

MEMORANDUM

Date: September 26, 2017

To: Council

From: Brandon Muffley, Staff

Subject: Summer Flounder, Scup and Black Sea Bass Commercial Accountability Measures Framework Discussion Document

Introduction

According to the National Standard 1 Guidelines, accountability measures (AMs) are management measures that are implemented to prevent Annual Catch Limits (ACLs) from being exceeded or to correct for overages if the ACL is exceeded. AMs are intended to mitigate the negative biological impacts of such ACL overages. The commercial AMs currently in place for summer flounder, scup and black sea bass are both proactive and reactive in nature. Proactive AMs, such as in-season measures to close the fishery once a quota is reached (coastwide, quota period or state), are implemented to prevent the ACL from being exceeded. Reactive AMs are implemented in response to an ACL being exceeded. For summer flounder, scup and black sea bass, reactive AMs currently require pound for pound paybacks through quota deductions in following years, regardless of the circumstances of the overages. The Council initiated a framework to consider adding flexibility in the commercial AMs based on stock status, similar to the AMs in place for the recreational sector.

This framework presents alternatives to the existing AMs for the commercial summer flounder, scup and black sea bass fisheries, with a focus on evaluating and accounting for commercial discards. This document includes options for modifying commercial AMs in terms of both 1) evaluation of ACL overages and 2) responses to ACL overages to account for the latest information and current stock status.

Background

The existing AMs for the commercial summer flounder, scup and black sea bass fisheries were established in the Council's Omnibus ACL and AMs Amendment¹ which was approved in 2011 to ensure compliance with 2006 reauthorization of the Magnuson-Stevens Fishery Conservation

¹ MAFMC (Mid-Atlantic Fishery Management Council) 2011. Omnibus Amendment, Amendment 15 to the Summer Flounder, Scup and Black Sea Bass Fishery Management Plan. Available at: <https://www.greateratlantic.fisheries.noaa.gov/nero/regs/frdoc/11/11OmnibusAmendmentEA&CommentsFinal.pdf>

and Management Act. In 2013², recreational AMs for all Council species with recreational fisheries, including summer flounder, scup and black sea bass, were modified to account for the current stock status when determining the appropriate payback, or reactive AM, when the recreational ACL had been exceeded.

As defined by the Omnibus ACLs and AMs Amendment¹, the ACL for summer flounder, scup and black sea bass includes both landings and discards, and the sum of the commercial and recreational ACLs is equal to the ABC. After accounting for any management uncertainty, as determined by the Monitoring Committee, projected discards for the commercial fishery are then removed in order to determine the commercial quota. For summer flounder and scup, projected discards are estimated within the stock assessment projections; while black sea projected discards are calculated using the most recent years average discard proportion of the total catch. However, there are significant differences in our ability to monitor, account for and predict commercial landings versus discards and may therefore require different management responses to quota overages versus ACL overages.

The commercial summer flounder, scup and black sea bass quota monitoring system at both the state and federal level are timely and typically successful in constraining landings to the commercial quota. The combination of proactive/in-season AMs (state/federal closure authority once quotas are reached) and reactive AMs (pound for pound payback in a following year's quota) have been successful management tools to constrain landings, while providing for fishery flexibility under a range of stock size and quota allocation conditions. From 2012 through 2016, the time period in which ACLs and AMs have been implemented, landings for all three species were generally near or below the annual quotas with the only overage occurring for summer flounder which was only 2% over, on average, during that time (Table 1a-c).

Typically, the commercial landings overage AM process is as follows: due to the delay in reconciling landings between the states and GARFO, final commercial landings are typically not available until December of the following year (i.e. final 2016 landings ready in December 2017). Any commercial quota overages require that the exact amount of the commercial quota overage to be deducted from a subsequent year's quota (in this example the 2018 quota). This overage is subtracted from that years ACT. Modifications to commercial sector fishery closures and landings overage AMs are not considered in this document.

