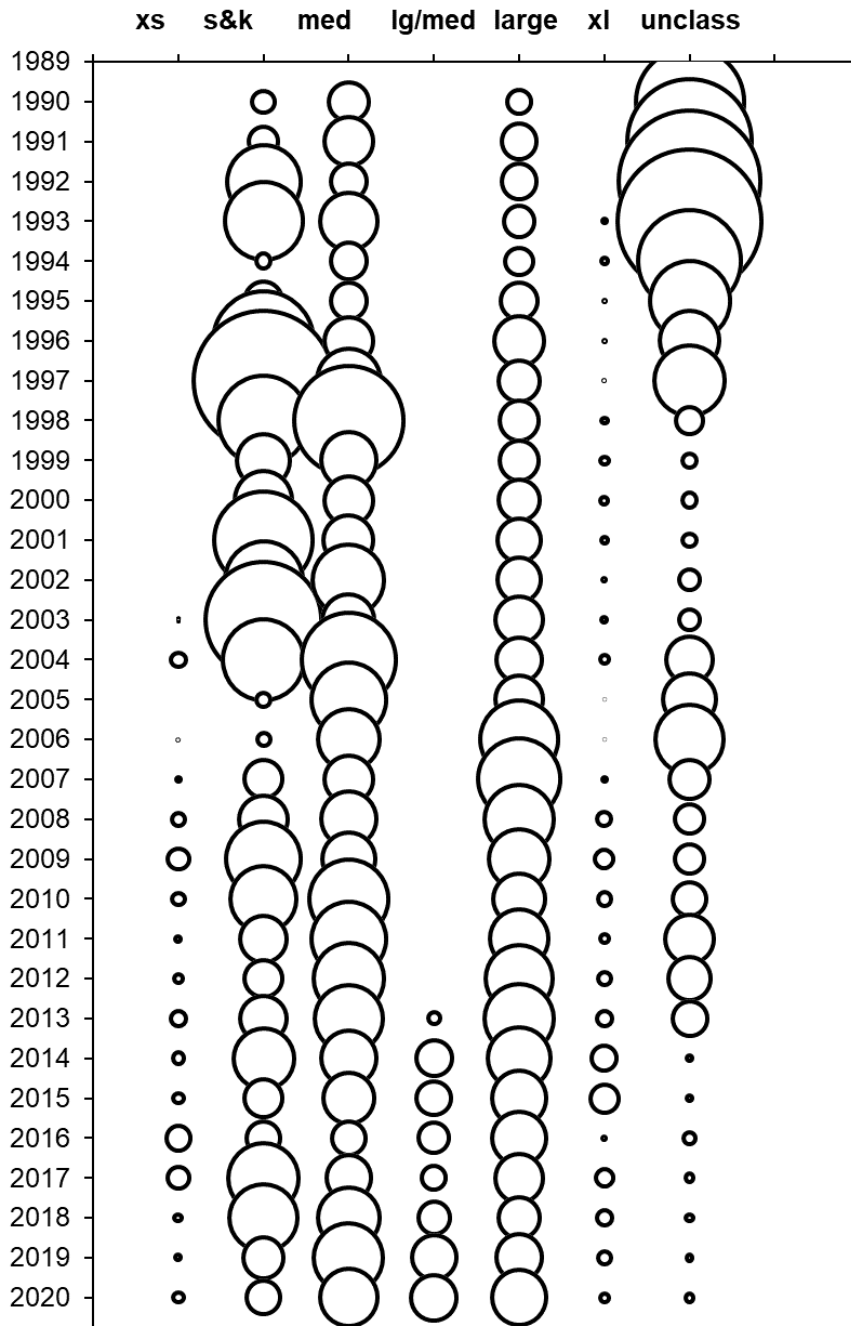


Figure 4. Bubble plot of Golden tilefish landings by market category. Large-medium market category code was added in 2013 which appears to have resulted in a decrease in the unclassified. Smalls and Kittens (s&k) were combined since these categories possess similar size fish.

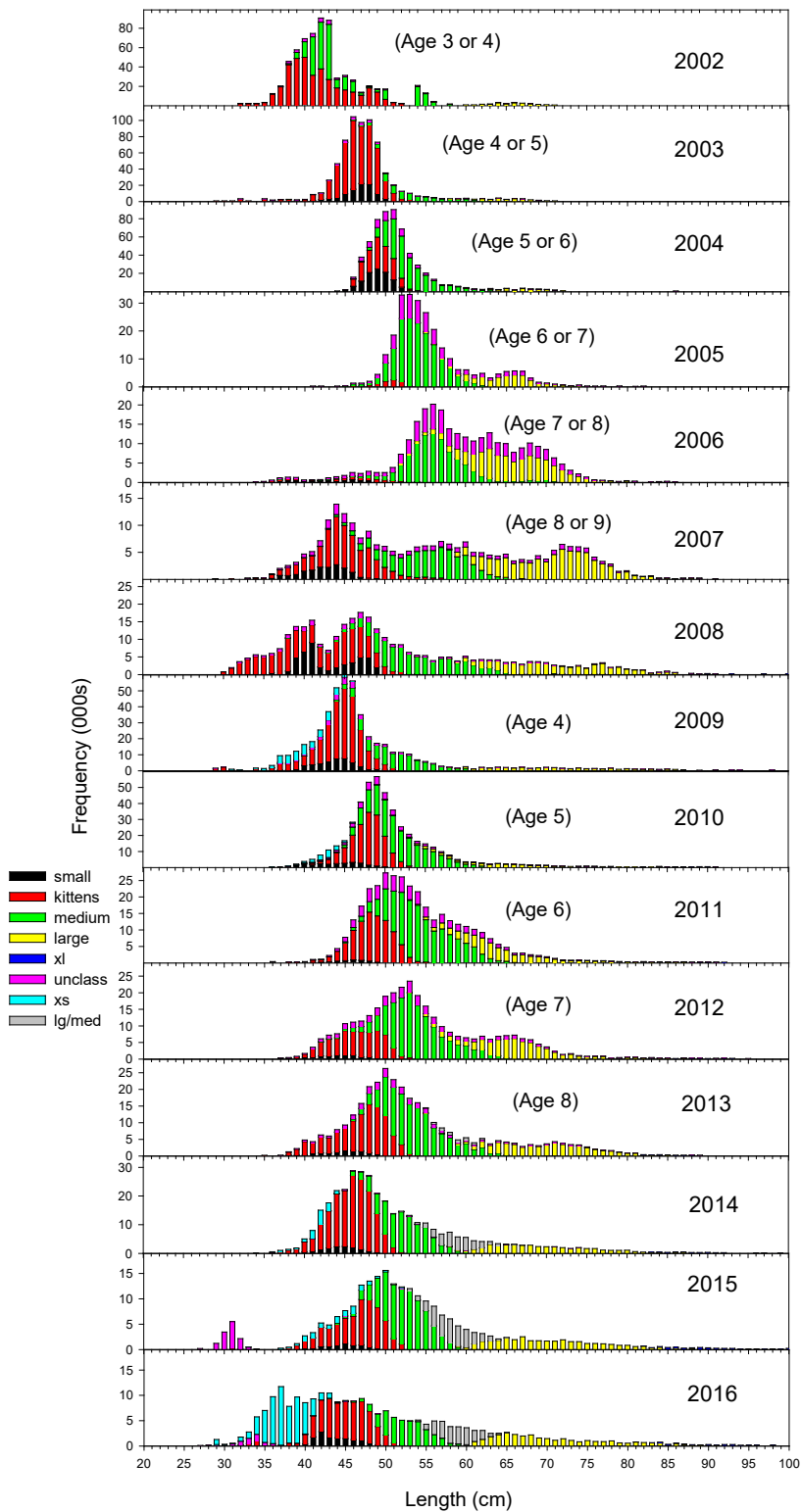


Figure 5. Expanded length frequency distributions from 2002 to 2016. Kittens lengths were used to characterize the extra small category in 2013. **Y-axis is allowed to rescale.**

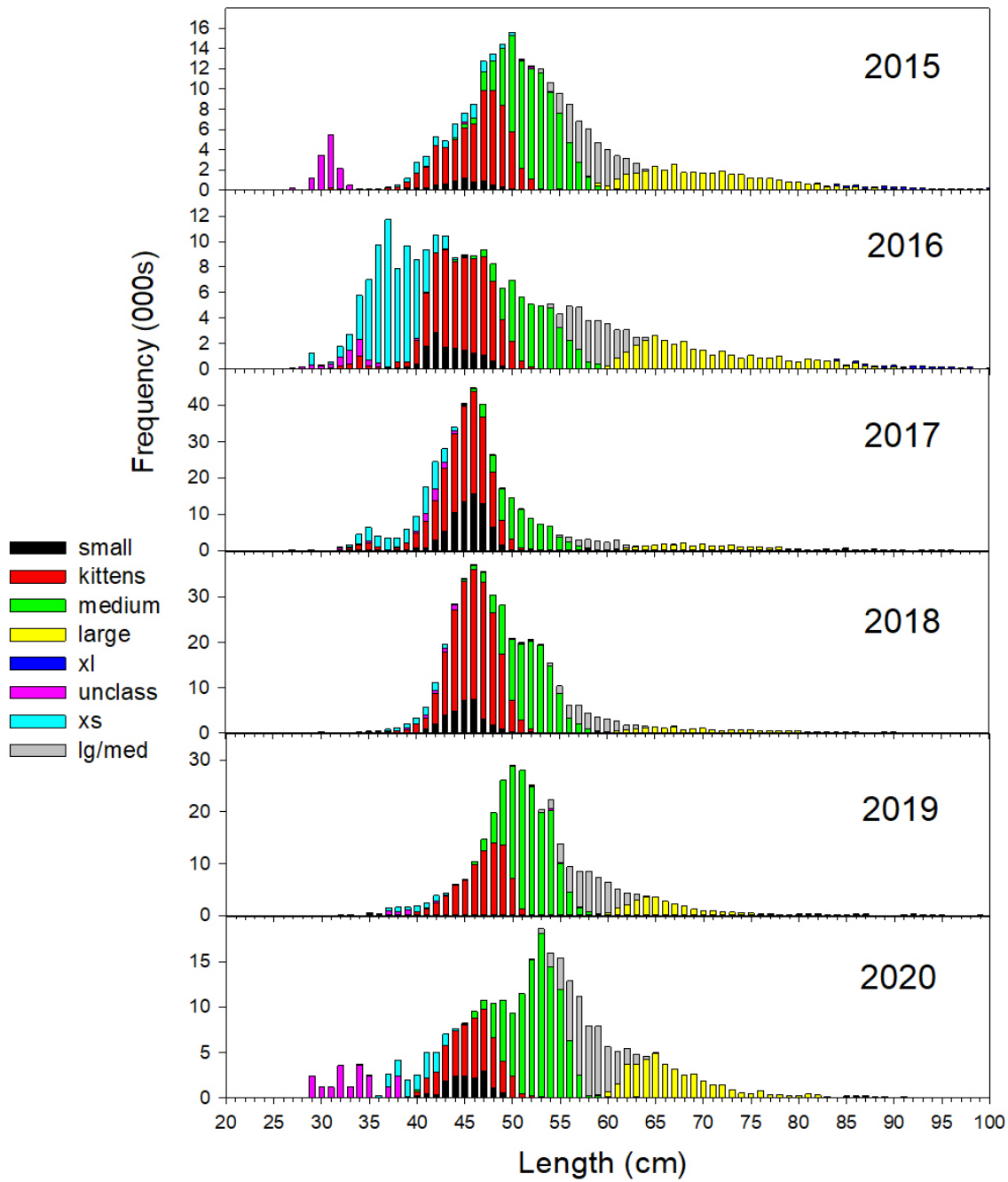


Figure 6. Expanded length frequency distributions from 2015 to 2020. Unclassifieds in 2015 and 2020 are based on two samples. **Y-axis is allowed to rescale.**

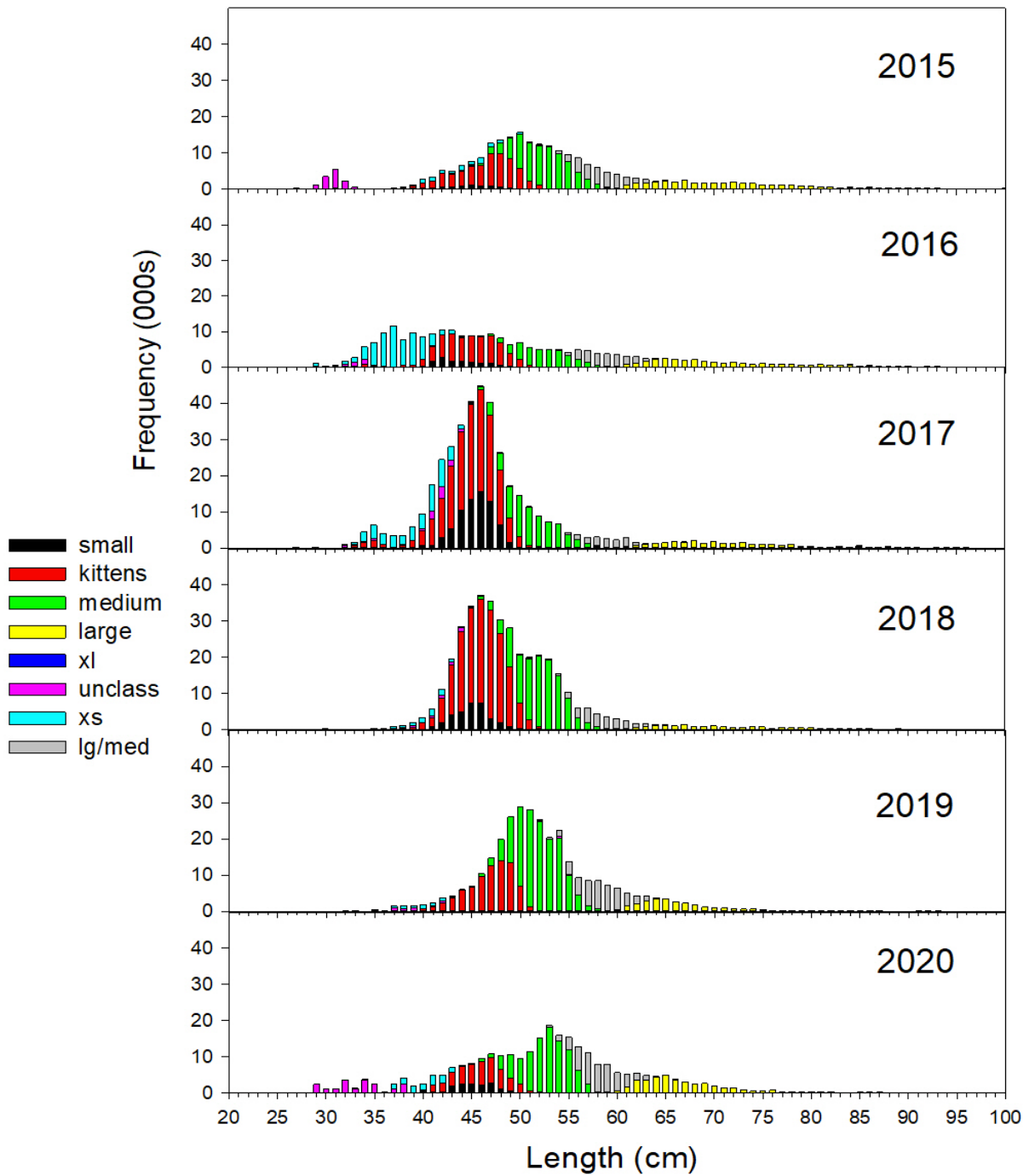


Figure 7. Expanded length frequency distributions from 2015 to 2020. Unclassifieds in 2015 and 2020 are based on two samples. **Y-axis is fixed to the same scale across years.**

