



Mid-Atlantic Fishery Management Council

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MEMORANDUM

Date: February 16, 2014
To: Chris Moore, Executive Director
From: José Montañez, Staff
Subject: Golden Tilefish Management Measures (2015, 2016, 2017)

Executive Summary

Based on the results of the benchmark stock assessment conducted in January 2014, the tilefish resource is not overfished and overfishing is not occurring (NEFSC 2014). The 2012 stock is at 101% of the accepted reference point (SSB_{MSY} proxy). Staff recommend specifications be set for 3 years. Staff recommendation for the acceptable biological catches (ABCs) for 2015, 2016, and 2017 are 801 mt (1.766 m lb)¹, 861 mt (1.898 m lb), and 884 mt (1.949 m lb), respectively. This is based on the new stock assessment being classified as Level 3, and the application of the Council risk policy for a typical stock. The FMP specifies that the annual catch limit (ACL) equals the ABC. Staff recommend an annual catch target (ACT) = total allowable landings (TAL = commercial quota) of 801 mt (1.766 m lb), 861 mt (1.898 m lb), and 884 mt (1.949 m lb) for 2015, 2016, and 2017, respectively.

Staff do not recommend any change to the current recreational possession limit (8-fish per person per trip with no minimum size), or incidental trip limit (500 lb). Staff recommend that no quota be allocated to the Research Set-Aside Program.

Introduction

The Magnuson-Stevens Act (MSA) requires each Council's SSC (Scientific and Statistical Committee) to provide, among other things, 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

¹ 1 mt = 2,204.6 lb.

the recommended catch limits for the Council to consider for the 2015, 2016, and 2017 fishing years for tilefish.

The SSC will recommend an ABC for the tilefish fishery that addresses scientific uncertainty, and the MC will recommend an annual catch target (ACT) and management measures to address management uncertainty. Based on the SSC and MC's recommendations, the Council will make a recommendation to the NMFS (National Marine Fisheries Service) Greater Atlantic Region Administrator². In this memorandum, information is presented to assist the SSC and MC in developing recommendations for the Council for the 2015 (and possibly 2016 and 2017) fishery for tilefish.

More detailed descriptions of the fishery and stock status are provided in the "Golden Tilefish Advisory Panel Information Document" (APID; January 2014; found online at <http://www.mafmc.org/council-events/ssc-meeting-1>) and in the Stock Assessment Work 58 (SAW 58) Assessment Summary Report (NEFSC 2014; found online at <http://www.mafmc.org/council-events/ssc-meeting-1>), respectively.

Management System

See APID (page 1). In summary, the:

- FMP became effective November 1, 2001
- FMP established a stock rebuilding strategy and TAL as the primary control on fishing mortality
- FMP established a constant harvest strategy of 905 mt (1.995 m lb) to rebuild stock in a ten year rebuilding time frame (i.e. Sunset of October 31, 2011). (The tilefish fishing year is November 1 - October 31)
- Amendment 1 (effective November 1, 2009) implemented an IFQ system and continued rebuilding strategy implemented under the original FMP

Catch and Landings Update

Commercial landings (calendar year) from 1970 to 2013 are presented graphically in the APID (Figure 3, page 6) and landings for fishing years (FY) 2002 through 2014 are presented in Table 1 below. With the exception of FY 2003, 2004, and 2010 commercial tilefish landings have been below the commercial quota specified each year since the Tilefish FMP was first implemented.

² Formerly known as the Northeast Regional Administrator.

Table 1. Summary of management measures and landings for FY^a 2002 through 2014.

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

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

^b Lawsuit period (see 3rd paragraph on page 6 of the APID).

^c Eight fish per person per trip.

Commercial discards are described in the APID (pages 12-13). According to VTR data, very little (< 0.2%) discarding was reported by longline vessels that targeted tilefish for the 2004 through 2013 period (Table 9 of the APID). Overall, the discard of tilefish in other commercial fisheries (large/small mesh trawls and gillnets) appears to be low (several metric tons per gear type). Estimated discards since 1989 are less than 7 mt (15,432 lb) in most years with a maximum of 41 mt (90,389 lb) in 2001. For the last 5 years (2009-2013), on average 5.6 mt (12,346 lb) of tilefish were discarded in other fisheries (Paul Nitschke, pers. comm. 2014). However, commercial discards were considered an insignificant component of the removals and not included into the assessment.

Recreational catches and landings are described in the APID (pages 15-19). 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 - 2013 period, ranging from zero for most years to 30,326 fish³ in 2010 according to NMFS recreational statistics (Table 10 of the APID). VTR data indicates that the number of tilefish caught by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 6,535 fish in 2013 (Table 11 of the APID). On average, 1,445 tilefish were caught by party/charter vessel during the 1996-2013 period. However, recreational catches were considered an insignificant component of the removals and not included into the assessment.