Unfortunately, unlike commercial landings, the ability to accurately predict and account for discards in the commercial fisheries is more problematic. In addition to the difficulty in predicting discards, there is also uncertainty and variability in how those discards are documented and quantified. Mandatory fishermen and dealer reporting requirements provide a census of all commercial landings; while discards are expanded estimates developed from fishery/observer sampling from a sub-set of the different fleets within the commercial summer flounder, scup and black sea bass fisheries. A variety of data sources such as NMFS Northeast

² MAFMC (Mid-Atlantic Fishery Management Council) 2013. Omnibus Amendment, Amendment 19 to the Summer Flounder, Scup and Black Sea Bass Fishery Management Plan. Available at: <https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/53873dc1e4b0d9893f420d0f/1401372097516/AM-Document-Submitted-Main-Doc.pdf>

Fisheries Observer Program and self-reported discard information from vessel trip reports (VTRs) are used, based on a variety of statistical methodologies, to estimate discards for the various fleets. Lastly, there is also uncertainty in the mortality rate assigned to the discards depending upon the gear used to harvest summer flounder, scup and black sea bass. Some gear specific mortality rates were derived from experimental studies, while others are unknown and determined by expert opinion considering the gear type and how and when the fishery is operating.

There are many factors that can influence the reason for and magnitude of discards within any given year. Biological conditions and population dynamics such as year class strength and fish availability can impact discards due to minimum size requirements and timing and concentration of fish in relation to when and where the fishery is occurring. Regulatory conditions such as quotas, seasonal closures and trip limits will also impact the magnitude of discards. In addition, market or economic conditions such as price and size preference will also contribute to discards.

A comparison of projected discards, developed during the specification setting process, and the estimated total dead discards from the latest stock assessments from 2012 – 2016 was conducted for all three species. This time period represents all years in which ABCs and ACLs have been in place for all three species and, therefore, when projected discards were developed. The overall performance of discard projections is quite different among all three species (Figure 1a-c; Table 1a-c). On average, projected discards were underestimated and were 18% lower than the estimated discards for summer flounder, overestimated by 17% for scup and underestimated by 87% for black sea bass. There was no specific trend (i.e. consistent over/under estimate of discards) and the inter-annual variability was quite high for all three species. For example, summer flounder estimated discards were nearly 400% higher than those projected in 2013 and were then nearly 15% lower than the projected discards in 2014 (Table 1a-c).

Due to the commercial discards data limitations, similar to the recreational catch estimates, there is a degree of uncertainty and variability to the commercial discard estimates. Table 2 provides a time series of commercial discard estimates and the associated measure of uncertainty (measured as either percent standard error or coefficient of variation) for certain gear types in the summer flounder, scup and black sea bass fisheries. Commercial discards for all three species are variable with, at times, large fluctuations up or down from one year to the next. The uncertainty for the discard estimates can be quite high in some years (e.g. PSEs greater than 50 or CV's greater than 1.0 were identified as estimates that were highly uncertain), particularly for scup and black sea bass. It is worth noting that the uncertainty in the discard estimates has been declining over the last five years.

The current commercial ACL evaluation system for summer flounder, scup and black sea bass requires a payback for any catch above the established ACL. This evaluation assumes the commercial catch is precisely calculated. As demonstrated above, while there are accurate commercial landings records and a strong relationship exists between commercial landings and the commercial quota, there is little evidence of a similar relationship between projected and estimated discards. In addition, the estimates of commercial discards are uncertain and variable but are treated as precisely known when evaluating the commercial catch to the ACL. The pound for pound payback system for landings overages has worked well over the years and provides a

predictable response in reducing fishing effort and constraining harvest to the established quotas in the following year; however, the ability to predict discards and how discards may change when paybacks are required is much more uncertain. In fact, implementing pound for pound paybacks due to higher than anticipated discards when stock conditions are favorable and at high levels of abundance may contribute to increased discards in certain situations. This is particularly true when the commercial quota is constraining landings and fishing effort and further complicates the ability to predict discards in future fishing years. A more appropriate approach would allow for fluctuations in commercial discards when stock conditions are positive (not overfished and not overfishing) and implementing more aggressive paybacks when stock conditions warrant additional protection and management response.

Draft Alternatives for Consideration

There are two sets of alternatives provided for consideration. One set of alternatives considers the unpredictability and uncertainty in the discards and provides a different approach when conducting the commercial ACL overage evaluation. A second set of alternatives considers stock condition when applying a payback due to a non-landing (i.e. discards) ACL overage. These two sets of alternatives can be selected independently (i.e. changing or choosing one alternative does not depend on changing or choosing the other).