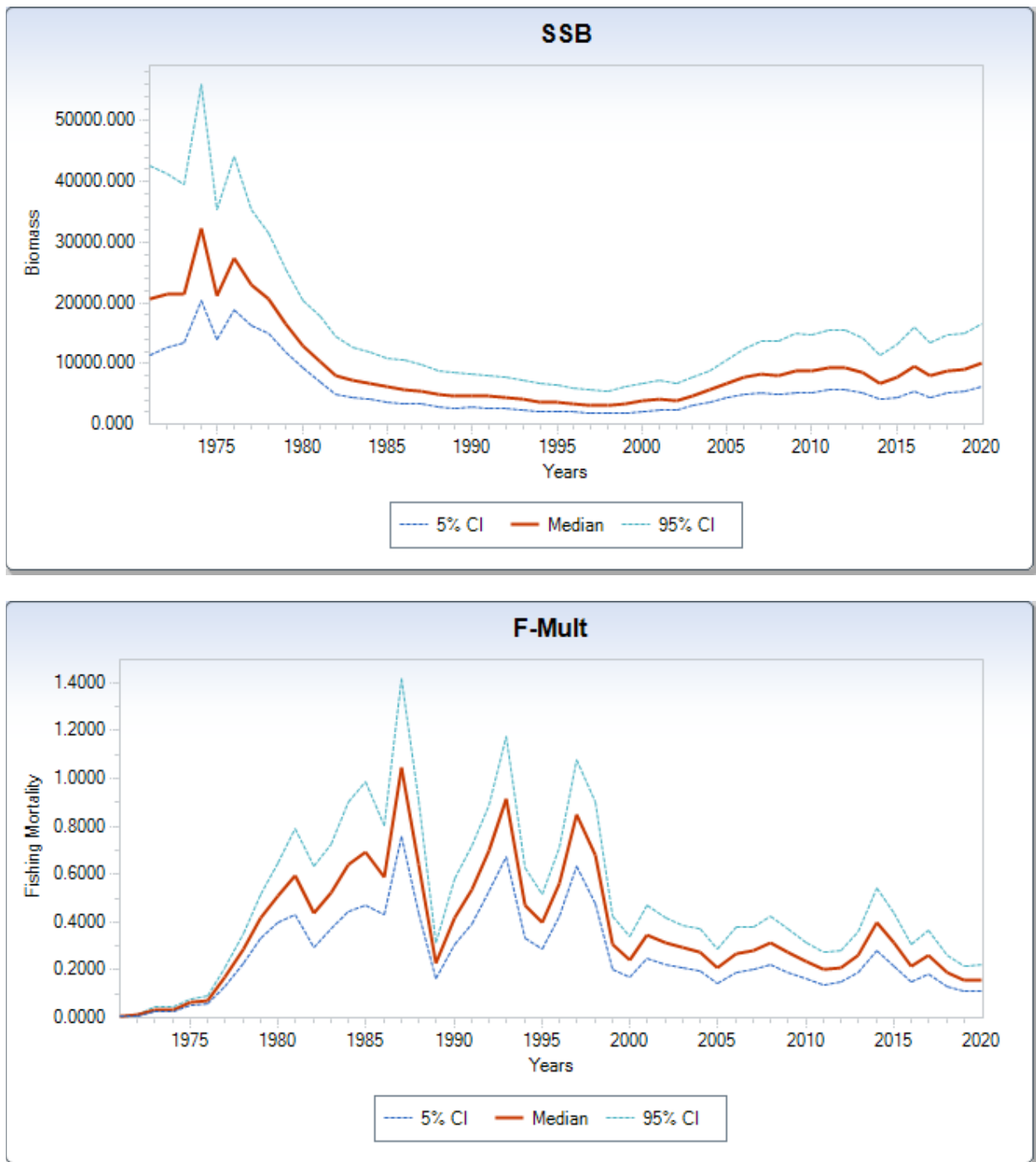


Figure 8. Updated 2021 final run 2 ASAP model estimated fishing mortality (F_{MULT}) and SSB with MCMC estimated 90% confidence intervals.

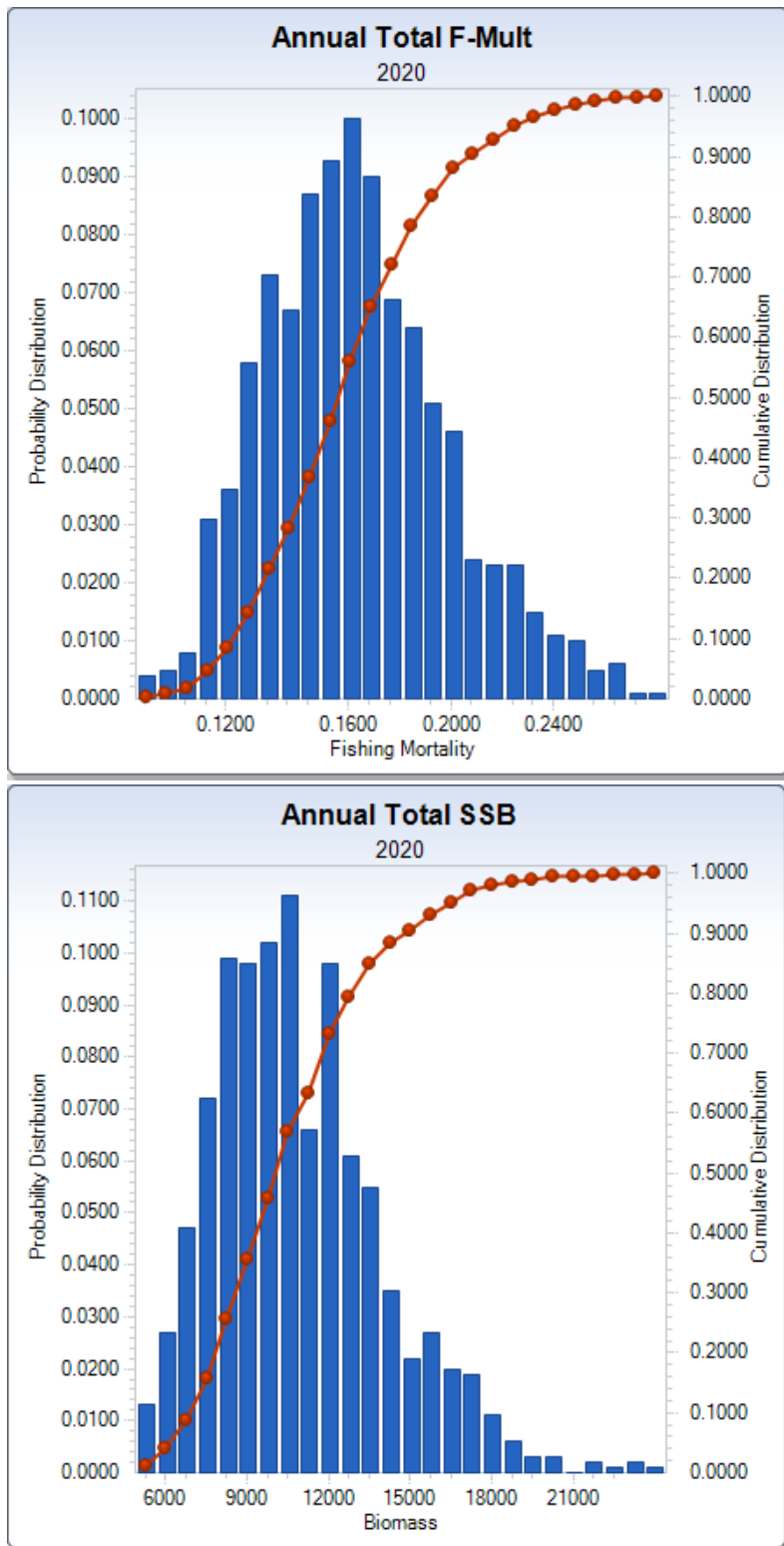


Figure 9. MCMC 2020 distributions for fishing mortality (F_{MULT}) and SSB. The percent confidence intervals can be taken from the cumulative frequency. The 2016 point estimate for fishing mortality = 0.160 and SSB = 10,562 mt.

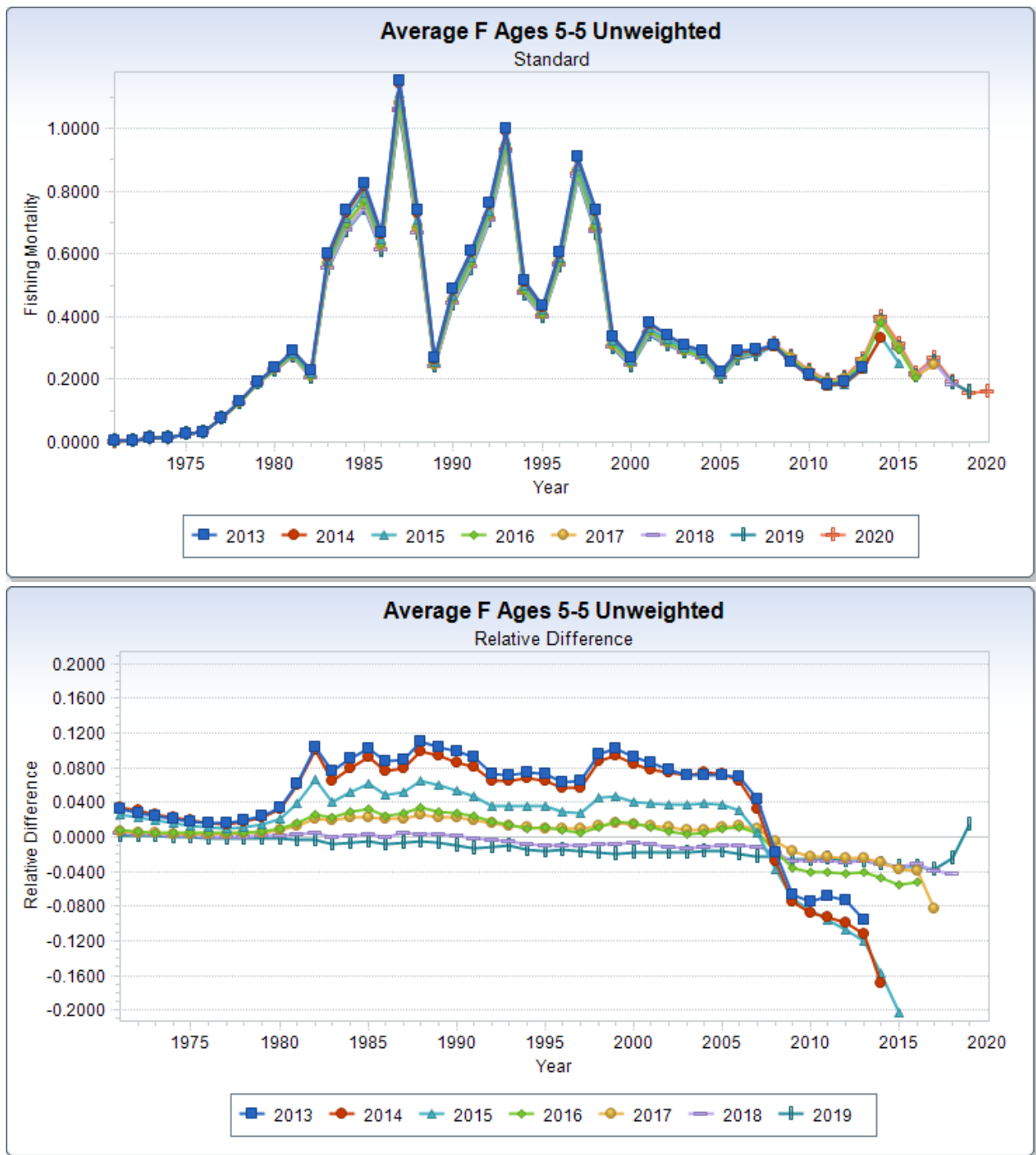


Figure 10. Updated 2017 model 7 peel retrospective analysis: fully recruited F age 5 = F_{Mult} ; Mohn's Rho = -0.09.

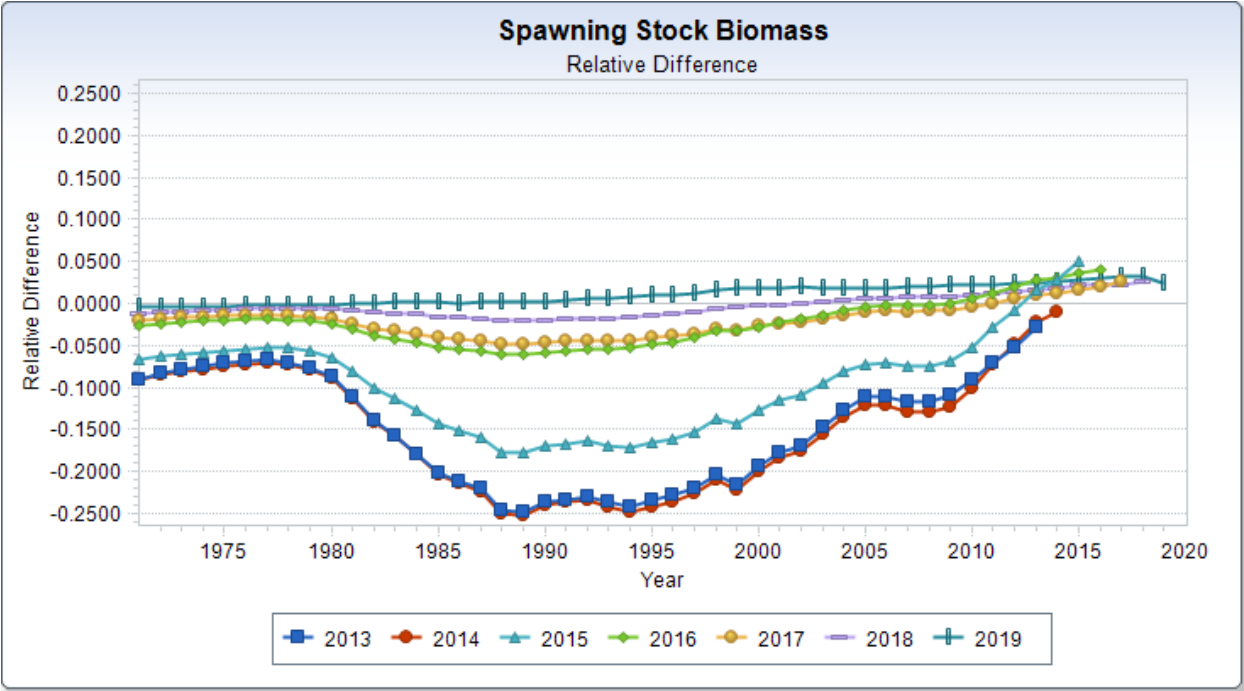
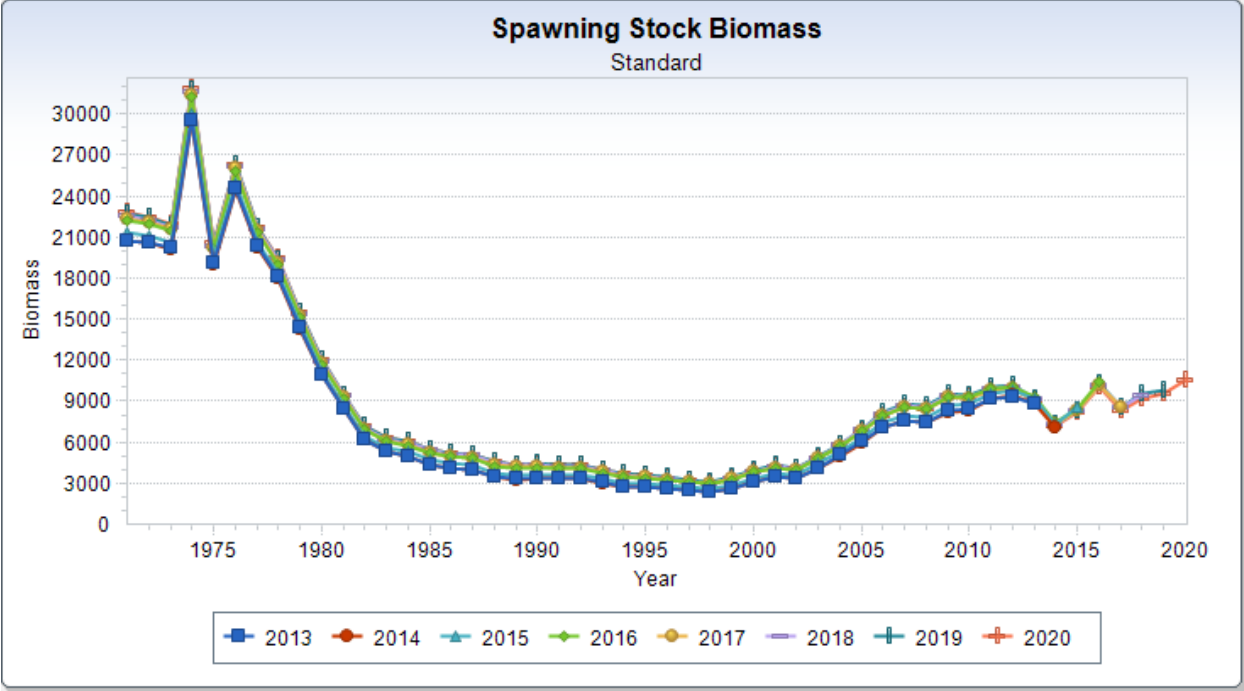


Figure 11. Updated 2017 model 7 peel retrospective analysis: Spawning Stock Biomass; Mohn's Rho = +0.02.