³ The PSE's associated with the 2010 recreational landings value (A + B1 in number) is ~70.

Review of SSC Recommendations from March 2012

The ASPIC (A Stock Production Model Incorporating Covariates) surplus production model was used to define fishing mortality, stock biomass and biological reference points (F_{MSY} and B_{MSY}) for the development of the tilefish FMP in 2001. SARC 41 (2005) and SARC 48 (2009) accepted the ASPIC model as a basis for stock status determination.

In addition to updating the ASPIC surplus production model during the SARC 48 assessment, there were attempts made to also explore the use of a forward projecting size (SCALE; Statistical Catch at Length) structure model due to the continued concerns with process error issues from year class effects within the surplus production model and to include more realistic life history information on size and growth within the model. SARC 48 endorsed the ASPIC model and rejected the SCALE model. The SARC 48 surplus production model indicated that the stock was rebuilt; however, the review panel concluded that the stock was not yet rebuilt due to process error concerns within the surplus production model caused by year class effects. In addition, the catch size distributions and reductions in CPUE as year classes age, suggested that the stock has not yet rebuilt.

In March 2012, the SSC met to recommend an ABC for tilefish for fishing year 2013-2014. The SSC determined that the assessment (SARC 48) was a Level 4 assessment. The SSC did not accept the reference points of the ASPIC or SCALE models because of the divergent patterns from these two models and the high degree of uncertainty associated with the reference points. Because the assessment for this stock was categorized as a Level 4 assessment, it was not possible to provide an OFL.

The SSC recommended a constant landings policy. Specifically, the SSC recommended an ABC of 913 mt⁴ (2.013 m lb). The SSC made the strong recommendation that the MC establish the TAL not to exceed 905 mt (1.995 m lb), based on the established rebuilding schedule and historical performance of the stock and the fishery at this level of landings. The SSC recommended setting the ABC of 913 mt (2.013 m lb) for two years (2013 and 2014) in the expectation that a benchmark assessment of tilefish will be performed in 2013.

At that March 2012 meeting, the SSC considered the following to be the most significant sources of uncertainty associated with determination of OFL and ABC: 1) Reliance on commercial CPUE time series (lack of a fishery-independent index of abundance; lack of fishery-independent indices of stock characteristics including age, sex-ratio, spatial distribution, and habitat associations; lack of understanding of the recruitment pattern; uncertainty over stock structure at regional and local scales; and uncertainty over the fraction of the stock that is vulnerable to exploitation); 2) Potential for localized depletion; 3) Divergence of ASPIC and SCALE model results because they make different assumptions over population dynamic processes (the episodic recruitment pattern of tilefish challenges the ASPIC,

⁴ The 913 mt (2.013 m lb) level is based on a maximum discard of 8 mt (17, 634 lb; Tilefish AP recommendations 2012). The 8 mt (17, 634 lb) was added to the historical landings threshold ($905 + 8 = 913$ mt). The SSC also notes the recreational catch was included in scientific uncertainty.

and data demands of SCALE are not fully met); 4) Uncertainty over selectivity pattern in the fishery; and 5) Uncertainty over lack of information on discard and recreational harvest.

Stock Status and Biological Reference Points

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

Advisory Panel Fishery Performance Report

Some relevant key points of the 2014 AP Fishery Performance Report (FPR) for consideration include:

- CPUE is improving (catch rates improving) overall but variations (ups and downs) in CPUE still exist. In the last 3 years, the length of a fishing trip has been very stable (ranging from 5.8 to 7.0 days) and shorter than the case several years before that (7 to 10 days), reflecting higher catch rates.
- Observations indicate new incoming multiple-year classes; there is more of a size mix than before (healthy mix of ages). Commercial fishermen are catching a broad size distribution of fish.
- It was noted that in the SAW/SARC 58, after all model exploration and examination were completed, the final model terminal year was selected to be 2012 to avoid questions regarding the incomplete 2013 data. During the working group process, industry members noted an increase in the 2013 landings of small fish that were not available during the meeting. At the February 2014 AP meeting, two industry members indicated that their combined landings of KKs (extra small fish ≤ 2 lb) during the first and second half of 2013 were 7,766 lb (3.5 mt) and 22,969 lb (10.4 mt), respectively⁵. This indicates that the number of small fish landed over the 2013 year increased. It was also indicated that industry has seen new recruitments in the fishery in the later part of 2013 and now in 2014.

⁵ This represented a 2% and 5% of their combined total landings during the first and second half of 2013, respectively. Industry members indicated that these two vessels contribute with about 50% of the total tilefish landings.