The alternatives below were devised by staff, in cooperation with GARFO, and attempt to provide additional flexibility at various stages of the commercial AM implementation process. Other than the no action/*status quo*, the alternatives presented propose to treat commercial landings and discards differently for both evaluation and for implementation or response. The commercial quota monitoring system is timely and effective at constraining landings to the quota and the payback provisions for landing overages has been a successful deterrent without significant consequences to the fishery. Therefore, there are no proposed changes to the current evaluation of commercial landings relative to the commercial quota, or the landings overage repayment.

1. Commercial ACL overage evaluation

Alternative 1A: No action/*status quo* – single year examination of total catch

Under this alternative, the current regulatory language would remain. It is as follows: *The commercial sector ACL will be evaluated based on a single-year examination of total catch (landings and dead discards). Both landings and dead discards will be evaluated in determining if the commercial sector ACL has been exceeded.*

The commercial sector ACL is comprised of both landings and discards and the current ACL evaluation considers a single-year examination of commercial catch to the ACL. In practice, because of the lag in finalizing commercial catch estimates, the single year examination is conducted but it typically applied to the ACL two years out (e.g. 2015 evaluation applied to the 2017 ACL). If the ACL was exceeded due to landings in excess of the quota (coastwide, state or quota period), the overage would be deducted from the appropriate following year quota as prescribed in regulation. If the ACL overage was not due to landings, or if the ACL overage

could not be completely accounted for through a landings payback, then the ACL was exceeded due to the one year of higher than projected discards and would require a payback.

Alternative 1B: 3-year moving average evaluation for discards only

Under this alternative, the commercial sector ACL will be evaluated based on a single-year examination of landings and a 3-year running average of dead discards to calculate total commercial catch. Both landings (one-year) and dead discards (3-year running average) will be evaluated to determine if the commercial ACL had been exceeded.

Rationale: The commercial quotas for summer flounder, scup and black sea bass account for 85-89% of the commercial ACL and landings account for 77-87% of the total commercial catch. Since the commercial quota and/or landings account for the overwhelming proportion of the ACL and catch, respectively, and the quota monitoring system and existing landings payback provision are successful at constraining landings, a one-year evaluation of the ACL is appropriate. However, this alternative will evaluate the commercial ACL using the most recent year of landings and 3-year running average for dead discards to account for the unpredictability and uncertainty in the discard estimates. This approach will help minimize potential negative consequences of uncertain and unpredictable discards and will smooth out some of the variability in the estimates while utilizing the most recent landings and commercial ACL for evaluation.

As under alternative 1A (*status quo*), if the ACL was exceeded due to landings in excess of the quota (coastwide, state or quota period), the overage would be deducted from the appropriate following year quota as prescribed in regulation. If the ACL overage was not due to landings, or if the ACL overage could not be completely accounted for through a landings payback, then the ACL was exceeded due to the three-year running average of higher than projected discards and would require a payback.

Comparison of ACL overage evaluation alternatives

Commercial ACL evaluations were conducted using the approach outlined under alternative 1B and were compared to the *status quo* (alternative 1A). Since ACLs were first implemented in 2012, the 3-year moving average for discards were phased in beginning in 2012. Therefore, the evaluation for 2012 was the same for both alternatives. Beginning in 2013, under Alternative 1B, the 2013 commercial landings and the average 2012-2013 estimated discards were compared to the 2013 ACL. For 2014 under Alternative 1B, the 2014 commercial landings and the average 2012-2014 estimated discards were compared to the 2014 ACL. For all subsequent years, the preceding year commercial landings and preceding 3-year average estimated discards were compared to the preceding ACL.