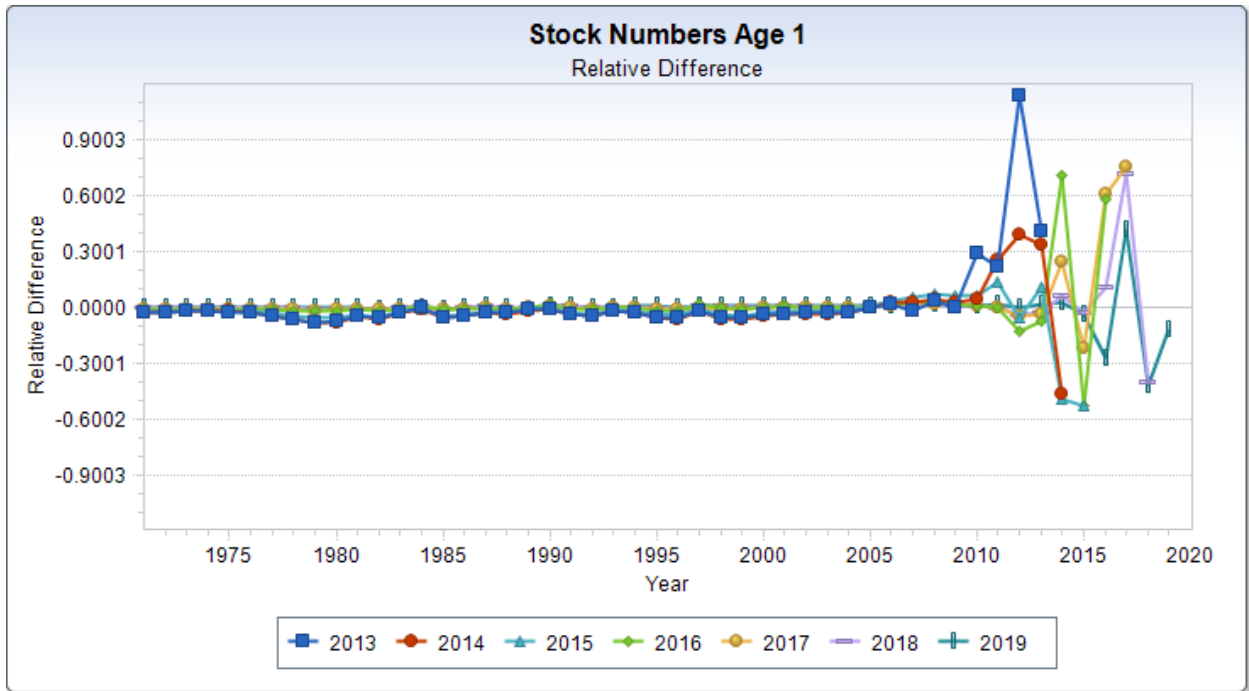
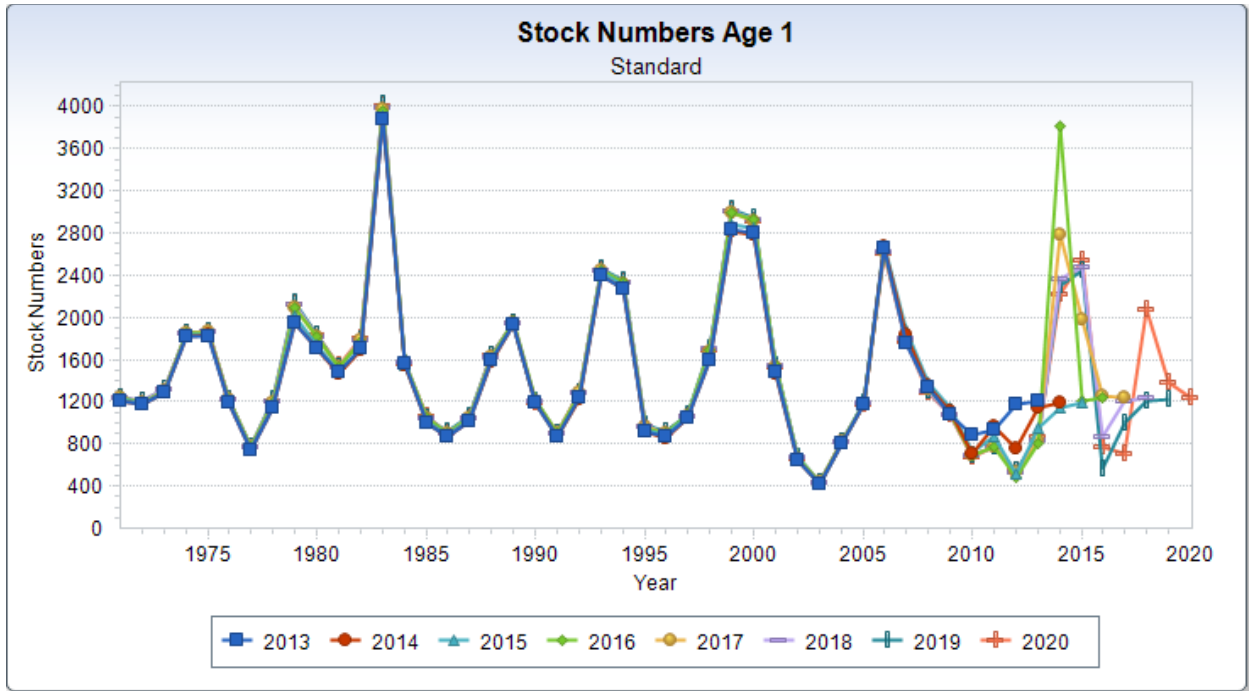


Figure 12. Updated 2017 model 7 peel retrospective analysis: Age-1 Recruitment; Mohn's Rho = +0.03.

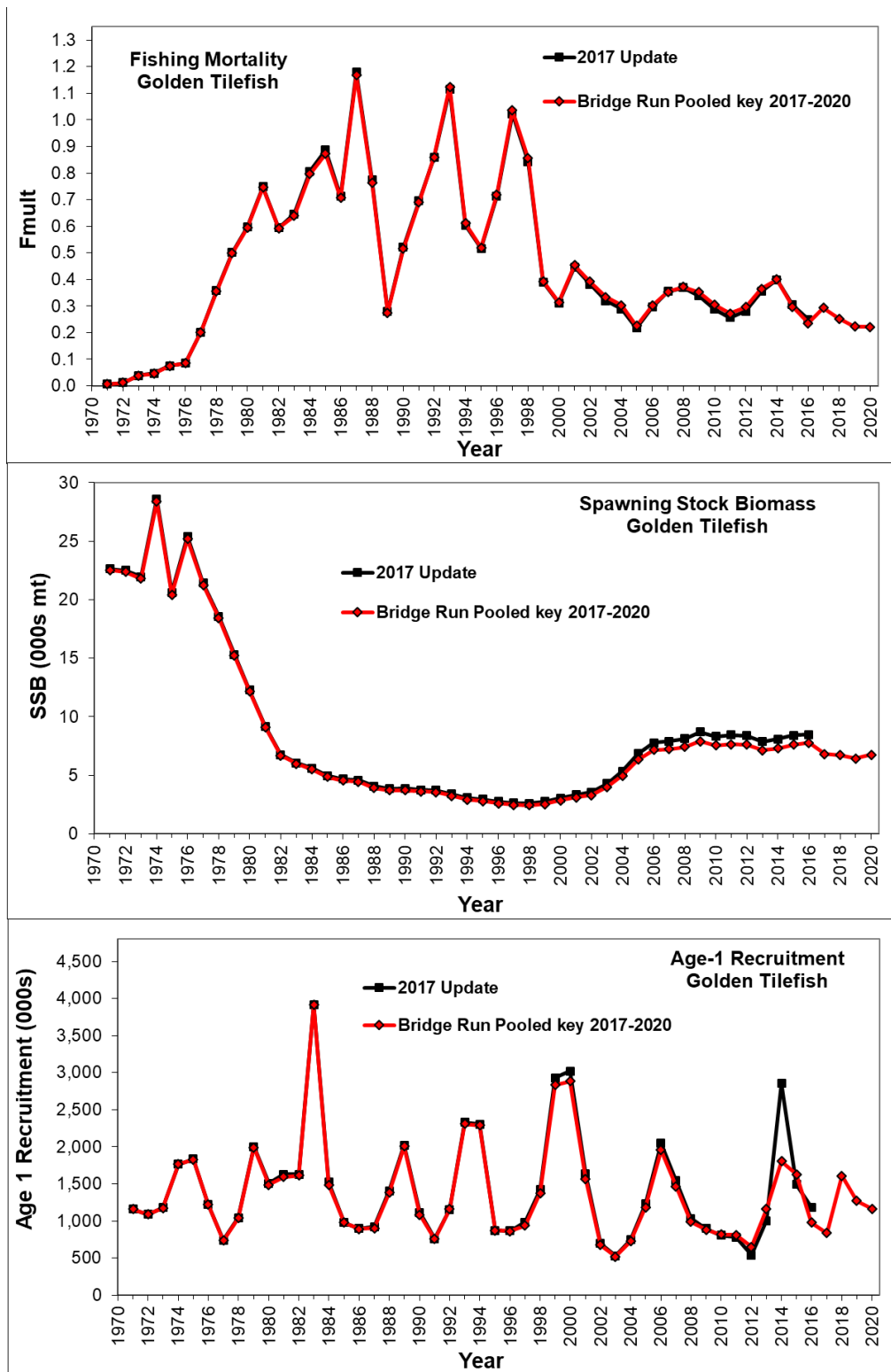


Figure 13. F_{MULT} , spawning stock biomass (SSB), and age-1 recruitment comparison of the 2017 operational run with the 2021 bridge run that added 2017 to 2020 data.

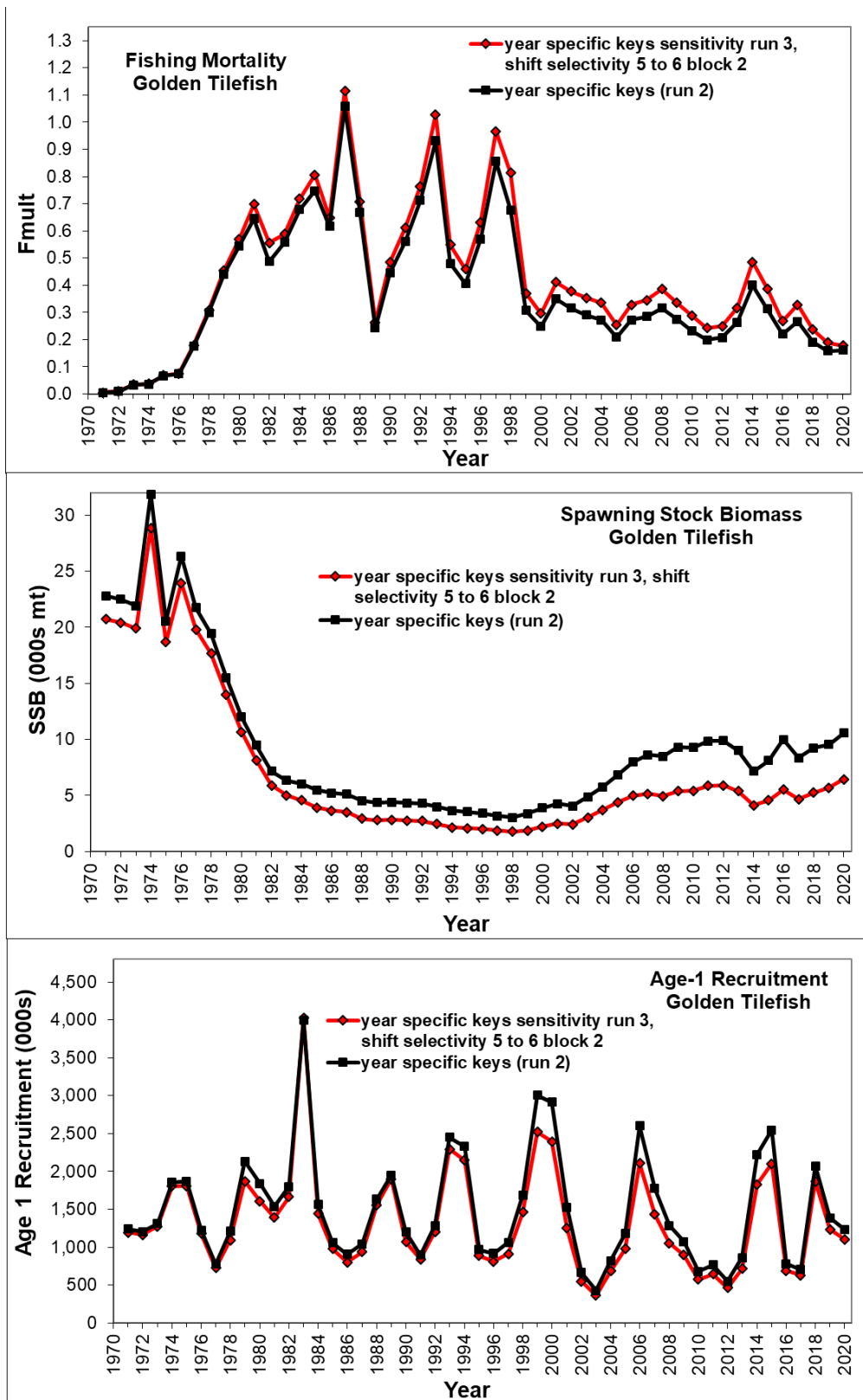


Figure 14. F_{MULT} , spawning stock biomass (SSB), and age-1 recruitment comparison of the 2021 final run 2 to a sensitivity run 3 which shifted the assumed age of full selectivity from age 5 to age 6 in the second selectivity block (1983-2020).

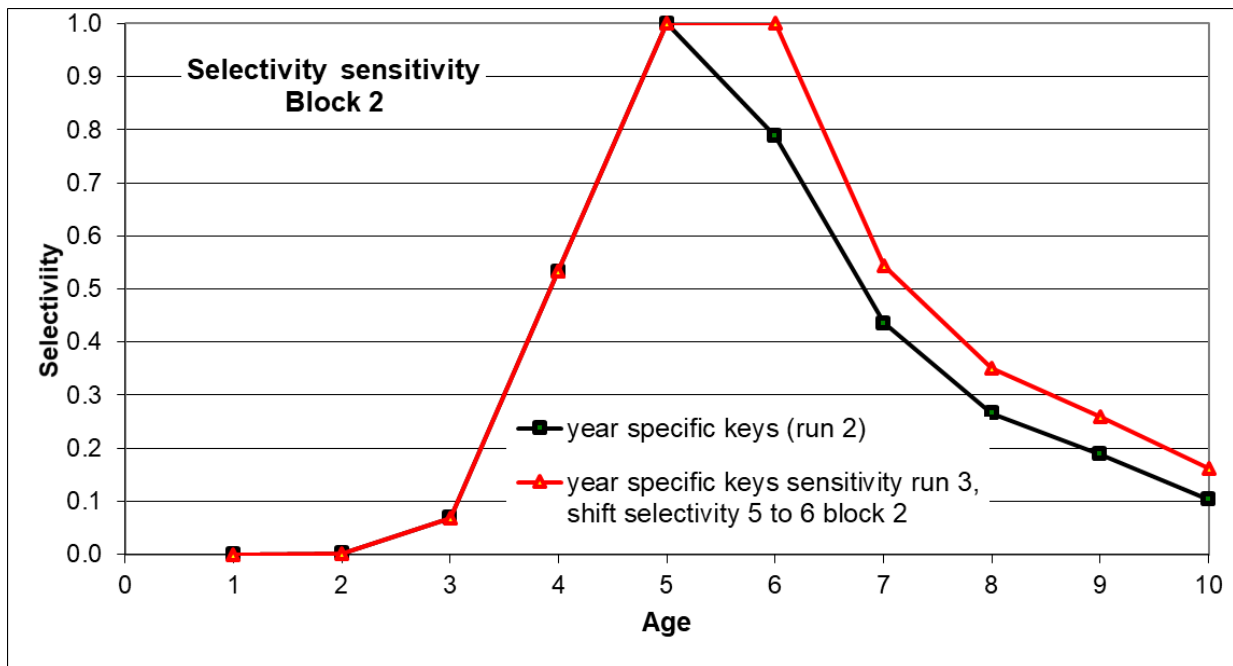


Figure 15. Estimated selectivity at age comparison of the 2021 final run 2 to a sensitivity run 3 which shifted the assumed age of full selectivity from age 5 to age 6 in the second selectivity block (1983-2020).