Projections⁶ and Basics for 2015-2017 ABC Recommendation

Projections for OFL and ABC levels and the associated fishing mortalities for years 2015, 2016, and 2017 are presented in Table 2. Three scenarios assuming lognormal distributions (CVs of 100% [scenario 1], 60% [scenario 2]; and 30% [scenario 3]) were developed. In addition, two scenarios assuming constant ABC levels are also presented. The 905 mt (1.995 m lb) constant ABC scenario (scenario 5) is based on the 905 mt (1.995 m lb) constant harvest (quota) strategy in the FMP. The 861 mt (1.898 m lb) constant ABC scenario (scenario 4) was develop using the mid-point ABC level under the scenario assuming a lognormal distribution with a CV = 100%. These scenarios were developed to provide a wide range of options for discussion purposes. All projections show that OFL increases with time and the probability of overfishing is low, ranging from 19% under the constant harvest strategy of 861 mt (1.898 m lb) in 2017 to 39% under the scenario that assumes a lognormal distribution with a CV = 30%.

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

If the SSC considers the new stock assessment for tilefish to be Level 3, then the annual OFL's are as presented in Table 2 which are based on fishing at F_{MSY} proxy on the projected stock biomass for each year (2015-2017) under the first three scenario and under the last two scenarios the OFLs are based on a constant ABC level (i.e., 905 mt [1.995 m lb] and 861 mt [(1.898 m lb)]).

It is clear that recommendations for ABC which would equal the OFL would not account for any scientific uncertainty associated with estimation of OFL and the assessment of the tilefish stock.

Staff recommend that tilefish be considered a typical stock under the Council's risk policy due to the following considerations:

- The new stock assessment incorporates length and age data and better characterizes the dynamics of the stock (e.g., life history and longevity)
- The life history strategy of tilefish (long lived, slow growth, low reproductive potential) makes the species particularly vulnerable to overfishing if high catchability is allowed. However, the fishery is managed via an ITQ system where a relatively small number of commercial vessels (~10) use long-line fishing gear to target tilefish. There is a small incidental quota (5% of the TAL) that is allocated to the incidental fishery. Most of the incidental landings are by otter trawl

⁶ All tilefish projections assume that 905 mt is taken in the 2013 and 2014 bridge years. Median fishing mortality, catch, and spawning stock biomass trends with estimated 90% confidence intervals from a $F_{MSY} = 0.37$ projection can be seen in Appendix Figure 1. Comparison of the F_{MSY} projection with a projection that assumes a constant 905 mt catch can be seen in Appendix Figure 2.

gear. However, the overall vulnerability of tilefish to otter trawl gear is very low compared to other species due to the burrowing behavior of this species⁷.

Based on the 2015 projected $SSB/SSB_{MSY} = 101\%$, the Council risk policy for a typical stock ($P^* = 0.40$), and an assumed lognormal distribution with a $CV = 100\%$, the staff recommend an ABC of 801 mt (1.766 m lb) for 2015. For 2016, the staff recommend an ABC of 861 mt (1.898 m lb) based on a projected $SSB/SSB_{MSY} = 102\%$, the Council risk policy for a typical stock $P^* = 0.40$, and a lognormal distribution $CV = 100\%$. For 2017, the staff recommend an ABC of 884 mt (1.949 m lb) based on the projected $SSB/SSB_{MSY} = 106\%$, the Council risk policy for a typical stock $P^* = 0.40$, and a lognormal distribution with a $CV = 100\%$.

An alternative ABC consideration by the SSC could be the implementation of a constant ABC level of 861 mt (1.898 m lb) for the 2015-2017 period (scenario 5). This alternative is based on the overall fishery performance under the constant harvest strategy that managers have used during the rebuilding process and the fact that a constant ABC of 861 mt (1.898 m lb) for 2015-2017 would in the aggregate result in comparable biological impacts to the stock when compared to the variable ABC for 2015-2017 recommended above. In the past, 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.

General Note: Recreational catches and commercial discards were not included in previous assessments due to: 1) the fact that recreational catches have been low according to MRFSS-MRIP and VTR data and 2) the potential high uncertainty associated with trawl discards estimates. Paul Nitschke (pers. comm. 2014) indicated to staff that the incorporation of these small amounts of recreational catches and commercial discards in population models would likely scale the biomass estimates higher.

⁷ Tilefish are shelter-seeking and often occupy vertical shaft burrows in semi-lithified clay in flat areas, horizontal and vertical burrows in semi-lithified clay outcrops on the upper slopes, flanks, and shoulders of submarine canyons, and have also been observed using rocks, boulders, and the scour depressions beneath them, and exposed rocky ledges for shelter.

Table 2. Tilefish projected OFL and ABC (in mt) levels and associated fishing mortalities for 2015-2017.