Given the differences in discard projections and the unique situation for each species (increasing or decreasing population size) and for each commercial fishery (constraining or non-limiting quotas), there is no consistent trend across each species when comparing alternative 1B to the *status quo* alternative. For summer flounder, the ACL evaluation was nearly identical between *status quo* and alternative 1B with both indicating the ACL was exceeded by 5.1%, on average, from 2012 - 2016 (Table 3a, Figure 2a). For scup, the commercial ACL was not exceeded in any year from 2012 – 2016 under either ACL evaluation. Alternative 1B resulted in a higher

underage, 31.1% on average, compared to the *status quo*, 28.6% on average (Table 3b, Figure 2b). For black sea bass, the differences are more substantial between alternative 1B and *status quo*. The ACL was exceeded in each year except for 2012 with an average overage of 11.3% under the *status quo* and only 5.6% on average under alternative 1B (Table 3c, Figure 2c). The differences between the two alternatives are even higher when comparing over the last three years (2014-2016) with the *status quo* resulting in an overage of 17.7% on average and alternative 1B resulting in an overage of 9.8% on average.

Based on this comparison of the ACL evaluation alternatives, there would have been no change in actual implementation, in terms of when a payback was required or in how much of a payback was needed, when an ACL was exceeded due to higher than projected discards for summer flounder and scup. For black sea bass, alternative 1B resulted in lower ACL overages than the *status quo* and therefore less payback would have been required if this alternative was used.

2. Non-landing accountability measures

If the evaluation of the ACL as outlined under the alternatives above indicates the ACL was exceeded and the overage can't be accommodated by a landings payback, then the overage is due to higher than anticipated discards. The alternatives below consider different approaches as to when a payback would be needed and how much payback would be required if the ACL is exceeded due to discards.

Alternative 2A: No action/status quo – pound for pound payback of ACL overage if not accommodated through landings-based AMs

Under this alternative, the regulatory language would remain the same. It is as follows: *In the event that the commercial ACL has been exceeded and the overage has not been accommodated through the landings-based AM, then the exact amount by which the commercial ACL was exceeded, in pounds, will be deducted, as soon as possible, from applicable subsequent single fishing year commercial ACL.*

Alternative 2B: Scaled payback of the discard overage

As discussed above, landings based overages and subsequent pound-for-pound repayments will remain regardless of stock condition. Therefore, if the ACL overage was caused due to higher than projected discards then, under this alternative, the condition of the stock (B/B_{MSY}) based on the most recent stock assessment information scales the payback amount. Management response to an ACL overage, in terms of the amount of required payback, would differ depending upon stock condition and whether only the commercial ACL, or the commercial ACL and the ABC was exceeded. If the commercial ACL was exceeded and the overage cannot be accommodated through-landings based AMs alone, then a scaled payback would be applied to the remainder of the ACL overage. Similar to the recreational AM scaled payback provisions, the following procedures would be followed:

- If $B/B_{msy} \geq 1$, no non-landing pound for pound payback is needed

- If $1 \geq B/B_{msy} \geq \frac{1}{2}$ and the stock is not under a rebuilding plan, then the following non-landing payback is applied:
 - If the commercial ACL is exceeded but the ABC is not exceeded, no non-landing pound for pound payback is needed
 - If both the commercial ACL and ABC are exceeded, then a single-year adjustment to the commercial ACT will be made
 - The ACT will be reduced by the exact amount, in pounds, of the product of the non-landing overage and the payback coefficient based on B/B_{msy}
 - The calculation for the for the payback amount, in pounds, would be as follows: $(\text{overage amount}) * (B_{msy} - B) / \frac{1}{2} B_{msy}$
- If $B/B_{msy} \leq \frac{1}{2}$, stock is under a rebuilding plan, or biological reference points are unknown then the non-landing payback is pound for pound

Rationale: Similar to recreational catch estimates (harvest and discards), commercial discard estimates can be variable and uncertain and projecting future fishing year discards can be unreliable. Evaluating the application of an AM for non-landing overages based on stock condition is an appropriate approach that considers the health of the resource while increasing fishing opportunities and implementing appropriate paybacks to the commercial industry. Applying a consistent approach and methodology for recreational and commercial AMs, particularly when evaluating variable and uncertain discard estimates, is a logical and straightforward approach. It also creates a much more predictable and equitable process in implementing AMs to account for ACL overages. This approach should not change or shift commercial fishing effort in these commercial fisheries. Landings account for 77-87% of the total commercial catch for these three fisheries and, except for scup, nearly 100% of the commercial quota is harvested in any given year. Therefore, the commercial fisheries will continue to be constrained by the commercial quotas that are established and the landings based overage repayment will continue under this option. Application of this approach only to the non-landing portion of the commercial ACL will not negatively impact those stocks whose biomass is high and above B_{MSY} , while mitigating negative impacts and implementing a payback for those stocks that are overfished, rebuilding or below the target biomass.