Golden Tilefish Fishery Performance Report

February 2021

The Mid-Atlantic Fishery Management Council's (Council) Tilefish Advisory Panel (AP) met via webinar on February 17, 2021 to review the Fishery Information Document and develop the following Fishery Performance Report. The primary purpose of this report is to contextualize catch histories by providing information about fishing effort, market trends, environmental changes, and other factors. A series of trigger questions listed below were posed to the AP to generate discussion of observations in the golden tilefish fishery. Please note: Advisor comments described below are not necessarily consensus or majority statements.

Advisory Panel members present: Fred Akers (Private), Gregory Hueth (Private/For-hire), Robert Bogan (For-hire), Douglas Zemeckis (Rutgers), Skip Feller (For-hire), and Michael Johnson (Commercial).

Others present: Paul Nitschke (NEFSC), Dan Farnham (Council Member), Scott Lenox (Council Member), Sonny Gwin (Council member), Dewey Hemilright (Council Member), Joe Cimino (Council Member), Michelle Duval (Council Member), James Fletcher (UNFA), Laurie Nolan (Commercial), Doug Potts (GARFO), Paul Rago (SSC), Matthew Seeley (Council Staff), and José Montañez (Council Staff).

Trigger questions:

1. What factors have influenced recent catch (markets/economy, environment, regulations, other factors)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

Market/Economic Conditions

The COVID-19 pandemic caused a large reduction in the demand for golden tilefish with restaurant closures. 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.

Environmental Conditions

Commercial fishermen indicated that they continue to see aggregations of large fish in all canyons in the Mid-Atlantic region.

Overall, environmental conditions did not adversely impact catch in 2020.

Management Issues

AP members noted appreciation in the positive way the Council and GARFO responded to the industry request of a one-time roll over of a 5% of unused IFQ 2020 quota allocation to the 2021 fishing year.

AP members also indicated support for the proposed Council work to initiate a golden tilefish multi-year specifications framework as listed under the 2021 Council proposed actions and deliverables. The AP members also support changing the current fishing year (November 1 – October 31) to January 1 – December 31. The industry feels ending the fishing year in December, rather than October, will create more stability in harvesting their full allocation. October can be a very stormy month with fish on the move.

General Fishing Trends

Fishermen indicated a good mix of fish in 2020, perhaps better than in previous years. In addition, a larger amount of small or kittens (2 to 3.5 pounds) were present in 2020 compared to previous years. That is, a higher percentage of small or kitten fish were landed on a trip per trip basis (3,000 pounds per trip in 2020 versus 1,000 pounds per trip around 2018-2019). The number of small/kittens landed have continued to increase in 2021.

Industry members commented CPUE increased in 2020. More fish are being caught with the same trip effort than were caught in 2019.

Other Issues

Another AP member indicated that while there are five headboats that fish for tilefish (both blue-line and golden) in the mid-Atlantic they have a limited number of dedicated tilefish trips throughout the season (summertime). For example, the boat that has the largest number of trips scheduled during the year (a boat Point Pleasant) has about 24 scheduled trips per year and not all trips are conducted (i.e., taking 50 to 60% of scheduled trips) and in some instances not all of them are full. The other four boats have substantially less tilefish trips scheduled per year.

For-hire effort was reduced in 2020 due to COVID-19, and the industry is expecting the same for 2021. In addition, the industry experienced cancellations of overnight trips in 2020 due to the pandemic. Furthermore, in 2020, tuna fishing was better than average, which resulted in less

boats targeting golden tilefish. As a general rule, when tuna fishing is not good, anglers offset those trips by targeting tilefish.

AP members indicated that Captains and crew should be included in the comingled bag limit (recreational possession limit) for a trip. In other words, the Captain and Crew should also be allotted a bag limit.

AP members indicated that the landings monitoring program of the IFQ system is very reliable. In all, there is good accountability mechanisms to track landings in the directed commercial fishery (IFQ vessel) and VTR data (commercial and recreational vessels). However, there is concern that directed incidental trips (non-otter trawl vessels) may be missing. Currently, there is no accurate information of catch/landings by private recreational anglers. However, it is expected that as the new private reporting continues, we will have better information on this sector of the fishery.

Some AP members would like the Council to consider a differential trip limit (for-hire vs private) and longer recreational trips. In addition, they suggested that the Council considers recreational management strategies (e.g., longer recreational trips, multi-day bag limits), structured after the Gulf of Mexico regulations (would make filling trips easier). Multi-day bag limits are important because a hand full of boats target tilefish in January-February when the black sea bass season is closed and while they do not catch much tilefish, this management change could help their business sell more trips. These management changes could be considered when a quota liberalization is on the table (quota going up).

Some AP members would like the Council to consider a recreational allocation.

Some AP members indicated concerns about relaxing recreational regulations (as they could potentially lead to higher recreational landings) while the commercial quota could remain at *status quo* levels or potentially decrease in the future.

A commercial AP member expressed concerns over increasing any effort, bag limit or quota in the fishery at this time. They felt it would be unfair to allow for an increase in effort/bag limit in the recreational sector while maintaining *status quo* for the commercial sector.

Some AP members indicated that the number of golden tilefish reported under the private VTR data for the August – December 2020 period appears to be low. Council staff responded that the low landings associated with private anglers may be attributed to the short fishing season (as a result of when implementation occurred), this being the first-time recreational anglers are required to report, and the COVID-19 pandemic likely decreasing effort further offshore. Another AP member indicated that given that the private boat permit reporting was started late in the season, the low reported landings are not a good representation of the full year private boat catch.

Another AP member indicated that he disagreed that the private boat recreational effort was decreased by COVID-19. He saw more private recreational fishing boats everywhere in state and federal waters, and have read that recreational boat sales were very high in 2020.

Research Priorities

A list of the comprehensive five year (2020-2024) research priorities (see below) was presented to the AP members to review the process on these priorities. Staff asked the AP members what priorities should stay, be removed, and/or added to the list. The text in *italics* after each research priority indicates current status.

1) Investigate stock structure utilizing otolith microchemistry and other genetic analyses for different Mid-Atlantic stocks (including golden tilefish).

No recent progress. The work of Katz et al. (1983) used significant differences in allelic frequencies to identify distinct stocks between mid-Atlantic and South Atlantic tilefish. Those authors also felt that certain aspects of golden tilefish distribution, life history and ocean circulation patterns supported their two stock hypothesis for the United States Atlantic.

Furthermore, Jill Olin (Michigan Technology University) and her team are in the process of acquiring otolith microchemistry data from samples of golden tilefish collected during the 2017 pilot survey. They are exploring early life history questions (related to timing of settlement from pelagic) and differences in collection location (assess if Hudson individuals differ from Veatch individuals) among other research questions.

2) Implement novel supplemental surveys to derive fishery independent indices of abundance.

Work in progress. Results from the pilot tilefish fishery independent bottom longline survey in 2017 were used to design the longline golden tilefish survey conducted in July 2020. A presentation of the 2020 survey results will be made to the SSC in March 2021.

3) Utilize fishery-independent information to assess whether the dome-shaped selectivity curve used in the assessment reflects fishery selectivity or availability, or both.

Work in progress. Data from the two surveys using different hook sizes provide the information needed to track cohorts and to inform assessment model selectivity (e.g., dome-shaped selectivity). More analysis is needed to complete this task.

4) Evaluate data collection methods to increase information on gear conflicts, species interactions (i.e., spiny dogfish), and bait type to understand their effects on the commercial CPUE index.

No progress.

5) Collect and analyze biological samples to improve life history, maturity, and distribution information.

The two longline tilefish surveys collected new information on tilefish spatial distributions, life history, sex, and maturity. However, fishery dependent biological sampling has decreased in recent years (see discussion below).

6) Develop sampling programs to increase information of recreational landings at size and age.

No progress. However, 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 are also required to submit VTRs electronically within 24 hours of returning to port for trips where tilefish were targeted or retained.

7) Assess the accuracy and reliability of aging techniques.

No progress. However, comparison of survey age and length distributions to fishery dependent age and length distributions could inform the reliability of the age data.

Advisory panel members comments and overall discussion:

Panel members indicated concern about the lack of biological sampling of landings on the dock.

Paul Nitschke (NEFSC) indicated that there has been a reduction in the funding of the fishery dependent shoreside biological sampling (length and age) program in recent years. In addition, the COVID-19 pandemic may have also impacted sampling collection in early 2020.

Biosampling is particularly important for golden tilefish as the ASAP model (catch at age assessment model) requires adequate sampling of all market categories to characterize the catch at length and/or age and to estimate mean weights at age. There is no additional size and age information in the assessment due to the lack of a fishery independent survey time series. The 2020 sampling data will be assessed when the 2021 management track assessment update is conducted, at that point, we will know if there was sufficient sampling in 2020. Paul Rago (SSC) expressed concerns about the decrease in port sampling and how this will negatively impact future assessments and projections, particularly golden tilefish as it relies critically on cyclical recruitment.

Panel members indicated that they would like to have larger input in future golden tilefish survey design (e.g., selecting areas to be sample). In addition, they indicated that when conducting surveys, researchers should follow the vessels' captain input when deciding where to fish/sample. [Staff note: It is important to keep the survey as fishery independent]



Golden Tilefish Fishery Information Document

February 2021 (Version 2)

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for golden tilefish with an emphasis on 2020. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit <http://www.mafmc.org/tilefish/>.

Key Facts

- There has been no change to the status of the golden tilefish stock in 2020; the stock is not overfished and overfishing is not occurring.
- In 2020, 1.3 million pounds (landed weight) of golden tilefish were landed with an ex-vessel value (revenues) of \$4.8 million. This represented a decrease in golden tilefish landings and ex-vessel value of approximately 9% and 11%, respectively, when compared to 2019. For 2020, the mean price for golden tilefish was \$3.75 per pound, this represented a 2% decrease from 2019 (\$3.81 per pound).
- According to VTR data, party/charter vessel landed 3,466 golden tilefish in 2020. This represented a 36 percent decrease from 2019 (5,424 fish landed).
- Private Recreational Angler Permitting and Reporting started August 2020. According to VTR data, private recreational vessels landed a total of 50 golden tilefish in 2020 (August 2020 to December 2020).
- Given the COVID-19 national emergency, The Council requested an emergency action to allow a one-time 5% rollover of unused IFQ 2020 quota allocation for the golden tilefish fishing year November 1, 2020 thru October 31, 2021.

Basic Biology

The information presented in this section can also be found in the Tilefish Fishery Management Plan (FMP) (MAFMC, 2001; <http://www.mafmc.org/fisheries/fmp/tilefish>). Golden tilefish (*Lopholatilus chamaeleonticeps*; tilefish from this point forward in this section) 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).

Katz et al. (1983) studied stock structure of tilefish from off the Yucatan Peninsula in Mexico to the southern New England region using both biochemical and morphological information. They identified two stocks – one in the mid-Atlantic/southern New England and the other in the Gulf of Mexico and the south of Cape Hatteras.

Tilefish are shelter seeking and perhaps habitat limited. There are indications that at least some of the population is relatively nonmigratory (Turner 1986). Warne 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. On average, tilefish (sexes combined) grow about 3.5 to 4 inches FL per year for the first four years, and thereafter growth slows, especially for females. After age 3, mean last back-calculated lengths of males were larger than those of females. At age 4, males and females averaged 19.3 and 18.9 inches FL, respectively, and by the tenth year males averaged 32.3 while females averaged 26.4 inches FL (Turner 1986).

The size of sexual maturity of tilefish collected off New Jersey in 1971-73 was 24-26 inches TL (total length) in females and 26-28 inches TL in males (Morse 1981). Idelberger (1985) reported that 50 percent of females were mature at about 20 inches FL, a finding consistent with studies of the South Atlantic stock, where some males delayed participating in spawning for 2-3 years when they were 4-6 inches larger (Erickson and Grossman 1986). Grimes et al. (1988) reported that in the late 1970s and early 1980s, both sexes were sexually mature at about 19-26 inches FL and 5-7 years of age; the mean size at 50 percent maturity varied with the method used and between sexes. Grimes et al. (1986) estimated that 50 percent of the females were mature at about 19 inches FL using a visual method and about 23 inches FL using a histological method. For males, the visual method estimated 50 percent maturity at 24 inches FL while the histological method estimated 50 percent maturity at 21 inches FL. The visual method is consistent with NEFSC (Northeast Fisheries Science Center) estimates for other species (O'Brien et al. 1993). Grimes et al. (1988) reported that the mean size and age of maturity in males (but not females) was reduced after 4-5 years of heavy fishing effort. Vidal (2009) conducted an aging study to evaluate changes in growth curves since 1982, the last time the reproductive biology was evaluated by Grimes et al. (1988). Histological results from Vidal's study indicate that size at 50 percent maturity was 18 inches for females and 19 inches for males (NEFSC 2009).

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" (Warne 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.

Status of the Stock

There has been no change to the status of the golden tilefish stock in 2020; the stock is not overfished and overfishing is not occurring.

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).¹ The fishing mortality (F) threshold for golden tilefish is $F_{38\%}$ (as $F_{MSY\ proxy}$) = 0.310, and stock spawning biomass (SSB) is $SSB_{38\%}$ ($SSB_{MSY\ proxy}$) = 21 million pounds (9,492 mt).

Stock Status

The last assessment update was completed in February 2017. Fishing mortality in 2016 was estimated at $F=0.249$; 20 percent 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 percent of the biomass target ($SSB_{MSY\ proxy}$). As such, the golden tilefish stock was not overfished and overfishing was not occurring in 2016, relative to the newly updated biological reference points.

Data Update

The 2020 data update indicated that CPUE in 2019 increased relative to 2018 as predicted from growth of the strong 2013 year class. In addition, tracking of the strong 2013 year class is also

¹ 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 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>.

reflected in the landings market category proportions and the landings at length distributions (Nitschke 2020).

The next management track assessment for golden tilefish will be conducted in the Spring of 2021.

Management System and Fishery Performance

Management

There have been no changes to the overall golden tilefish management system since the Individual Fishing Quota (IFQ) system was implemented in 2009 (Amendment 1). However, Framework 2 to the Tilefish FMP (implemented in 2018) made several changes to the management system intended to improve and simplify the administration of the golden tilefish fishery. These changes include removing an outdated reporting requirement, proscribing allowed gear for the recreational fishery, modifying the incidental trip landings, requiring commercial golden tilefish be landed with the head attached, and revising how assumed discards are accounted for when setting harvest limits.

The commercial golden tilefish fisheries (IFQ and incidental) are managed using catch and landings limits, commercial quotas, trip limits, gear regulations, permit requirements, and other provisions as prescribed by the FMP. While there is no direct recreational allocation, Amendment 1 implemented a recreational possession limit of eight golden tilefish per angler per trip, with no minimum fish length. Golden tilefish was under a stock rebuilding strategy beginning in 2001 until it was declared rebuilt in 2014. The Tilefish FMP, including amendments and frameworks, are available on the Council website at: <http://www.mafmc.org/fisheries/fmp/tilefish>.