100% CV (Scenario 1)					Probability		
Year	OFL	ABC SSB/SSB _{MSY}	ABC/OFL	F	overfishing	overfished	
2015	989	801	1.01	0.81	0.29	0.23	0.01
2016	1,063	861	1.02	0.81	0.29	0.23	0.02
2017	1,091	884	1.06	0.81	0.29	0.21	0.02

60% CV (Scenario 2)					Probability		
Year	OFL	ABC SSB/SSB _{MSY}	ABC/OFL	F	overfishing	overfished	
2015	989	859	1.02	0.87	0.32	0.31	0.01
2016	1,051	913	1.04	0.87	0.32	0.32	0.02
2017	1,073	932	1.04	0.87	0.32	0.30	0.02

30% CV (Scenario 3)					Probability		
Year	OFL	ABC SSB/SSB _{MSY}	ABC/OFL	F	overfishing	overfished	
2015	989	918	1.01	0.93	0.34	0.39	0.02
2016	1,040	965	1.03	0.93	0.34	0.39	0.02
2017	1,054	978	1.02	0.93	0.34	0.39	0.03

905 constant (Scenario 4)					Probability		
Year	OFL	ABC SSB/SSB _{MSY}	ABC/OFL	F	overfishing	overfished	
2015	989	905	1.01	0.92	0.34	0.37	0.02
2016	1,042	905	1.04	0.87	0.32	0.32	0.02
2017	1,067	905	1.05	0.85	0.31	0.27	0.03

861 constant (Scenario 5)					Probability		
Year	OFL	ABC SSB/SSB _{MSY}	ABC/OFL	F	overfishing	overfished	
2015	989	861	1.02	0.87	0.32	0.31	0.01
2016	1,051	861	1.05	0.82	0.30	0.25	0.02
2017	1,082	861	1.06	0.80	0.29	0.19	0.01

Source: Paul Nitschke, Pers. comm.2014.

Note: Projections assumed that the annual catch limit (905 mt = 1.995 million lb) are taken in 2013 and 2014.

Other Management Measures

Considerations for ACL

As defined in the Omnibus ACLs and AMs Amendment, ABC is equivalent to the total allowable catch (ACL) (Figure 1).