Tables and Figures

Table 1a – c. Evaluation of the commercial fishery performance relative to the commercial quota and comparison between projected and estimated total dead commercial discards from 2012 – 2016 for summer flounder (a), scup (b) and black sea bass (c).

Table 2. Annual estimates of commercial discards and associated percent standard error (PSE) or coefficient of variation (CV) in the summer flounder, scup and black sea bass fisheries developed during the respective benchmark assessments. Summer flounder live discard estimates were derived using the Standardized Bycatch Reporting Methodology (SBRM) from NEFOP data for otter trawls and scallop dredges. Scup live discards and black sea bass dead discard estimates also used SBRM data for otter trawls. PSEs higher than 40 and CVs higher than 0.5 are in yellow to highlight highly uncertain estimates.

Table 3a – c. 2012-2016 commercial sector ACL, landings, estimated dead discards and ACL overage evaluation for the two ACL evaluation alternatives for summer flounder (a), scup (b) and black sea bass (c).

Figure 1a – c. Comparison of projected commercial discards, established when setting specifications, and estimated commercial dead discards from the most recent stock assessments for summer flounder (a), scup (b), and black sea bass (c) from 2012 - 2016.

Figure 2a – c. Comparison of the two commercial ACL overage evaluation alternatives for summer flounder (a), scup (b) and black sea bass (c). Positive values indicate the commercial catch exceeded the ACL and negative values indicate commercial catch was below the ACL based upon the ACL evaluation determined under each alternative.

Table 1a - c. Commercial fishery performance relative to the commercial quota and comparison between projected and estimated total dead commercial discards from 2012 – 2016 for summer flounder (a), scup (b) and black sea bass (c).

a) Summer flounder

Year	Commercial Landings (mil lb)	Commercial Quota (mil lb)	Percent Over(+)/Under(-)	Projected Discards (mil lb)	Estimated Discards (mil lb)	Percent Over(+)/Under(-)
2012	13.04	12.73	+2%	0.86	1.58	+84%
2013	12.44	11.44	+9%	0.32	1.57	+395%
2014	11	10.51	+5%	2.03	1.73	-15%
2015	10.68	11.07	-4%	2.27	1.48	-35%
2016	7.81	8.12	-4%	1.31	1.63	+24%
5-yr Avg.	10.99	10.77	+2%	1.36	1.60	+18%

b) Scup

Year	Commercial Landings (mil lb)	Commercial Quota (mil lb)	Percent Over(+)/Under(-)	Projected Discards (mil lb)	Estimated Discards (mil lb)	Percent Over(+)/Under(-)
2012	14.88	27.91	-47%	3.53	2.21	-37%
2013	17.87	23.53	-24%	5.94	2.87	-52%
2014	15.96	21.95	-27%	5.45	2.21	-59%
2015	17.03	21.23	-20%	2.12	3.97	87%
2016	15.76	20.47	-23%	3.79	6.11	61%
5-yr Avg.	16.30	23.02	-29%	4.17	3.47	-17%

c) Black sea bass

Year	Commercial Landings (mil lb)	Commercial Quota (mil lb)	Percent Over(+)/Under(-)	Projected Discards (mil lb)	Estimated Discards (mil lb)	Percent Over(+)/Under(-)
2012	1.72	1.71	+1%	0.32	0.23	-37.4%
2013	2.26	2.17	+4%	0.37	0.47	-51.7%
2014	2.18	2.17	0%	0.37	0.92	-59.4%
2015	2.29	2.21	+4%	0.39	0.74	+87.3%
2016	2.50	2.70	-7%	0.44	1.20	+61.2%
5-yr Avg.	2.19	2.19	-0.1%	0.38	0.71	+87%

Table 2. Annual estimates of commercial discards and associated percent standard error (PSE) or coefficient of variation (CV) in the summer flounder, scup and black sea bass fisheries developed during the respective benchmark assessments. Summer flounder live discard estimates were derived using the Standardized Bycatch Reporting Methodology (SBRM) from NEFOP data for otter trawls and scallop dredges. Scup live discards and black sea bass dead discard estimates also used SBRM data for otter trawls. A gear specific discard mortality rate is applied to the live discard estimates to derive dead discards for that gear. PSEs higher than 40 and CVs higher than 0.5 are in yellow to highlight highly uncertain estimates.