Commercial Fishery

In 2020, 1.3 million pounds (landed weight) of golden tilefish were landed with an ex-vessel value (revenues) of \$4.8 million. This represented a decrease in golden tilefish landings and ex-vessel value of approximately 9 percent and 11 percent, respectively, when compared to 2019. For 2020, the mean price for golden tilefish (unadjusted) was \$3.75 per pound, this represented a 2 percent decrease from 2019 (\$3.81 per pound).

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 1).

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 1 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 1), and 2010. In 2003 and 2004, the commercial quota was exceeded by 0.3 (16 percent) and 0.6 (31 percent) million pounds, respectively.² 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.

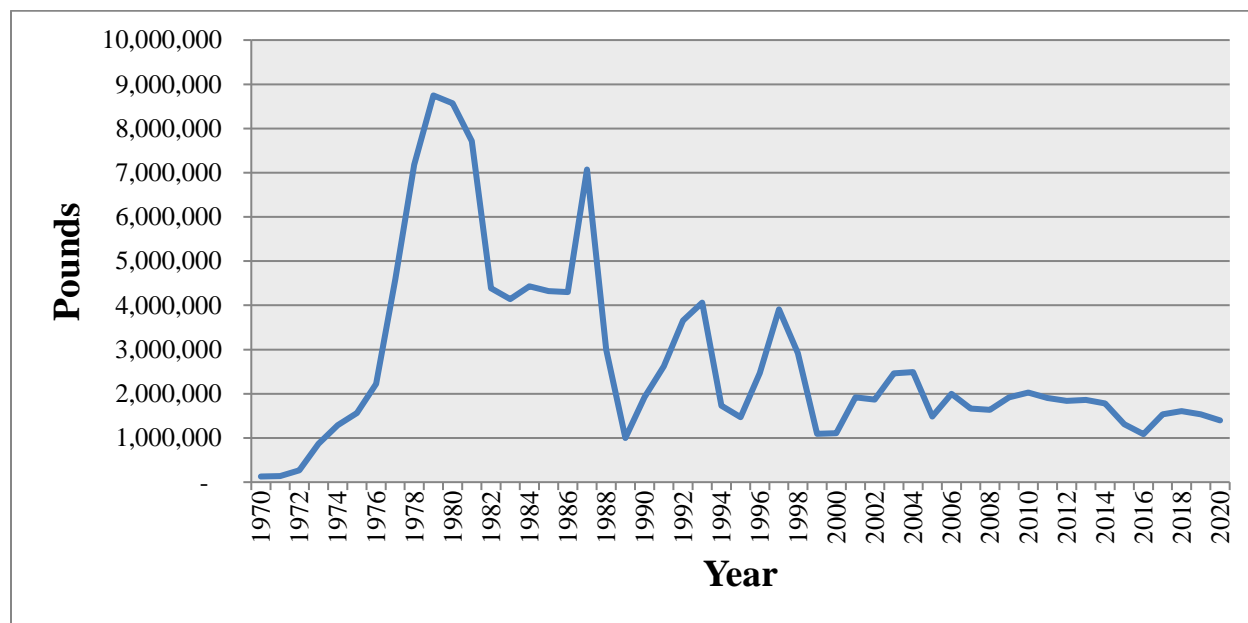


Figure 1. Commercial U.S. Golden Tilefish Landings (live weight) from Maine-Virginia, 1970-2020 (calendar year). Source: 1970-1993 Tilefish FMP; 1994-2020 NMFS unpublished dealer data.

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

² 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.

Table 1. 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. For additional information, see [2021-2022 Specifications Cycle and Carryover](#) at the end of this section (page 19).

Table 2. 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.

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 had 5 and 3 percent, respectively; and statistical area 626 had 2 percent (Table 3). 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 4 and 5). 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 5).

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Table 3. 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.

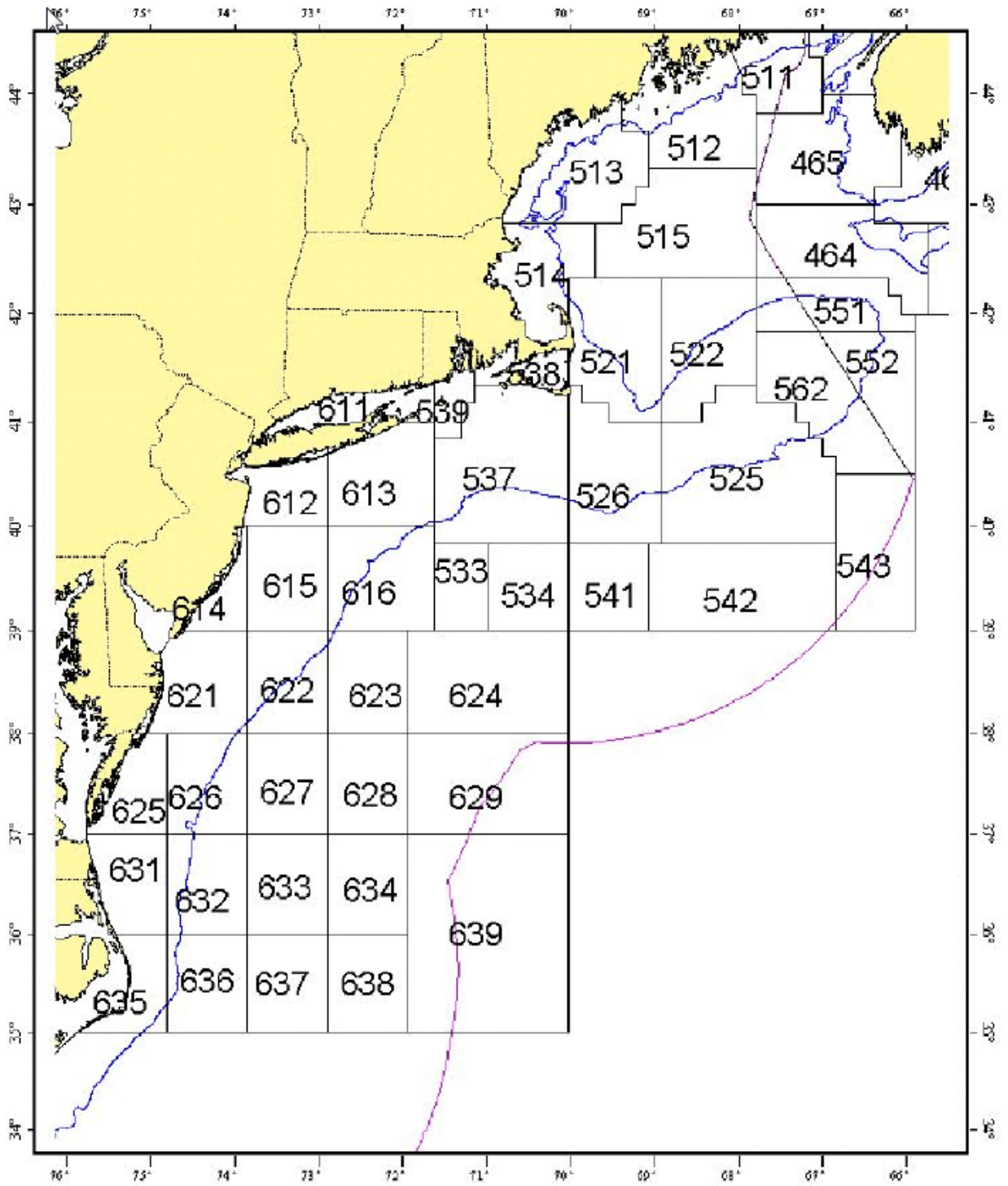


Figure 2. NMFS Statistical Areas.

Table 4. 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 5. Percent of golden tilefish commercial landings (live weight) by month and year, Maine through Virginia, 1999-2020 (calendar year).

Year	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
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.

For the 1999 to 2020 calendar years, commercial golden tilefish landings (landed weight) have ranged from 1.0 million pounds in 2016 (calendar year) to 2.3 million pounds in 2004. Commercial golden tilefish ex-vessel revenues have ranged from \$2.5 million in 2000 to \$5.9 million in 2013 from 1999-2020. In 2020, 1.3 million pounds (landed weight) of tilefish were landed with an ex-vessel value (revenues) of \$4.84 million.

From 1999-2019, the mean price for golden tilefish (adjusted) has ranged from \$1.10 per pound in 2004 to \$4.24 per pound in 2016 (Figure 3). For 2020, the mean price for golden tilefish (unadjusted) was \$3.75 per pound.

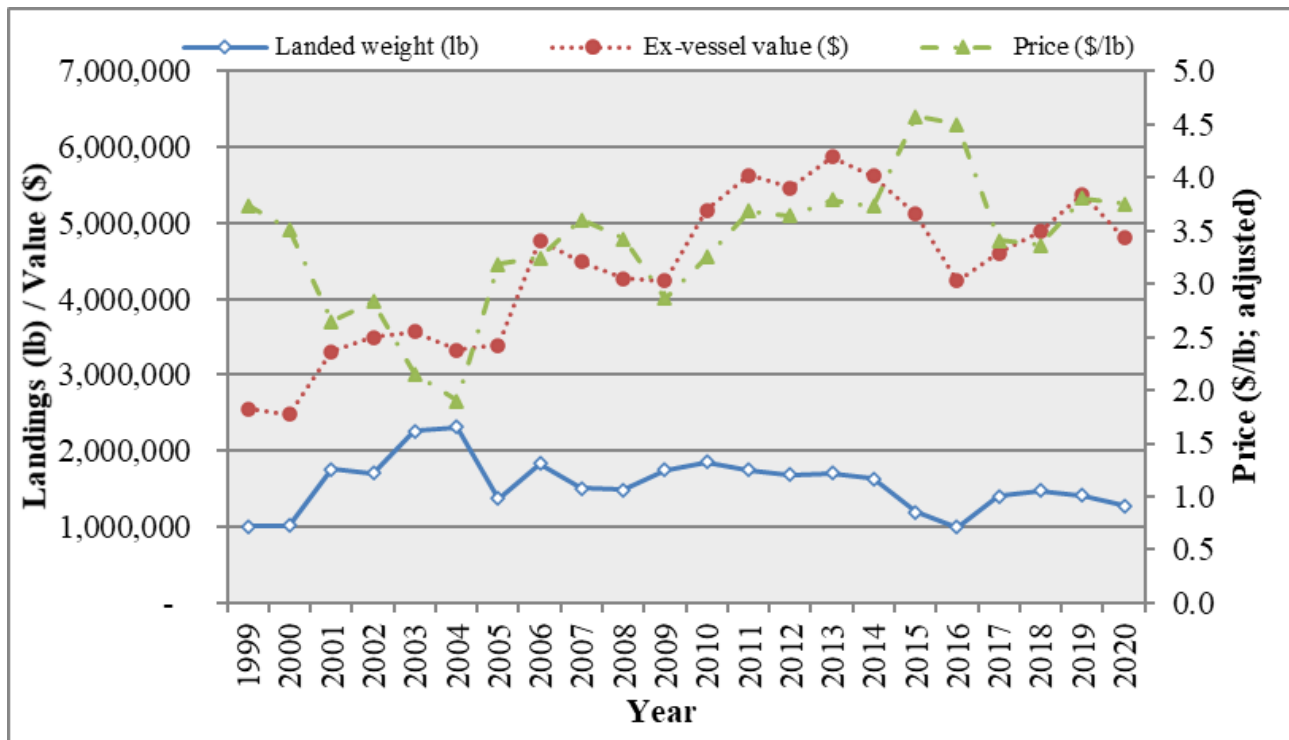


Figure 3. Landings (landed weight), ex-vessel value, and price for golden tilefish, Maine through Virginia combined, 1999-2020 (calendar year). Note: Price data have been adjusted by the GDP deflator indexed for 2019. (2020 – unadjusted as GDP deflator for that year was not available when this figure 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 differential indicates that larger fish tend to bring higher prices (Table 6). Nevertheless, even though there is a price differential for various sizes of golden tilefish landed, golden tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (L. Nolan 2006; Kitts et al. 2007). Furthermore, Amendment 1 to the Tilefish FMP prohibited the practice of highgrading (MAFMC 2009).

Table 6. Landings, ex-vessel value, and price of golden tilefish by size category, from Maine through 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	---

^aLarge/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 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 7. 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 8.

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Table 7. Top ports ($\geq 10,000$ 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)

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

Table 8. 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.

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 9. Table 10 shows relative dealer dependence on golden tilefish. In 2020, 1,937 open access commercial/incidental tilefish permits (valid for both golden and blue line tilefish) were issued.

Table 9. 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 10. 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.

According to VTR data, no discarding was reported by longline vessels that targeted golden tilefish from 2018-2020 (Table 11). In addition, the 2014 golden tilefish stock assessment (NEFSC 2014) and stock assessment update (Nitschke 2017) indicate that golden tilefish discards in the trawl and longline fishery appear to be a minor component of the catch.

Table 11. Catch disposition for directed golden tilefish trips^a, Maine through Virginia, 2018, 2019, and 2020 (calendar year).

(2018)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,247,057	100.00%	94.55%	0	0.00%	--	1,247,057	0.00
SPINY DOGFISH	58,560	100.00%	4.44%	0	0.00%	--	58,560	0.00
SMOOTH DOGFISH	6,321	100.00%	0.48%	0	0.00%	--	6,321	0.00
CONGER EEL	2,386	100.00%	0.18%	0	0.00%	--	2,386	0.00
BLUELINE TILEFISH	2,213	100.00%	0.17%	0	0.00%	--	2,213	0.00
DOLPHIN FISH	458	100.00%	0.03%	0	0.00%	--	458	0.00
SILVER HAKE (WHITING)	438	100.00%	0.03%	0	0.00%	--	438	0.00
SILVER HAKE (WHITING)	438	100.00%	0.03%	0	0.00%	--	438	0.00
BLACK BELLIED ROSEFISH	370	100.00%	0.03%	0	0.00%	--	370	0.00
SKATES OTHER	298	100.00%	0.02%	0	0.00%	--	298	0.00
BLUEFISH	217	100.00%	0.02%	0	0.00%	--	217	0.00
ANGLER	133	100.00%	0.01%	0	0.00%	--	133	0.00

YELLOWFIN TUNA	60	100.00%	0.00%	0	0.00%	--	60	0.00
WHITE HAKE	27	100.00%	0.00%	0	0.00%	--	27	0.00
TRIGGERFISH	20	100.00%	0.00%	0	0.00%	--	20	0.00
ALL SPECIES	1,318,558	100.00%	100.00%	0	0.00%	--	1,318,558	0.00

^a Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 93.
Source: NMFS unpublished VTR data.

(2019)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,316,702	100.00%	95.87%	0	0.00%	--	1,316,702	0.00
SPINY DOGFISH	41,605	100.00%	3.03%	0	0.00%	--	41,605	0.00
SMOOTH DOGFISH	5,315	100.00%	0.39%	0	0.00%	--	5,315	0.00
BLUELINE TILEFISH	3,551	100.00%	0.26%	0	0.00%	--	3,551	0.00
CONGER EEL	2,134	100.00%	0.16%	0	0.00%	--	2,134	0.00
YELLOWFIN TUNA	2,086	100.00%	0.15%	0	0.00%	--	2,086	0.00
BIG EYE TUNA	734	100.00%	0.05%	0	0.00%	--	734	0.00
SAND TILEFISH	506	100.00%	0.04%	0	0.00%	--	506	0.00
DOLPHIN FISH	455	100.00%	0.03%	0	0.00%	--	455	0.00
ANGLER	119	100.00%	0.01%	0	0.00%	--	119	0.00
SKATES OTHER	80	100.00%	0.01%	0	0.00%	--	80	0.00
ALBACORE TUNA	50	100.00%	0.00%	0	0.00%	--	50	0.00
BLACK BELLIED ROSEFISH	44	100.00%	0.00%	0	0.00%	--	44	0.00
SILVER HAKE (WHITING)	43	100.00%	0.00%	0	0.00%	--	43	0.00
SHKIPJACK TUNA	24	100.00%	0.00%	0	0.00%	--	24	0.00
BLACK SEA BASS	9	100.00%	0.00%	0	0.00%	--	9	0.00
ALL SPECIES	1,373,457	100.00%	100.00%	0	0.00%	--	1,373,457	0.00

^a Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 92.
Source: NMFS unpublished VTR data.