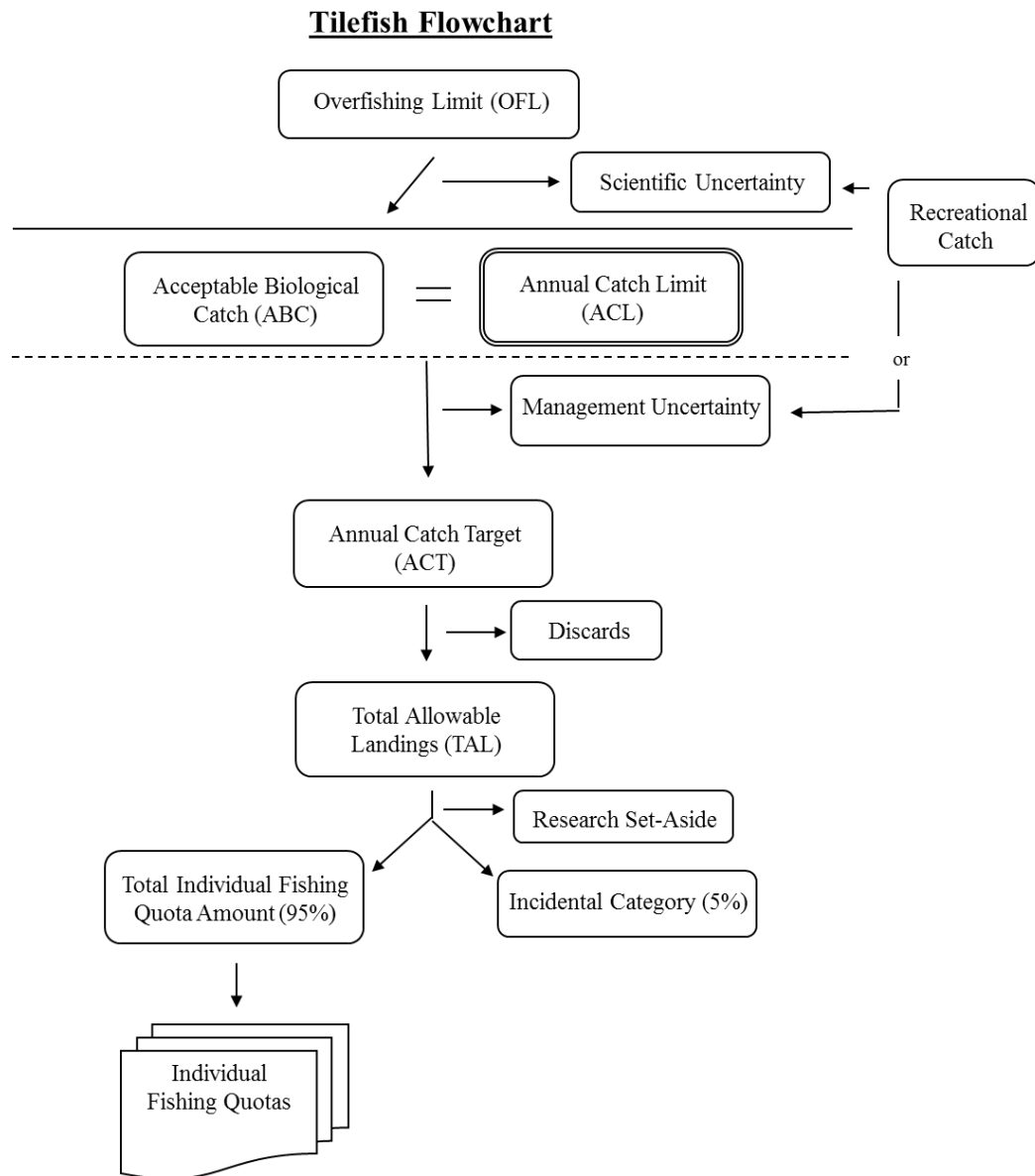


Figure 1. Flowchart for tilefish catch and landings limits.

Table 3 shows the ACLs associated with the staff recommendations for ABC based on a Level 3 stock assessment for tilefish.

Table 3. Tilefish ABCs and ACLs for 2015-2017 under the overall ABC recommended by staff.

		Assessment Level 3
		ABC \approx P*=40th percentile, based on an assumed lognormal OFL distribution that has a CV=100%
2015	ABC	801 mt (1.766 mil lb)
	ACL	801 mt (1.766 mil lb)
2016	ABC	861 mt (1.898 mil lb)
	ACL	861 mt (1.898 mil lb)
2017	ABC	884 mt (1.949 mil lb)
	ACL	884 mt (1.949 mil lb)

Considerations for ACT

As described in the Omnibus Amendment, the Tilefish MC will be responsible for recommending annual catch targets (ACTs) for the Council to consider. The relationship between the ACT and other catch components are given in Figure 1. The Committee may provide other recommendations relevant to setting catch limits consistent with the MSA. The MC can consider all relevant sources of management uncertainty in the tilefish fishery and provide the technical basis, including any formulaic control rules, for any reduction in catch when recommending an ACT. The ACT, technical basis, and sources of management uncertainty would be described and provided to the Council.

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 bycatch) 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 2015-2017 ACT recommendation for the fishery (Table 1). The MC should also consider the potential imprecision/variability in expected observed commercial and recreational catch⁸ to ensure the ACL is not exceeded. As indicated in the tilefish flow chart (Figure 1), recreational catches can be accommodated under scientific uncertainty or management uncertainty.

The tilefish fishery is managed via an IFQ system and managers believe that all tilefish commercial landings under this program are accounted for. The recreational catch is minimal, and as indicated under the General Note in page 8, the incorporation of these small amounts of recreational catches and commercial discards in the ASAP model would likely increase the biomass estimates. Staff recommend no reduction in catch from the ACL. Table 4 shows the ACTs associated with the staff recommendations for ABC based on a Level 3 stock assessment for tilefish.

Table 4. Tilefish ACTs for 2015-2017 under the overall ABC recommended by staff.

		Assessment Level 3
		ABC \approx P*=40th percentile, based on an assumed lognormal OFL distribution that has a CV=100%
2015	ACT	801 mt (1.766 mil lb)
2016	ACT	861 mt (1.898 mil lb)
2017	ACT	884 mt (1.949 mil lb)

Total Allowable Landings (TAL)

Management uncertainty can occur because of insufficient information about discards (Figure 1). As previously indicated, commercial discards are low (see page 3 for further discussion) and have not been included in the assessment due to the high uncertainty associated with the discard estimates over the time series. As indicated under the General Note in page 8, the incorporation of small amounts of recreational catches and commercial discards in the ASAP model would likely increase the biomass estimates. Staff recommends no reduction in catch from the ACT due to discards (Table 5).

The commercial quota has been almost entirely taken since the IFQ system went in effect. The landings-based allocations (IFQ 95%, incidental 5%) were maintained in the derivation of the sector-specific TALs (Table 5).

⁸ Recreational tilefish trips appear to be limited and a minor component of the catch as indicated in the APID, the AP FPR, and the Golden Tilefish Assessment Summary for 2014.

Table 5. Tilefish TALs for 2013-2015 under the overall ABC recommended by staff.