Year	Live Summer Flounder Discards (MT)	C.V.	Live Scup Discards (MT)	PSE (%)	Sea Bass North Sub-Unit (MT)	C.V.	Sea Bass South Sub-Unit (MT)	C.V.
1989	570	0.37	1,277	7	21.2	0.64	60.7	0.40
1990	1,122	0.39	2,466	5	7.3	0.40	50.7	0.40
1991	273	0.31	3,388	11	2.0	0.64	20.3	0.27
1992	2,689	0.19	1,885	29	12.6	0.71	83.4	0.42
1993	876	0.35	1,510	1	13.7	0.69	216.9	1.00
1994	1,919	0.12	962	5	5.2	0.68	35.4	0.55
1995	1,027	0.15	974	1	15.9	0.38	19.9	0.65
1996	1,795	0.23	870	52	39.1	0.44	604.8	0.62
1997	1,007	0.20	675	40	74.7	0.51	9.2	1.67
1998	793	0.14	705	72	10.6	0.86	141.5	0.43
1999	2,075	0.17	735	9	4.8	0.32	16.2	0.32
2000	2,022	0.28	592	26	2.5	0.65	25.4	0.28
2001	507	0.16	1,671	63	39.6	0.65	137.1	0.32
2002	1,152	0.13	1,284	10	9.1	1.39	6.1	0.31
2003	1,429	0.13	436	18	60.3	0.59	41.9	0.45
2004	2,008	0.10	1,324	25	36.3	0.44	369.6	0.25
2005	1,855	0.06	565	47	6.6	0.38	22.8	0.26
2006	1,853	0.11	896	14	10.1	0.44	7.2	0.50
2007	2,637	0.11	1,363	31	125.0	0.44	25.4	0.51
2008	1,453	0.08	2,254	4	23.6	0.49	29.4	0.31
2009	1,808	0.06	3,189	18	68.9	0.48	131.3	0.40
2010	1,833	0.07	2,638	19	37.6	0.28	94.3	0.17
2011	1,370	0.07	1,234	13	52.8	0.40	90.3	0.17
2012	897	0.08	1,029	12	39.2	0.43	52.5	0.17
2013	890	0.09	1,279	7	72.0	0.34	117.0	0.19
2014	981	0.06	1,008	7	253.4	0.20	143.6	0.14
2015	837	0.08	1,774	10	128.5	0.31	183.6	0.12
2016			2,772	8	368.9		62.2	
T.S. Avg.	1,395	0.17	1,456	20	55.1	0.53	100.0	0.42
5-year Avg.	995	0.07	1,572	9	109.2	0.34	117.4	0.16

Table 3a – c. 2012-2016 commercial sector ACL, landings, estimated dead discards and ACL overage evaluation for the two alternatives for summer flounder (a), scup (b) and black sea bass (c).

a) Summer flounder

Year	ACL	Landings	Estimated Discards	Status Quo (% Over/Under)	Alternative 1B (% Over/Under)
2012	14.0	13.03	1.58	4.4%	4.4%
2013	12.1	14.49	1.57	32.6%	32.7%
2014	12.9	11.07	1.73	-0.5%	-1.3%
2015	13.3	10.68	1.48	-8.8%	-8.0%
2016	9.4	7.81	1.63	0.1%	-0.1%
T.S. Average				5.5%	5.5%
14-16 Average				-3.1%	-3.1%