(2020)

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	1,088,194	100.00%	96.09%	0	0.00%	--	1,088,194	0.00
SPINY DOGFISH	35,350	100.00%	3.12%	0	0.00%	--	35,350	0.00
BLUELINE TILEFISH	3,433	100.00%	0.30%	0	0.00%	--	3,433	0.00
SMOOTH DOGFISH	2,425	100.00%	0.21%	0	0.00%	--	2,425	0.00

CONGER EEL	1,512	100.00%	0.13%	0	0.00%	--	1,512	0.00
YELLOWFIN TUNA	733	100.00%	0.06%	0	0.00%	--	733	0.00
DOLPHIN FISH	451	100.00%	0.04%	0	0.00%	--	451	0.00
MAKO SHORTFIN SHARK	100	100.00%	0.01%	0	0.00%	--	100	0.00
BIG EYE TUNA	80	100.00%	0.01%	0	0.00%	--	80	0.00
WHITE HAKE	68	100.00%	0.01%	0	0.00%	--	68	0.00
ALBACORE TUNA	60	100.00%	0.01%	0	0.00%	--	60	0.00
BLACK BELLIED ROSEFISH	28	100.00%	0.00%	0	0.00%	--	28	0.00
SILVER HAKE (WHITING)	14	100.00%	0.00%	0	0.00%	--	14	0.00
SWORDFISH	40	100.00%	0.00%	0	0.00%	--	40	0.00
ANGLER	2	100.00%	0.00%	0	0.00%	--	2	0.00
ALL SPECIES	1,132,490	99.95%	100.00%	0	0.05%	--	1,132,490	0.00

^a Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 82. Source: NMFS unpublished VTR data.

Golden tilefish incidental commercial fishery landings in fishing year 2021 are the same as fishing year 2020 landings for the same time period (Figure 4; for data reported through January 27, 2021). Incidental golden tilefish commercial landings for 2013-2020 fishing years are shown in Table 12.

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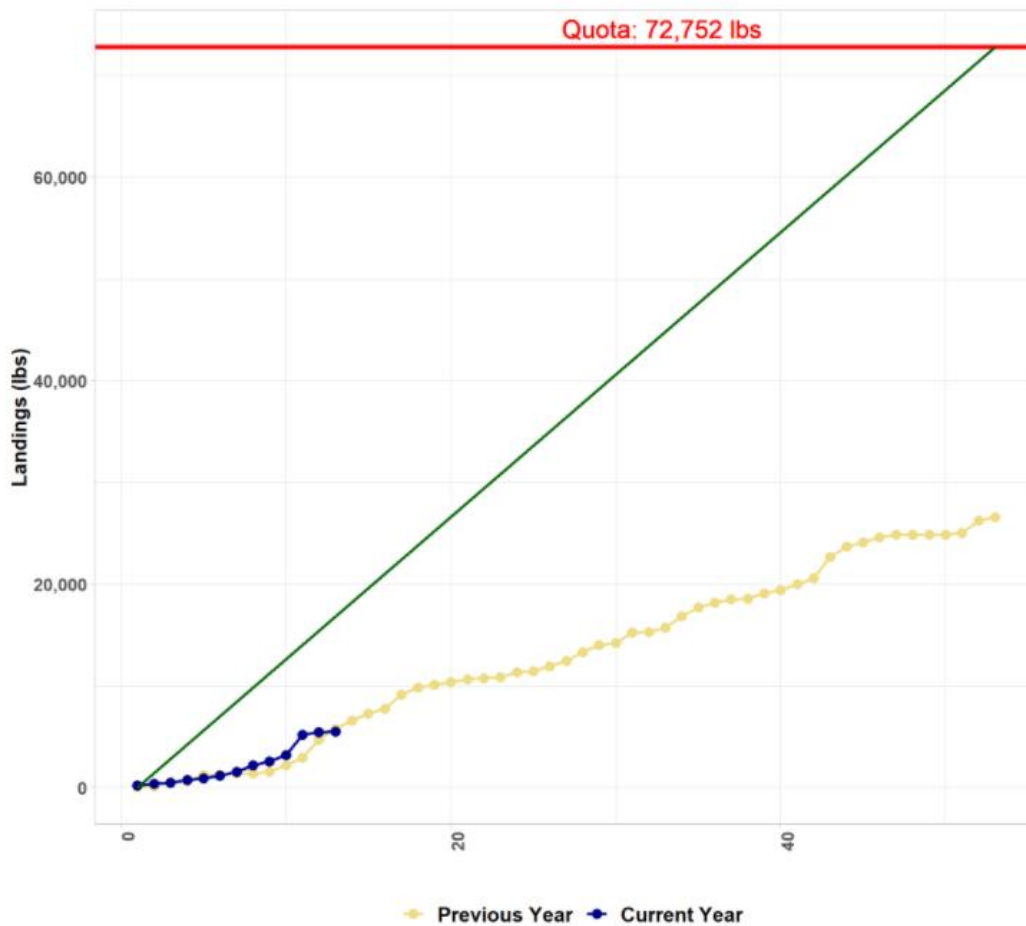


Figure 4. Incidental commercial landings for 2021 fishing year (FY) to date (for data reported through January 27, 2021). Blue Line = FY 2021, Yellow Line = FY 2020.
Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region>.

Table 12. Incidental golden tilefish commercial landings for fishing year 2013-2020.

Fishing year	Landings (pounds)	Incidental quota (pounds)	Percent of quota landed (%)
2013	36,442	99,750	37
2014	44,594	99,750	45
2015	18,839	87,744	21
2016	20,929	94,357	22
2017	60,409	94,357	64
2018	61,254	72,752	84
2019	22,246	72,752	31
2020	25,864	70,548*	37*

Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region>. *Values were updated from prior document version.

2021-2022 Specifications Cycle and Carryover

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 all 2020 IFQ quota pounds that are not used to harvest tilefish before the end of the fishing year, up to a maximum amount of 5% of their initial 2020 IFQ quota pounds. To assess the maximum potential impact, the full 5% of the 2020 IFQ TAL is assumed to be carried over into 2021. This would result in a maximum potential IFQ TAL for 2021 of 1.631 million pounds or 740 mt (compared to the initial IFQ TAL (without any rollover) of 1.554 million pounds or 705 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.

Because any increase in the 2021 IFQ TAL would necessarily reflect 2020 IFQ TAL that was not harvested the total landings for 2020 and 2021 would remain at or below the combined IFQ TAL for the two years. This minimizes any potential risk that allowing this one-time carryover could result in overfishing. In 2017, the SSC recommended a constant harvest ABC of 742 mt for 2018-2020, which is 300 mt (28%) below the average overfishing limit (OFL) for the same period (1,042 mt) from the most recent stock assessment. While that buffer is meant to account for multiple sources of potential uncertainty, its magnitude further reduces the risk that a one-time 5% carryover of unharvested IFQ quota pounds could result in overfishing in this golden tilefish stock (MAFMC 2020).

Recreational Fishery

In 2020, 606 open access charter/party tilefish permits were issued. 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).

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 (Table 13). In 2019, approximately 11,000 fish were landed. No landings were reported in 2020.

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 (Table 14). 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 the late 1990s, averaging 2.8 fish for the 1996-2020 period.

According to VTR data, for the 1996-2020 period, the largest number of golden tilefish caught by party/charter vessels were made by New Jersey vessels (50,701; average = 2,028), followed by New York (12,960; average = 518), Virginia (1,139; average = 46), Delaware (846; average = 35), Massachusetts (528; average = 21), and Maryland (597; average = 24; Table 15). The number of golden tilefish discarded by recreational anglers is low. According to VTR data, on average, approximately 5 fish per year were discarded by party/charter recreational anglers for the 1996-2020 period (136 discarded fish in total). The quantity of golden tilefish discarded by party/charter recreational anglers ranged from zero in most years to 60 in 2015.

Recreational anglers typically fish for golden tilefish when tuna fishing especially during the summer months (Freeman, pers. comm. 2006). However, some for-hire vessels from New Jersey and New York are golden tilefish fishing in the winter months (Caputi pers. comm. 2006). In addition, recreational boats in Virginia are also reported to be fishing for golden tilefish (Pride pers. comm. 2006). However, it is not known with certainty how many boats may be targeting golden tilefish. Nevertheless, accounting for information presented in the Fishery Performance Reports (2012-2014) and a brief internet search conducted by Council Staff in 2014 indicates that there have been approximately 10 headboats actively engaged in the tilefish fishery in the Mid-Atlantic canyons in recent years. It is estimated that approximately 4 of these boats conducted direct tilefish fishing trips, while the other 6 boats may have caught tilefish while targeting tuna/swordfish or fishing for assorted deep water species. In addition, it appears that recreational interest onboard headboats for tilefish has increased in the last few years as seen in the FPRs, internet search conducted by Council staff, and recent VTR recreational party/charter statistics (MAFMC 2014).

Anglers are highly unlikely to catch golden tilefish while targeting tuna on tuna fishing trips. However, these boats may fish for golden tilefish at any time during a tuna trip (i.e., when the tuna limit has been reached, on the way out or on the way in from a tuna fishing trip, or at any time when tuna fishing is slow). While fishing for tuna recreational anglers may trawl using rod and reel (including downriggers), handline, and bandit gear.³ Rod and reel is the typical gear used in the recreational golden tilefish fishery. Because golden tilefish are found in relatively deep waters, electric reels may be used to facilitate landing (Freeman and Turner 1977).

Private Recreational Angler Permitting and Reporting

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

³ Bandit gear is a vertical hook and line gear with rods attached to the vessel when in use. Manual, electric, or hydraulic reels may be used to retrieve lines.

where tilefish were targeted or retained. For more information about the proposed requirements, check out the [Recreational Tilefish Permitting and Reporting FAQs](#).

Permitting

Get your federal private recreational tilefish vessel permit through [Fish Online](#). This new permit is required even if a vessel already holds a for-hire tilefish permit. Call the GARFO Permit Office at 978-282-8438 for questions about the permitting process.

Reporting

NOAA Fisheries is encouraging anglers not already using another electronic VTR system to utilize NOAA Fish Online, which is available through a mobile app or a web-based portal. Other systems that may be suitable for recreational anglers include SAFIS eTrips/mobile and SAFIS eTrips Online. You can access information about approved applications and other aspects of electronic reporting on the [NOAA Fisheries website](#).

Additionally, a new app has been released to make the reporting process increasingly easy and convenient. Harbor Light Software's *eFin Logbook* has received certification from NOAA Fisheries as an approved application through which anglers can report their trips. Funded by the Council, *eFin Logbook* is a user-friendly application designed specifically for recreational tilefish anglers. The app is available for use on all Apple and Android mobile devices (iPhone, iPad, Android phone, and Android tablet).

At present, *eFin Logbook* can only be used by tilefish recreational anglers to satisfy reporting requirements. Future modifications may expand its capabilities to other reporting and personal fishing log applications. For-hire operators, many of whom have other reporting requirements, are encouraged to choose different software. To learn more about other electronic reporting options and decide which one is right for you, visit the [NOAA Fisheries Greater Atlantic Region Electronic Reporting Web Page](#).

Given these requirements have only been in place since August 2020, the following data should be considered preliminary. As of February 1, 2021, 340 tilefish permits have been issued for private recreational anglers. This permit allows recreational anglers to land both golden and blueline tilefish. For the 2020 fishing year, 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 short fishing season (as a result of when implementation occurred), this being the first-time recreational anglers are required to report, and the COVID-19 pandemic likely decreasing effort further offshore.

Table 13. Recreational golden tilefish data from the NMFS recreational statistics databases, 1982-2020 (calendar year).

Year	Landed no. A and B1				Released no. B2			
	Party/charter		Private/rental		Party/charter		Private/rental	
1982	0		2,225	(102.0)	0		0	
1983	0		0		0		0	
1984	0		0		0		0	
1985	0		0		0		0	
1986	0		0		0		0	
1987	0		0		0		0	
1988	0		0		0		0	
1989	0		0		0		0	
1990	0		0		0		0	
1991	0		0		0		0	
1992	0		0		0		0	
1993	0		0		0		0	
1994	555	(101.6)	0		0		0	
1995	0		0		0		0	
1996	1,765	(80.5)	0		0		0	
1997	0		0		0		0	
1998	0		0		0		0	
1999	0		0		0		0	
2000	0		0		0		0	
2001	98	(101.4)	0		0		0	
2002	0		122,443	(85.7)	0		8,163	(85.7)
2003	967	(75.2)	0		0		0	
2004	55	(102.2)	0		0		0	
2005	0		0		0		0	
2006	471	(103.7)	0		0		0	
2007	1,837	(71.4)	0		0		0	
2008	0		0		0		0	
2009	168	(89.8)	0		0		0	
2010	4,754	(81.9)	213,382	(98.4)	0		0	
2011	0		0		0		0	
2012	0		0		0		0	
2013	1,145	(0)	0		0		0	
2014	0		0		0		0	
2015	0		0		0		0	
2016	0		26,691	(70.4)	0		0	
2017	0		59,413	(59.4)	0		0	
2018	7,925	(80.3)	893	(102.9)	4	(106.8)	0	
2019	0		10,503	(64.4)	0		0	
2020	0		0		0		0	

Source: Recreational Fisheries Statistics Queries: <https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index>. PSE (proportional standard error) values in parenthesis expresses the standard error of an estimate as a percentage of the estimate and is a measure of precision. A PSE value greater than 50 indicates a very imprecise estimate. 2020 values are preliminary.

Table 14. Number of golden tilefish kept by recreational anglers and mean effort from Maine through Virginia, 1996-2020 (calendar year).

Year	Party/Charter		Private ^a	
	Number of golden tilefish kept	Mean effort	Number of golden tilefish kept	Mean effort
1996	81	1.4	---	---
1997	400	7.5	---	---
1998	243	8.1	---	---
1999	91	0.4	---	---
2000	147	0.5	---	---
2001	172	0.7	---	---
2002	774	0.9	---	---
2003	991	1.6	---	---
2004	737	1.2	---	---
2005	498	0.9	---	---
2006	477	1.2	---	---
2007	1,077	1.2	---	---
2008	1,100	1.3	---	---
2009	1,451	1.3	---	---
2010	1,866	2.0	---	---
2011	2,938	3.4	---	---
2012	6,424	2.8	---	---
2013	6,560	3.2	---	---
2014	6,958	3.1	---	---
2015	8,297	4.2	---	---
2016	5,919	4.1	---	---
2017	7,014	4.6	---	---
2018	7,110	3.9	---	---
2019	5,424	3.1	---	---
2020	3,466	3.2	50	5.0
All	70,215*	2.8	50	5.0

^a Landings reported from August 1 to December 31, 2020. Source: NMFS unpublished VTR data. *Value was updated from prior document version.

Table 15. Number of golden tilefish caught by party/charter vessels by state, 1996-2020 (calendar year).

Year	NH	MA	RI	CT	NY	NJ	DE	MD	VA	Unknown	All
1996	0	0	0	0	81	0	0	0	0	-	81
1997	0	0	0	0	400	0	0	0	0	-	400
1998	0	0	102	0	141	0	0	0	0	-	243
1999	0	0	1	0	88	0	0	2	0	-	91
2000	0	0	0	0	108	39	0	0	0	-	147
2001	0	0	0	0	122	51	0	0	0	-	173
2002	0	0	0	0	401	373	0	0	0	-	774
2003	0	0	3	0	86	902	0	0	0	-	991
2004	0	0	0	0	12	628	0	0	104	-	744
2005	0	0	72	0	82	318	14	0	16	-	502
2006	0	0	0	0	265	65	2	133	12	-	477
2007	0	0	0	0	447	459	88	5	80	-	1,079
2008	0	0	3	0	488	545	22	32	10	-	1,100
2009	0	0	0	0	720	675	18	7	31	-	1,451
2010	0	0	0	0	595	1,194	19	23	48	-	1,879
2011	0	496	0	0	720	1,654	60	5	14	-	2,949
2012	0	0	1	0	1,116	5,146	42	23	98	-	6,426
2013	0	0	0	0	1,900	4,568	39	12	41	-	6,560
2014	0	0	0	3	957	5,716	180	40	73	-	6,969
2015	14	0	0	0	637	7,376	100	56	174	-	8,357
2016	0	0	0	0	676	5,073	69	43	67	-	5,928
2017	0	0	0	0	424	6,373	118	76	38	-	7,029
2018	0	0	0	0	1,202	5,573	46	87	193	9	7,110
2019	0	0	0	0	845	1,771	29	30	58	2,692	5,425
2020	0	32	0	0	447	2,202	-	23	82	680	3,466
All	14	528	182	3	12,960	50,701	846	597	1,139	3,381	70,351
Avg. 96-20	<1	21	7	<1	518	2,028	35	24	46	135	2,814

Source: NMFS unpublished VTR data.