		Assessment Level 3
		ABC \approx P*=40th percentile, based on an assumed lognormal OFL distribution that has a CV=100%
2015	TAL - ITQ Fishery	761 mt (1.678 mil lb)
	TAL - Incidental	40 mt (0.088 mil lb)
2016	TAL - ITQ Fishery	818 mt (1.803 mil lb)
	TAL - Incidental	43 mt (0.095 mil lb)
2017	TAL - ITQ Fishery	840 mt (1.852 mil lb)
	TAL - Incidental	44 mt (0.097 mil lb)

Recreational Bag Limit

A recreational bag limit was implemented under Amendment 1 in 2009. Current regulations require an 8-fish recreational bag-size limit per person 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 2013 period has ranged from 1.2 to 3.4 fish per angler. The recreational bag limit may be changed through specifications based on the recommendations of the MC. Staff does not recommend any changes to the recreational bag limit.

Incidental Trip Limit

When the Tilefish FMP was implemented, a 300 lb incidental trip limit was adopted. If the incidental category landed more than 5 percent of the TAL for a given year, the Regional Administrator could reduce this limit in the following fishing year. The incidental trip limit was increased to 500 lb with the implementation of the Omnibus Amendment developed by the Council to comply with the ACL and AM requirements of the MSA. The Council thought that increasing the trip limit in the commercial tilefish incidental fishery from 300 lb to 500 lb would not be expected to change fishing practices and that discarding of tilefish would be reduced. The new regulations state that if the incidental category landed more than 5 percent of the TAL for a given year, the Regional Administrator could reduce this limit in the following fishing year. In addition, The Regional Administrator will monitor the harvest of the tilefish incidental TAL based on dealer reports and other available information, and shall determine the date when the incidental tilefish TAL has been landed. The Regional Administrator shall publish 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.

At the February 2014 Tilefish AP meeting held to develop the FPR, industry members expressed concern about directed trips in the incidental category by non-trawl vessels. The incidental tilefish quota monitoring report⁹ indicated that for the 2013 fishing year, incidental landings were 36,442 lb (37% of the incidental quota). In fact, for the last four fishing year, incidental landings have been well below the incidental quota. Council staff further investigated incidental tilefish by gear type and did not find evidence that a directed fishery within the incidental category has been developed (Table 6). Staff does not recommend any changes to the incidental trip limit.

Research Set-Aside

A fishery independent index of abundance does not exist for tilefish. Therefore, tilefish models are calibrated with CPUE series, as there are no fishery-independent sources of information on trends in population abundance. Industry has indicated that they are willing to collaborate in an initiative with the NEFSC and Council staff to develop a survey pilot project. Staff recommends that no TAL be made available for the Research Set-Aside Program until a strategy to develop a survey pilot project is developed.

⁹ As of week ending January 25, 2014. Data reported January 29, 2014.

Table 6. Tilefish incidental landings by gear type for non-ITQ vessels. FYs 2010-2013.

	FY 2010		FY 2011		FY 2012		FY 2013	
Gear Type	lb	# boats	lb	# boats	lb	# boats	lb	# boats
Otter Trawl Bottom, Fish	45,642	85	23,929	76	17,243	80	24,545	85
Otter Trawl Bottom, Scallop	1,032	1	-	-	-	-	-	-
Otter Trawl Bottom, Other	1,021	7	1,247	6	469	7	738	5
Otter Trawl, Midwater	772	11	1,284	9	136	3	48	2
Gillnet, Anchored/Sink/Other	750	8	3,672	14	685	14	1,596	10
Pots and Traps, Lobster, Inshore/Offshore Combined	38	1	5	1	8	1	118	4
Pots and Traps, Fish/Other Combined	3	1	-	-	12	2	1	1
Lines Hand	221	4	255	2	4,306	10	2,922	5
Hand Line, Auto Gig	327	1	-	-	-	-	472	1
Lines Long Set with Hooks	1,523	3	29	1	2,215	3	127	1
Dedge, Sea Scallop	-	-	28	1	29	1	-	-
Dredge, Other	1,591	3	82	3	365	8	422	8
Unknown, Other Combined Gears	11,448	22	7,285	29	6,817	23	2,878	21
Total	64,368	147	37,816	142	32,285	152	33,867	143
	FY 2010		FY 2011		FY 2012		FY 2013	
Gear Type	% of Tot	# boats	% of Tot	# boats	% of Tot	# boats	% of Tot	# boats
Otter Trawl Bottom, Fish	70.91%	85	63.28%	76	53.41%	80	72.47%	85
Otter Trawl Bottom, Scallop	1.60%	1	0.00%	-	0.00%	-	0.00%	-
Otter Trawl Bottom, Other	1.59%	7	3.30%	6	1.45%	7	2.18%	5
Otter Trawl, Midwater	1.20%	11	3.40%	9	0.42%	3	0.14%	2
Gillnet, Anchored/Sink/Other	1.17%	8	9.71%	14	2.12%	14	4.71%	10
Pots and Traps, Lobster, Inshore/Offshore Combined	0.06%	1	0.01%	1	0.02%	1	0.35%	4
Pots and Traps, Fish/Other Combined	0.00%	1	0.00%	-	0.04%	2	0.00%	1
Lines Hand	0.34%	4	0.67%	2	13.34%	10	8.63%	5
Hand Line, Auto Gig	0.51%	1	0.00%	-	0.00%	-	1.39%	1
Lines Long Set with Hooks	2.37%	3	0.08%	1	6.86%	3	0.37%	1
Dedge, Sea Scallop	0.00%	-	0.07%	1	0.09%	1	0.00%	-
Dredge, Other	2.47%	3	0.22%	3	1.13%	8	1.25%	8
Unknown, Other Combined Gears	17.79%	22	19.26%	29	21.12%	23	8.50%	21
Total	100.00%	147	100.00%	142	100.00%	152	100.00%	143
Incidental Trip Limit	300 lb		300 lb		500 lb		500 lb	
<i>Source: Dealer Data.</i>								