b) Scup

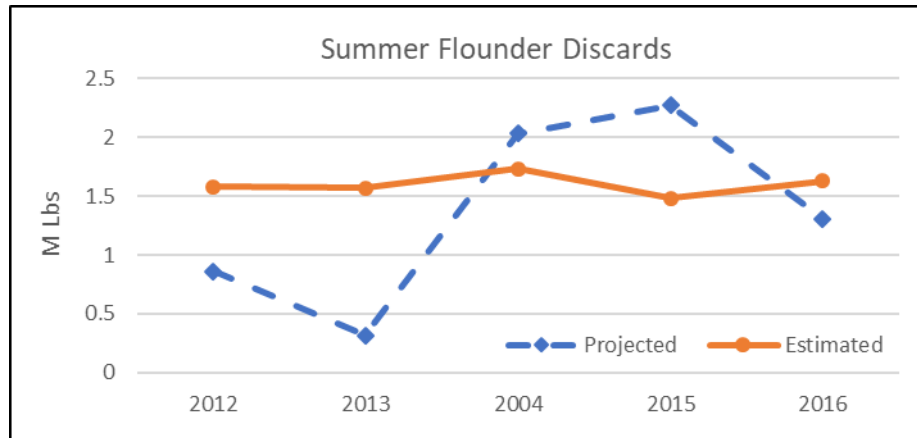
Year	ACL	Landings	Estimated Discards	Status Quo (% Over/Under)	Alternative 1B (% Over/Under)
2012	31.89	14.88	2.21	-46.4%	-46.4%
2013	30.19	17.87	2.87	-31.3%	-32.4%
2014	28.07	15.96	2.21	-35.3%	-34.5%
2015	26.35	17.03	3.97	-20.3%	-23.9%
2016	24.26	15.76	6.11	-9.9%	-18.2%
T.S. Average				-28.6%	-31.1%
14-16 Average				-21.8%	-25.5%

c) Black sea bass

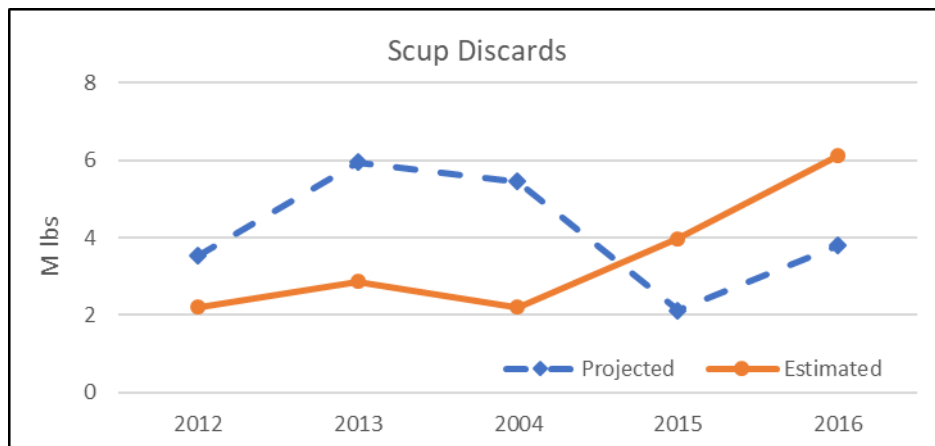
Year	ACL	Landings	Estimated Discards	Status Quo (% Over/Under)	Alternative 1B (% Over/Under)
2012	1.98	1.72	0.23	-1.6%	-1.6%
2013	2.60	2.26	0.47	4.8%	0.3%
2014	2.60	2.18	0.92	19.1%	4.5%
2015	2.60	2.29	0.74	16.5%	15.3%
2016	3.15	2.5	1.20	17.6%	9.6%
T.S. Average				11.3%	5.6%
14-16 Average				17.7%	9.8%

Figure 1a – c. Comparison of projected commercial discards, established when setting specifications, and estimated commercial dead discards from the most recent stock assessments for summer flounder (a), scup (b), and black sea bass (c) from 2012 - 2016.