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

Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 7, 2021
To: Chris Moore, Executive Director
From: José Montañez, Staff
Subject: Golden Tilefish 2022 (interim) Specifications Review/Revise and 2023-2024 Specifications Setting

Summary

In 2020, the Council set specifications for 2021 and interim specifications for 2022. The 2022 interim specifications were set because of potential timing constraints associated with the 2021 management track assessment and administrative efficiencies. The Council anticipated the use of the 2021 golden tilefish management track assessment to review and possibly revise the interim 2022 specifications and set specifications for the 2023 and 2024 fishing seasons.

Based on the results of the management track assessment received in June 2021, the tilefish resource is not overfished and overfishing is not occurring in assessment terminal year (2020; Nitschke 2021a). The 2020 stock (23.28 million pounds or 10,562 mt) is at 96% of the updated biomass target reference point (SSB_{MSY} proxy = $SSB_{40\%}$ = 24.23 million pounds or 10,995 mt). The fishing mortality rate (F) in 2020 was 0.160, 39% below the fishing mortality updated threshold reference point F_{MSY} proxy = $F_{40\%}$ = 0.261.

Staff recommend 2022 interim specifications be revised and set additional specifications for years 2023 and 2024.¹ Staff recommend the accepted biological catch (ABC) for each year 2022, 2023, and 2024 be set at 1,964,319 pounds (891 mt).² This is based on an SSC-modified OFL probability distribution, the application of the Council risk policy, and a constant average ABC for 2022-2024. The FMP specifies that the annual catch limit (ACL) equals the ABC. Staff recommend an annual catch target (ACT) = ACL of 1,964,319 pounds (891 mt) for each year (i.e., no reduction for management uncertainty). After removing projected discards, the resulting IFQ quota is 1,866,103 pounds (846.450 mt) and the incidental category quota is 80,811 pounds (36.655 mt) for each year.

Staff do not recommend any changes to the current recreational possession limit (8-fish per angler per trip with no minimum size), or incidental trip limit (500 pounds (227 kg) or 50 percent, by weight, of all fish, including the golden tilefish, on board the vessel, whichever is less).

¹ A golden tilefish research track stock assessment is scheduled for spring of 2024. This research track assessment will be used to set specifications for 2025, 2026, and 2027.

² 1 mt = 2,204.6226 pounds.

Introduction

The Magnuson-Stevens Act requires each Council's SSC (Scientific and Statistical Committee) to provide ongoing scientific advice for fishery management decisions, including recommendations for ABC, preventing overfishing, and maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the Monitoring Committee (MC) established by the Fishery Management Plan (FMP) is responsible for developing recommendations for management measures designed to achieve the recommended catch limits.

Multi-year specifications may be set for golden tilefish for up to three years at a time. The SSC must recommend ABCs that addresses scientific uncertainty, while the MC must recommend ACTs that address management uncertainty. Based on the SSC and MC recommendations, the Council will make a recommendation to the National Marine Fisheries Service (NMFS) Greater Atlantic Regional Administrator. In this memorandum, information is presented to assist the SSC and MC in developing recommendations for the Council to consider for the 2022-2024 fishing years for golden tilefish.

Additional relevant information about fishery performance and past management measures is presented in the 2021 Golden Tilefish Fishery Information Document prepared by Council staff and the 2021 Fishery Performance Report developed by the Council Tilefish Advisory Panel. The NMFS Northeast Fisheries Science Center (NEFSC) provided the 2021 Golden Tilefish Management Track Assessment to support this specifications process (Nitschke 2021a).³

Catch and Landings Update

Commercial landings (calendar year) from 1970 to 2020 are presented graphically in Figure 1 of the 2021 Golden Tilefish Fishery Information Document (FID; MAFMC 2021a) and landings for fishing years 2005 through 2020 are presented in Table 1 below. Except for 2010 fishing year, commercial golden tilefish landings have been below the commercial quota specified each year since the IFQ system was first implemented in 2009.

Commercial discards are described in the FID (page 15). According to VTR data, no discarding was reported by longline vessels that targeted tilefish for the 2018 through 2020 period (Table 11 of the FID). According to the "Discard Estimation, Precision, and Sample Size Analysis" conducted by the NEFSC, discard estimations for commercial fisheries (mostly large/small mesh trawls and gillnets) appears to be low (several metric tons per gear type).⁴ For the last five years (2016-2020), on average 17,405 pounds (7.895 mt) of tilefish were discarded.

Recreational catches and landings are described in the FID (pages 19-24). A small recreational fishery briefly occurred during the mid-1970's, with less than 100,000 pounds annually (MAFMC 2000). Recreational catches have been low for the 1982 - 2020 period, ranging from zero for most years to approximately over 200,000 fish in 2010 according to NMFS recreational statistics (Table 13 of the FID). VTR data indicates that the number of tilefish caught by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 8,297 fish in 2015 (Table 14 of the FID). On average, 2,562 tilefish were caught by party/charter vessels during the 1996-2020 period.

³ These documents are available at: <https://www.mafmc.org/council-events/2021/ssc-july-21-23>

⁴ 2016-2020 Discard Estimation, Precision, and Sample Size Analysis. <http://www.nefsc.noaa.gov/femad/fsb/SBRM/>

In 2020, party/charter boats reported 3,466 fish landed, a 36% decrease from 2019 (5,424 fish landed). The industry experienced cancellations of for-hire overnight trips in 2020 due to the COVID-19 pandemic. Furthermore, in 2020, tuna fishing was better than average, which resulted in less boats targeting golden tilefish. As a general rule, when tuna fishing is not good, anglers offset those trips by targeting tilefish (MAFMC 2021b).

Recreational catches have been traditionally considered an insignificant component of the removals and not included into the assessment. 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. Given these requirements have only been in place since August 2020, the following data should be considered preliminary. As of February 1, 2021, 340 tilefish permits have been issued for private recreational anglers. This permit allows recreational anglers to land both golden and blue line tilefish. For the 2020 fishing year, 50 golden tilefish were reported landed on 4 private recreational trips (with 5 fish discarded). The low landings associated with private anglers may be attributed to the short fishing season (as a result of when implementation occurred), this being the first-time recreational anglers are required to report.

Review of SSC Recommendations from March 2020

In March 2020, the SSC meet to recommend an ABC for tilefish for 2021 and 2022 (interim). Given the implementation of the new stock assessment review process approved by the Northeast Regional Coordinating Council (NRCC), a management track stock assessment was not expected to be available until June 2021. The previous stock assessment update, conducted in 2017, provided the basis for ABCs through October 31, 2020. As a result, the SSC was asked to recommend an ABC for 2021 and an interim ABC for 2022. The interim 2022 ABC was expected to be replaced with updated Overfishing Limits (OFL) and resultant ABCs following the June 2021 assessment peer review. 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 interim 2022 measures also provide a placeholder in the event that there is insufficient administrative time for Council approval and rulemaking for the start of the 2022 fishing year (i.e., November 1, 2021).

“The SSC noted the difficulties of this process from the perspective of scientific uncertainty, wherein ABCs in 2022 are being set by model results from 2017. However, the expected joint availability of results from a 2021 assessment update and the 2020 cooperative fishery independent golden tilefish longline survey was reassuring to the SSC. No compelling evidence from either the data update or the reports from the Advisory Panel suggested the need to change the current ABC. The SSC noted that this is a textbook example of an equilibrium fishery, with stable catches, high constant prices, stable seasonal supply, and low levels of discards. Past assessments have revealed that the fishery depends on the periodic recruitment of year classes. As a result, the CPUE is characterized by cycles of increasing and decreasing stanzas. Currently much of the fishery is dependent on the 2013 year class and, based on historical patterns, further increases in CPUE are expected.”

Table 1. 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 (m lb)	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 through 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.

The SSC agreed with the MAFMC Staff recommendation for *status quo* ABC in 2021 and 2022 at a level of 1,635,830 pounds (742 mt). The SSC expressed both positive and negative factors regarding the interim measures for 2022 with respect to their uncertainty including:

- No major evidence commercial and recreational fisheries that stock conditions have changed substantially.
- Absence of direct evidence of new recruitment.
- An observed a decline in recreational harvest but explained by decline in effort due to weather. Overall, the Committee expressed concerns about precision of recreational catch but noted that a new recreational fishing permitting and reporting initiative may improve quality of estimates.
- CPUE in the commercial fishery has been increasing over the past 4-5 years.

2021 Golden Tilefish Management Track Assessment

Biological Reference Points

The biological reference points for golden tilefish were updated during the 2021 management track assessment (Nitschke 2021a). The fishing mortality threshold for golden tilefish is $F_{40\%}$ (as F_{MSY} proxy) = 0.261, and $SSB_{40\%}$ (SSB_{MSY} proxy) is 24.23 million pounds (10,995 mt).

Stock Status

The latest assessment indicates that the golden tilefish stock was not overfished and overfishing was not occurring in 2020, relative to the newly updated biological reference points. Fishing mortality in 2020 was estimated at $F=0.160$; 39% below the fishing mortality threshold of $F=0.261$ (F_{MSY} proxy). SSB in 2020 was estimated at 23.28 million pounds (10,562 mt), and was at 96% of the biomass target (SSB_{MSY} proxy).

Advisory Panel Fishery Performance Report

Advisors meet on February 17 to develop the 2021 Fishery Performance Report.⁵ A summary of key issues is presented below.

- Large reduction in the demand for golden tilefish with restaurant closures due to COVID-19.
- Large price reduction at the beginning of the pandemic. Prices are better now.
- Industry continues to spread landings throughout the year to stabilize price.
- In regard to the CPUE increase in 2020. Industry indicated that more fish are being landed with the same trip effort than were caught in 2019.
- For-hire effort was reduced in 2020 due to COVID-19, and industry is experiencing the same for 2021.
- The 2020 tuna fishing season was better than average, resulting in less boats targeting golden tilefish.
- Concerns over the low numbers reported under the new private reporting system.
- Concerns over the lack of biological sampling if fish on the dock.

⁵ This document is available at: <https://www.mafmc.org/council-events/2021/ssc-july-21-23>

- AP members indicated support for the proposed Council work to initiate a golden tilefish multi-year specifications framework as listed under the 2021 Council proposed actions and deliverables. They support changing the current fishing year (November 1 – October 31) to January 1 – December 31, as it will create more stability in terms of harvesting their full allocation.

Projections⁶ and Basics for 2022-2024 ABC Recommendation

Estimated 2022-2024 OFLs and ABCs following the Council’s risk policy assuming lognormal distributions CVs of 100% for time varying ABC (scenario 1) and average ABC (scenario 2) are shown in Table 2 below. The estimated fishing mortality and probability of overfishing and probability of being overfished are also given. The average constant ABC under scenario 2 was calculated from the average ABC derived from scenario 1. Both scenarios 1 and 2 result in near identical P* from year-to-year and an average P* of 0.45 for the entire 2022-2024 period. Also, a *status quo* scenario at the current ABC level was developed (scenario 5), resulting in an average P* of 0.35.

In addition, two other scenarios (scenarios 3 and 4) were developed for reference and comparison purposes only as they do not comply with the Council’s risk policy and/or the maximum number of years allowed for multi-year specifications setting. Under scenario 3, projections are set for 5 years using the Council’s risk policy assuming lognormal distribution CVs of 100% for time varying ABC. Scenario 3 provides projections for a longer time period (2022 through 2026) when compared to scenarios 1, 2, and 5 above. Overall, scenario 3 shows that the OFL decreases from 2022 to 2025 and then increases again in 2026, with an average P* of 0.45 for the entire projection period. Lastly, scenario 4 is not based on projections; it is based on a biomass at SSB_{MSY} and simply assumes a constant ABC. Scenario 4 also has an average P* of 0.45 for the entire projection period.

Staff recommend measures be developed for 3-years, the maximum under the FMP to provide for continued stability in the fishery and markets.

Staff recommend ABCs for 2022-2024 consistent with the projection methodology under scenario 2. The recommended ABC in each 2022, 2023, and 2024 is 1,964,319 pounds (891 mt) based on modified OFL probability distributions with CV of 100% and a risk policy to set a constant average ABC for 2022-2024; current stock status; average projected $SSB/SSB_{MSY} = 102\%$ for the 2022-2024 period; and provide for continued stability in the fishery and markets (Table 3 below). Overall, for the last several specifications cycles, the Council has set constant year-to-year catch and landings limits (Table 1 above). The relatively stability of the population, stock dynamics, and fishery also lend itself to a constant catch and landings limits approach. In addition, industry members have argued that a constant quota or landings level allow them to better plan fishing operations and allow for continued stability in the fishery and markets when compared to a variable quota or landings level from year-to-year.

⁶ The approach used to specify biomass projections assumes that the ABC was caught in the preceding year. The ABC in the current year is then updated based on the assumed catch.

Table 2. Golden tilefish projected OFL and ABC (in mt) levels and associated fishing mortalities for 2022-2024.

Scenario 1		100% CV					projection probability			
year	OFL	ABC	SSB/SSB _{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished	
2022	1,011	867	0.95	0.86	0.43	100%	0.22	0.28	0.02	
2023	1,013	917	1.03	0.91	0.45	100%	0.24	0.35	0.01	
2024	975	890	1.08	0.91	0.46	100%	0.24	0.38	0.01	
avg	1,000	891	1.02	0.89	0.45		0.23	0.34	0.01	
Scenario 2		891 constant avg 100% CV					projection probability			
year	OFL	ABC	SSB/SSB _{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished	
2022	1,011	891	0.95	0.88	0.44	100%	0.23	0.32	0.02	
2023	1,010	891	1.03	0.88	0.44	100%	0.23	0.32	0.01	
2024	976	891	1.08	0.91	0.46	100%	0.24	0.38	0.01	
avg	999	891	1.02	0.89	0.45		0.23	0.34	0.01	
Scenario 3		5 year 100% CV					projection probability			
year	OFL	ABC	SSB/SSB _{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished	
2022	1,011	867	0.95	0.86	0.43	100%	0.22	0.28	0.02	
2023	1,013	917	1.03	0.91	0.45	100%	0.24	0.35	0.01	
2024	975	890	1.08	0.91	0.46	100%	0.24	0.38	0.01	
2025	959	872	1.06	0.91	0.45	100%	0.24	0.36	0.01	
2026	971	882	1.05	0.91	0.45	100%	0.24	0.35	0.01	
avg	986	886	1.03	0.90	0.45		0.23	0.34	0.01	
Scenario 4		SSB _{MSY} constant 100% CV					projection probability			
year	OFL	ABC	SSB/SSB _{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished	
2022	935	842	1.00	0.90	0.45	100%	0.22	0.25	0.02	
2023	935	842	1.00	0.90	0.45	100%	0.21	0.25	0.01	
2024	935	842	1.00	0.90	0.45	100%	0.22	0.30	0.01	
avg	935	842	1.00	0.90	0.45		0.22	0.26	0.01	
Scenario 5		742 constant status quo 100% CV					projection probability			
year	OFL	ABC	SSB/SSB _{MSY}	ABC/OFL	p*	CV	F	overfishing	overfished	
2022	1,011	742	0.95	0.73	0.36	100%	0.19	0.11	0.02	
2023	1,031	742	1.05	0.72	0.35	100%	0.18	0.11	0.01	
2024	1,012	742	1.11	0.73	0.36	100%	0.19	0.13	0.00	
avg	1,018	742	1.04	0.73	0.35		0.19	0.12	0.01	

Source: Paul Nitschke, Personal Communication. 2021b. Note: The approach used to specify biomass projections assumes that the ABC was caught in the preceding year. The OFL and ABC in the current year is then updated based on the assumed catch. Scenarios 3 and 4 were developed for reference and comparison purposes only as they do not comply with the Council's risk policy and/or the maximum number of years allowed for multi-year specifications setting. Scenarios 2 and 5 are based on constant catch projections and not from an ABC determination from the OFL. Scenario 4 is not based on projections; it is based on a biomass at SSB_{MSY} and simply assumes a constant ABC.