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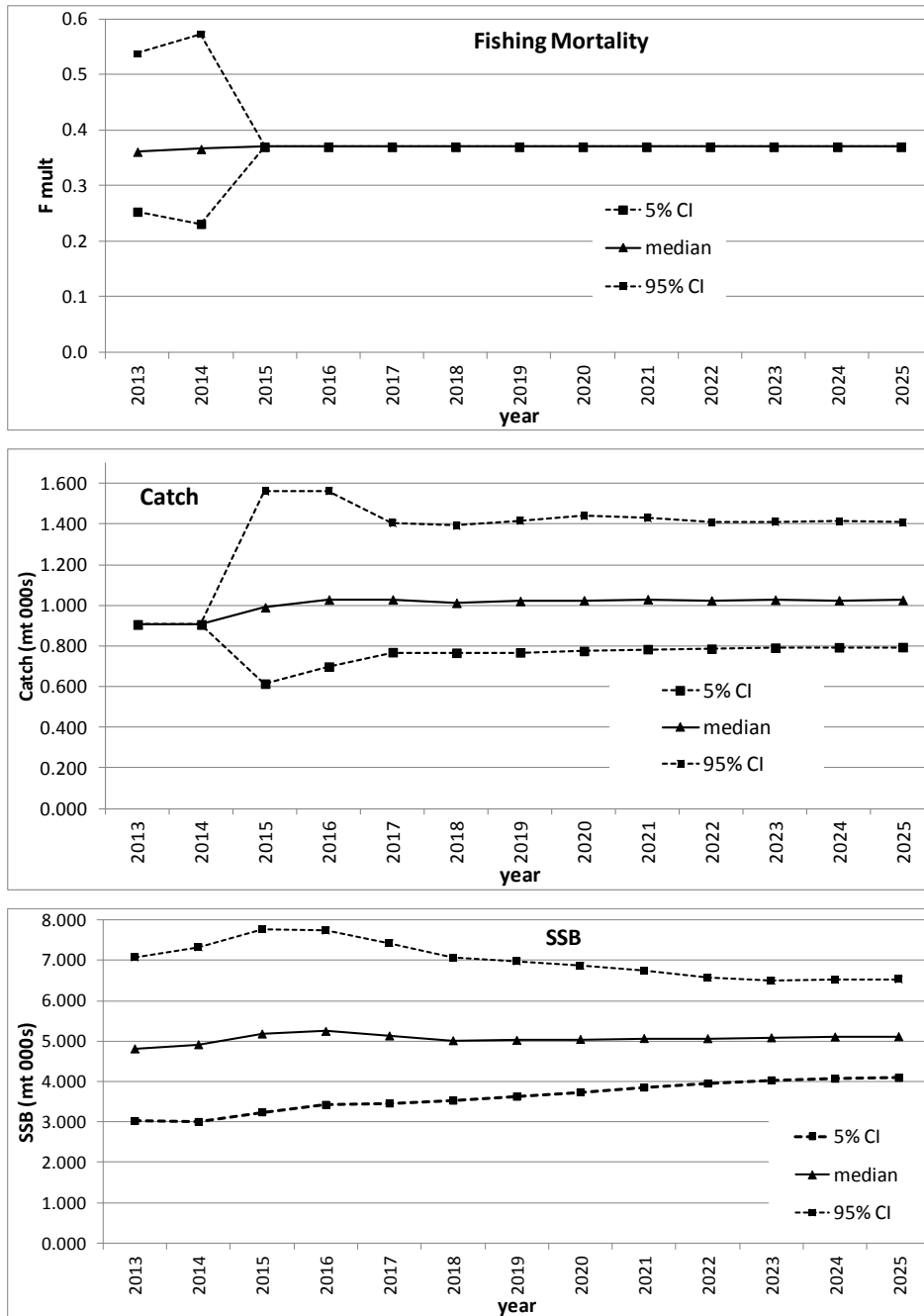
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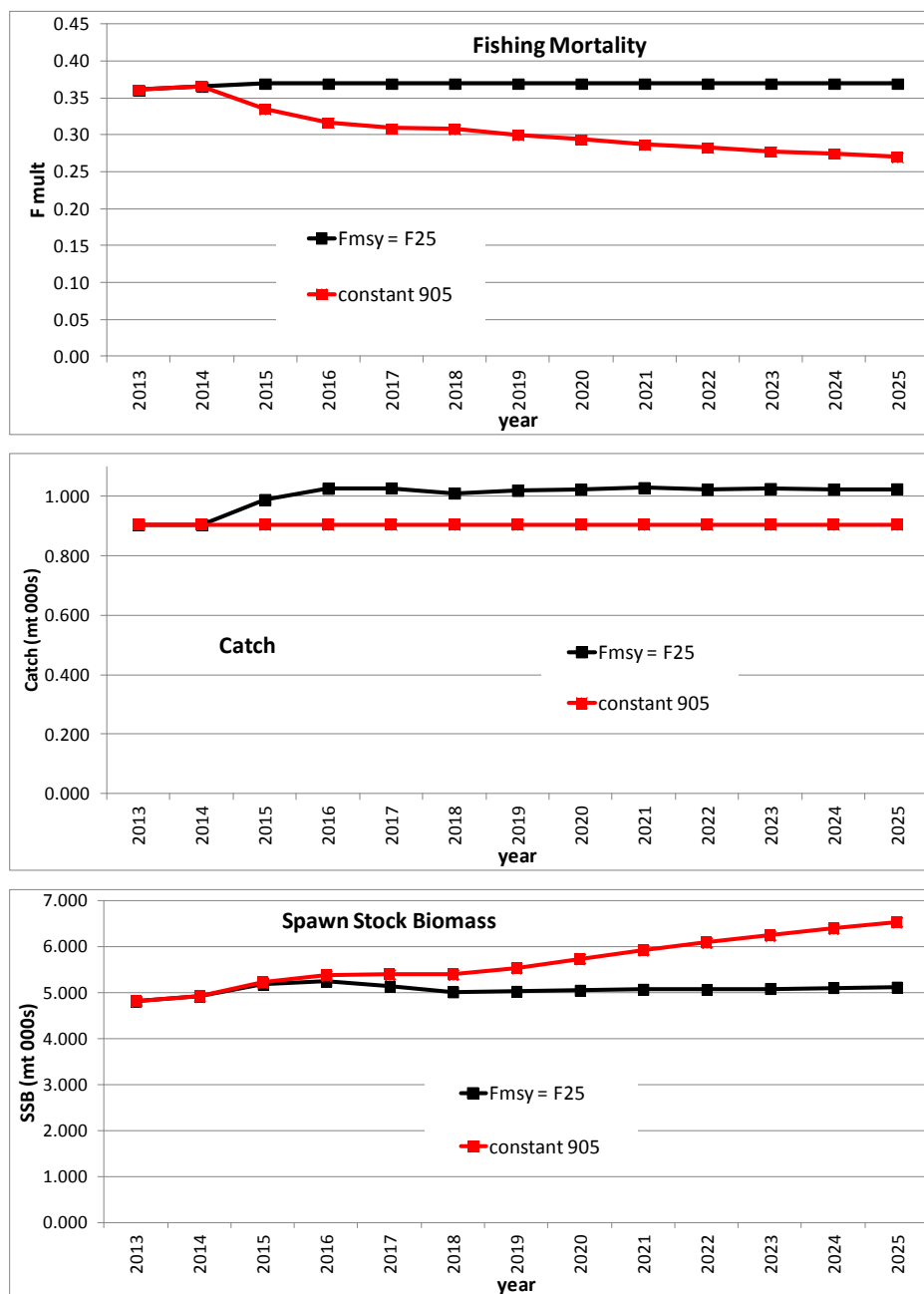
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Appendix



Appendix Figure 1. Final ASAP run 27b AGEPRO $F_{MSY} = F_{25} = 0.37$ projections with 90% CIs using an age-1 recruitment adjustment to the geometric mean for 2010-2012. Removals of 905 mt were assumed in 2013 and 2014 bridge years. Source: (Paul Nitschke, pers. comm. 2014).



Appendix Figure 2. Comparison of final ASAP run 27b AGEPRO projections using an age-1 recruitment adjustment to the geometric mean for 2010-2012 at $F_{MSY} = F_{25} = 0.37$ and a constant catch of 905 mt. A Catch of 905 mt was assumed in 2013 and 2014 bridge years. Source: (Paul Nitschke, pers. comm. 2014).