a) Summer flounder



b) Scup



c) Black sea bass

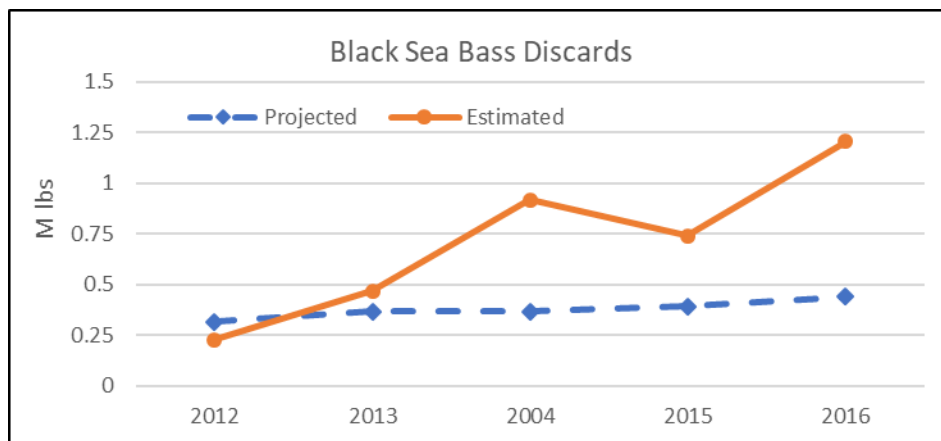
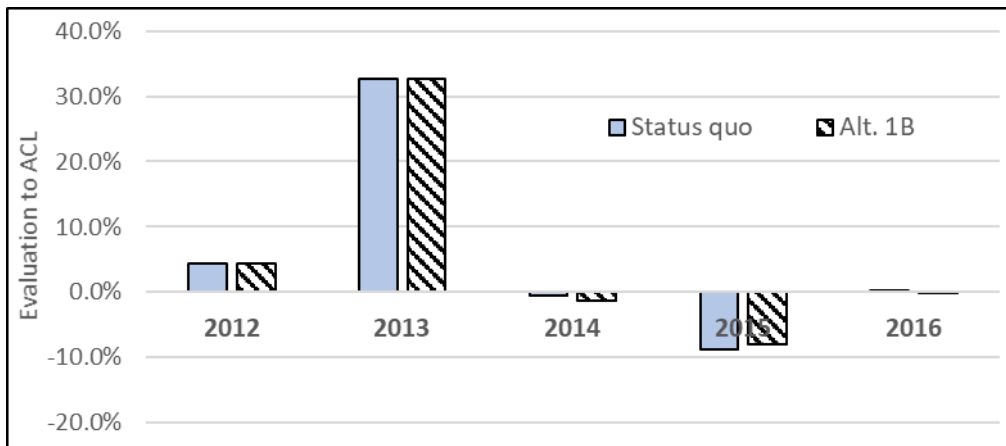
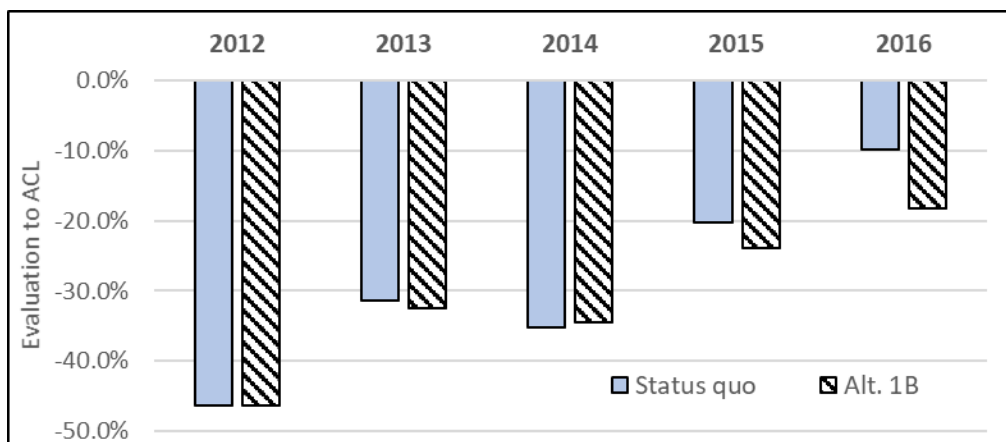


Figure 2a – c. Comparison of the two commercial ACL overage evaluation alternatives for summer flounder (a), scup (b) and black sea bass (c). Positive values indicate the commercial catch exceeded the ACL and negative values indicate commercial catch was below the ACL based upon the ACL evaluation determined under each alternative.

a) Summer flounder



b) Scup



c) Black sea bass