Other Management Measures

Annual Catch Limits

As defined in the Framework Adjustment 2 to the Tilefish FMP, ABC is equivalent to the total allowable catch (ACL; Figure 1 below). Table 3 below shows the ACLs associated with the staff recommendations for ABC based on assuming lognormal distributions CVs of 100% for an average ABC, for tilefish. Table 4 below shows the catch and landings limits for the current specifications cycle (2021 and 2022 interim).

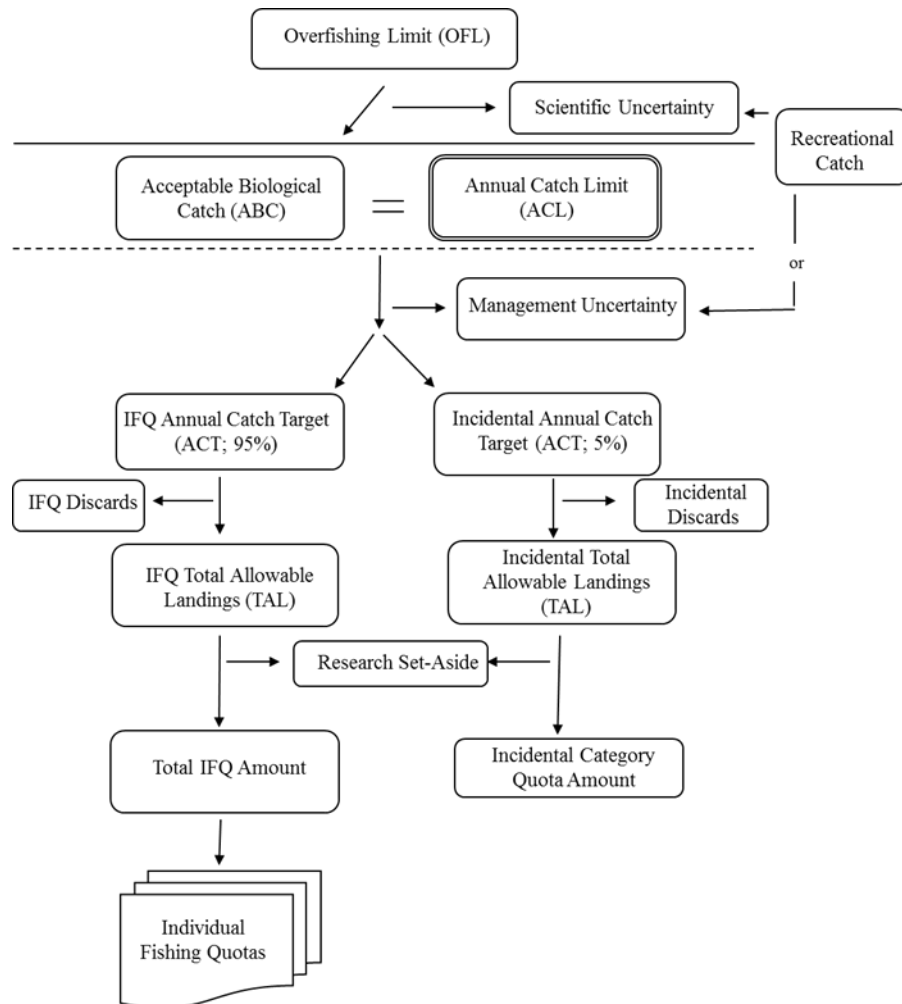


Figure 1. Flowchart for golden tilefish catch and landings limits.

Table 3. Staff recommended catch and landings limits (in pounds unless otherwise noted) for 2022 (revised), 2023, and 2024.

	2022 (revised)	2023	2024	Basis
OFL	2,228,873 (1,011 mt)	2,226,669 (1,010 mt)	2,151,712 (976 mt)	Projections
ABC	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	Staff recommendation based on overfishing probability averaging
ACL	1,964,319 (891 mt)	1,964,319 (891 mt)	1,964,319 (891 mt)	ABC = ACL
IFQ fishery ACT	1,866,103 (846 mt)	1,866,103 (846 mt)	1,866,103 (846 mt)	Deduction from management uncertainty = 0. ACT = 95% of the ACL
Incidental fishery ACT	98,216 (45 mt)	98,216 (45 mt)	98,216 (45 mt)	Deduction from management uncertainty = 0. ACT = 5% of the ACL
Projected IFQ fishery discards	0	0	0	Data indicates no discards in the IFQ fishery (directed fishery). IFQ fishery discards are prohibited in the FMP
Projected incidental fishery discards	17,405 (8 mt)	17,405 (8 mt)	17,405 (8 mt)	Average discards (2016-2020) mostly sm/lg mesh OT and Gillnet gear
IFQ fishery TAL = IFQ fishery quota	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	1,866,103 (846.450 mt)	IFQ fishery TAL = IFQ fishery ACT – IFQ fishery discards. No additional reductions applied between IFQ TAL amounts and final IFQ fishery quota amounts.
Incidental fishery TAL = incidental fishery quota	80,811 (36.665 mt)	80,811 (36.655 mt)	80,811 (36.655 mt)	Incidental fishery TAL = incidental fishery ACT – incidental fishery discards. No additional reductions applied between incidental TAL amounts and final incidental fishery quota amounts.

Note: Initial OFL and ABC values are in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds the numbers may change due to rounding. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds.

Table 4. Catch and landings limits (in pounds unless otherwise noted) for the current specifications cycle (2021-2022).

	2021 (initial values)*	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

*ABC values are typically reported 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. Projected incidental discards are initially reported in pounds and then converted to mt. 1 mt = 2,204.6226 pounds. **Due to the COVID-19 national emergency, the Council requested 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 through October 31, 2021. Only the IFQ TAL would be affected by the requested emergency carryover. All other specifications would remain at proposed 2021 values.

Annual Catch Targets

The Tilefish MC is responsible for recommending ACTs for the IFQ and incidental sectors of the fishery, which are intended to account for management uncertainty, for the Council to consider. The ACTs, technical basis for ACTs considerations, sources of management uncertainty should be described and technical approaches to mitigating these sources of uncertainty should be defined and provided to the Council. The relationship between the ACTs and other catch/landing components are given in Figure 1 above.

Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation errors). Management uncertainty can occur because of a lack of sufficient information about the catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or discards) or because of a lack of management precision (i.e., the ability to constrain catch to desired levels).

Staff recommend the MC consider past specific landings performance, as a basis for quantifying management uncertainty (i.e., implementation error) and as an indicator of future ability to achieve catch target when developing the 2022-2024 ACT recommendation for the IFQ and incidental sectors (Table 3 above). The MC should also consider the potential imprecision/variability in expected observed commercial and recreational catch to ensure the ACLs are not exceeded.

The tilefish fishery is managed via an IFQ system and managers believe that all tilefish commercial landings values under this program are reliable. The IFQ monitoring system is timely and successful in managing the landings. The commercial landings performance for the last 10 years has been near or below the commercial quotas (Table 1 above). The recreational catch is minimal.⁷ Staff recommend no reduction in catch from the ACL. The recommended ACTs in each 2022, 2023, and 2024 are 1,866,103 pounds (846 mt) for the IFQ fishery and 98,216 pounds (45 mt) for the incidental fishery (Table 3 above).

Total Allowable Landings

Management uncertainty can occur because of insufficient information about discards (Figure 1 above). Development of a time series of discards was not done in prior assessment models since discarding was considered negligible and information on discards do not exist for most of the time series. Therefore, discards have not been included in the assessment due to the high uncertainty associated with the discard estimates over the time series. Very low or insignificant discards have been estimated for recent years according to the discard estimation, precision, and sample size analysis conducted by the NEFSC. There is higher uncertainty (CVs) on the low recent discard estimates since the discarding of tilefish is a rare event on observed trips. Therefore, an average of several years was used to judge recent relative magnitude of discarding for this fishery. For the last five years (2016-2020), on average 17,405 pounds (7.895 mt) of tilefish were discarded according to the discard estimation, precision, and sample size analysis conducted by the NEFSC. Commercial discards are not generated by the IFQ fishery due to the fact that all fish caught (given the standard hook size/type use by the industry) are marketable. In addition, even though there is a price differential for various sizes of golden tilefish landed, golden tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (Nolan, pers. comm. 2006; Kitts et al. 2007). Furthermore, Amendment 1 to the Tilefish FMP prohibited the practice of highgrading (MAFMC 2009). It is estimated that most of the discards that have occurred in recent years have been by large/small mesh trawls and gillnets used by the incidental fishery. Staff recommend a reduction in catch from the incidental ACT to account for discards in that component of the fishery. Staff recommends no reduction in catch from the IFQ ACT. The recommended IFQ TAL is 1,866,103 pounds (846.450 mt) and the resulting incidental TAL is 80,811 pounds (36.665 mt) for each 2022, 2023, and 2024 (Table 3 above).

Adjusted IFQ TAL and Incidental TAL for 2022

The Council is in the process of developing a framework document that considers measures to revise the specifications process by considering the duration for setting multi-year management measures and the timing of the fishing year. At the first framework meeting (April 2021), the Council selected preferred alternatives for these two process related issues. Regarding the issue of the timing of the fishing year, the Council selected an alternative that sets the golden tilefish fishing

⁷ Recreational tilefish trips appear to be limited and a minor component of the catch as indicated in the FID, the FPR, and the 2021 Golden Tilefish Management Trach Assessment (Nitschke 2021a).

year as the 12-month period beginning with January 1, annually. Therefore, the fishing year will be from January 1 – December 31 (compared to the current November 1 – October 31 fishing year). The other 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 NRCC approved stock assessment schedule. In addition, this framework will set new specifications (catch and landings limits) for 2022-2024.

To facilitate the transition from the current fishing year (November 1 through October 31) to January 1 to December 31, a one-time only adjustment to bridge the gap will be necessary. More specifically, the 2022 fishing year will be extended from November 1, 2021 to December 31, 2022 (14-month period). Then, for 2023 and 2024, the Council would implement specifications starting on January 1 and ending in December 31.

When the staff recommended overall commercial quota for 2022 of 1,946,914 pounds is compared to the overall initial quota for 2021 (1,624,305 pounds), it results in a 20% increase in the quota level between those two periods. In order to make a more robust comparison of quota changes as result of the proposed staff recommendations during the gap year, the fishing year quotas for 2021 and 2022 are broken down to a common monthly denominator basis to assess impacts of the 14-month 2022 fishing year compared to 2021 12-month fishing year. The current 2021 overall commercial quota of 1,624,305 pounds is equivalent to 135,359 pounds/month (1,624,305 pounds / 12 months) and the 2022 overall staff recommend quota is equivalent to 139,065 pounds/month (1,946,914 pounds / 14 months). Therefore, on a common monthly denominator basis, the overall commercial quota is increased by only 3% in gap 2022 fishing year compared to 2021 fishing year. For each, 2023 and 2024, the overall commercial quota is 20% higher compared to 2021 fishing year.

Recreational Bag Limit

A recreational bag limit was implemented under Amendment 1 in 2009 (MAFMC 2009). Current regulations require an 8-fish recreational bag-size limit per angler per trip. This limit was set at the upper range of mean effort observed during the 1996-2005 period. VTR data indicates that mean effort for the 2006 to 2020 period has ranged from 1.2 to 4.6 fish per angler. In 2020, mean effort was 3.2 fish per angler. The recreational bag limit may be changed based on the recommendations of the MC. Staff does not recommend any changes to the recreational bag limit.

Incidental Trip Limit

When the Council created the tilefish IFQ system, it allocated a separate quota and commercial possession limit to allow small landings of tilefish caught by non-IFQ vessels targeting other species. The current 500 pound incidental trip limit has been in place since 2012 (Table 1 above). Framework Adjustment 2 to the Tilefish FMP (implemented in 2018) adjusted the commercial golden tilefish landing limit to: 500 pounds (227 kg) or 50 percent, by weight, of all fish, including the golden tilefish, on board the vessel, whichever is less. This was an effort to ensure that the incidental fishery functions as originally intended, the Framework Adjustment 2 action modified the commercial possession limit to ensure that vessels are targeting other species, and only incidentally catching golden tilefish.

Fishing regulations state that if the incidental harvest exceeds the incidental TAL for a given fishing year, the incidental trip limit specified may be reduced in the following fishing year. In

addition, the harvest of the tilefish incidental TAL monitoring is based on dealer reports and other available information, and determines the date when the incidental tilefish TAL has been landed. The Regional Administrator publishes a notice in the Federal Register notifying vessel and dealer permit holders that, effective upon a specific date, the incidental tilefish fishery is closed (in-season closure of the incidental fishery) for the remainder of the fishing year. Golden tilefish incidental commercial fishery landings in 2021 fishing year are slightly ahead of 2020 fishing year landings for the same time period (Figure 2 below). As of June 9, 2021, 20,921 pounds of incidentally caught tilefish have been reported (approximately 30% of the 70,548 pounds incidental quota). Incidental golden tilefish commercial landings for the last eight fishing years are shown in Table 12 below. Staff does not recommend any changes to the incidental trip limit.

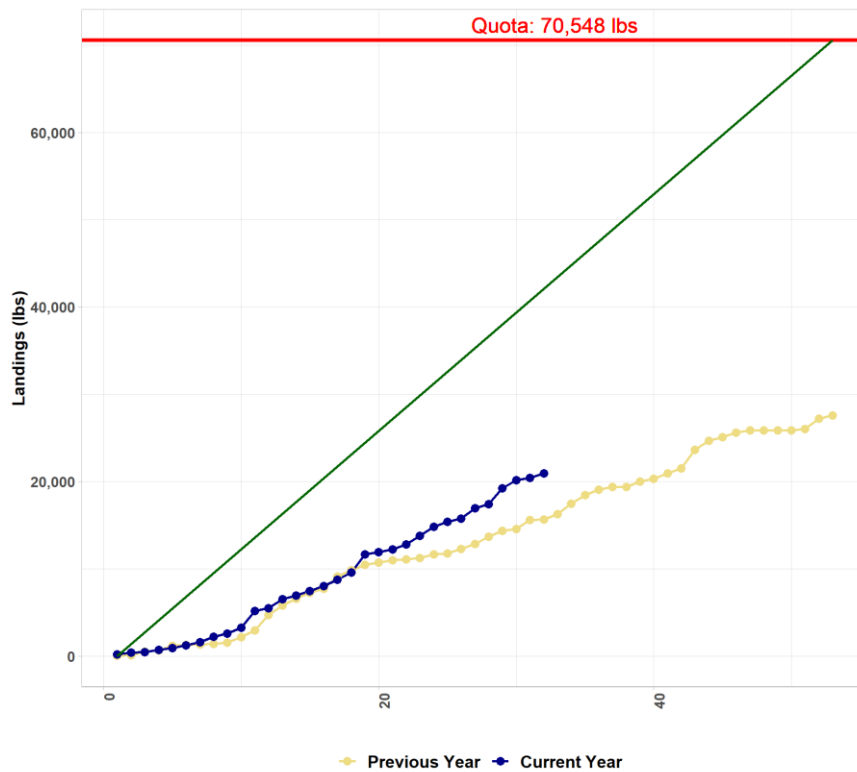


Figure 2. Incidental commercial landings for 2022 fishing year to date (for data reported through June 9, 2021). Blue Line = fishing year 2021, Yellow Line = fishing year 2020. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>

Table 12. Incidental golden tilefish commercial landings for fishing year 2013-2020.

Fishing year	Landings (pounds)	Incidental quota (pounds)	Percent of quota landed (%)
2013	36,442	99,750	37
2014	44,594	99,750	45
2015	18,839	87,744	21
2016	20,929	94,357	22
2017	60,409	94,357	64
2018	61,254	72,752	84
2019	22,246	72,752	31
2020	25,864	70,548	37

Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/quota-monitoring-greater-atlantic-region>.

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