



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

MEMORANDUM

January 13, 2017

To: Atlantic Striped Bass Management Board
From: Atlantic Striped Bass Technical Committee
RE: Percent Liberalization in Harvest (0.16 to 0.18) and Dataset Recommendation for Conservation Equivalency Proposals

In October 2016, the Atlantic Striped Bass Board (Board) tasked the Technical Committee (TC) to 1) determine the percent liberalization in harvest that would increase fishing mortality (F) from the 2015 terminal year estimate of 0.16 to the FMP target F of 0.18, and 2) to recommend a preferred dataset using updated length-frequency data for states to use when preparing conservation equivalency proposals for recreational regulations. The following represents the work completed by the TC to address these two tasks.

Task 1

Methods:

The two projection scenarios examined were:

1. Project population starting in 2015 through 2017 using preliminary removals for 2016 and fishing mortality (F) of 0.18 (i.e., F target) in 2017. Estimate total removals in 2017.
2. Project population starting in 2015 through 2017 using constant F of 0.156 in 2015 and F of 0.18 in 2016 and 2017. Estimate total removals in 2016 and 2017.

For Scenario 1, error in F and starting abundances for 2015 was assumed. For Scenario 2, only error in starting abundances was assumed. Projections were made for the uncorrected and retrospective bias-corrected estimates of F and spawning stock biomass (SSB), and 10,000 runs were made for each scenario.

Results:

Preliminary 2016 removals are estimated at 3,557,510 fish¹ which is an 18% increase in removals from 2015 (3,017,358 fish). According to the projection model (Tables 1-2), the number of harvested fish that it would take to increase F from 0.156 in 2015 to 0.18 (target F)

¹ Preliminary removals for 2016 were estimated via the sum of the 2016 preliminary MRIP harvest and dead discards estimate (A+B1+9% of B2's; waves 2-5), the 2015 wave 6 harvest and dead releases estimate from the Mid-Atlantic (wave 6 for 2016 has not been released yet), the 2015 Virginia wave 1 harvest estimate, the preliminary 2016 commercial landings estimates (except 2015 commercial landings were substituted for New York and Virginia because final 2016 landings are expected to be significantly higher for those states), and the 2015 commercial discards estimate.

in 2017 ranges from 303,800 fish (Scenario 2, without retrospective bias correction) to 341,186 fish (Scenario 1, with retrospective bias correction), a 10 - 11% increase in removals from 2015 (Table 3), but a reduction of approximately 6% from preliminary 2016 estimates of removals.

Discussion:

Although projections indicate harvest could increase in 2017 relative to 2015 numbers, all of the scenarios result in 2017 removals that are less than the preliminary 2016 removals.

According to the projections in Scenario 1, F increased to 0.19 in 2016 which is above the F target (0.18) indicating that current recreational and commercial regulations may result in an F of 0.18 or greater in 2016 and 2017. Also, the 2016 removals estimate for Scenario 1, although preliminary, is higher than that estimated via a constant F of 0.180 in Scenario 2. In other words, if the final 2016 removals estimate is lower than that used for Scenario 1, it is still likely that F will be estimated above the F target in 2016.

The TC also stresses that although the assessment is very good, it may not be able to distinguish between fishing mortality point estimates of 0.16 and 0.18. In other words, the upper and lower bounds of the confidence intervals for both F estimates would essentially overlap.

Table 1. Scenario 1; preliminary 2016 removals estimate. Results of 2016 fishery independent surveys are not accounted for in the 2016 and 2017 stock status projections (F and SSB). Removals are in number of fish. *median value

| No Retrospective Bias-Correction | | | | | | |
|---|-----------|-------|---------------------|-----------|--------------------------------------|--|
| Year | Removals | F | *Estimated Removals | *SSB (mt) | Probability F is above the threshold | Probability SSB is below the threshold |
| 2015 | 3,017,358 | 0.156 | | 58,886 | 0.021 | 0.411 |
| 2016 | 3,557,510 | 0.194 | | 58,754 | 0.175 | 0.407 |
| 2017 | | 0.180 | 3,329,752 | 58,677 | 0.058 | 0.417 |
| Retrospective Bias-Correction | | | | | | |
| Year | Removals | F | *Estimated Removals | *SSB (mt) | Probability F is above the threshold | Probability SSB is below the threshold |
| 2015 | 3,017,358 | 0.148 | | 61,622 | 0.011 | 0.244 |
| 2016 | 3,557,510 | 0.190 | | 61,752 | 0.140 | 0.218 |
| 2017 | | 0.180 | 3,358,416 | 61,466 | 0.058 | 0.233 |

Table 2. Scenario 2; constant F of 0.156 for 2015 and F of 0.18 for 2016 and 2017. Results of 2016 fishery independent surveys are not accounted for in the 2016 and 2017 stock status projections (F and SSB). Estimated removals are in number of fish. *median value

| No Retrospective Bias-Correction | | | | |
|---|-------|---------------------|-----------|--|
| Year | F | *Estimated Removals | *SSB (mt) | Probability SSB is below the threshold |
| 2015 | 0.148 | 3,017,230 | 58,847 | 0.417 |
| 2016 | 0.180 | 3,270,465 | 57,902 | 0.481 |
| 2017 | 0.180 | 3,321,030 | 58,478 | 0.436 |
| Retrospective Bias-Correction | | | | |
| Year | F | *Estimated Removals | *SSB (mt) | Probability SSB is below the threshold |
| 2015 | 0.156 | 3,017,230 | 61,471 | 0.254 |
| 2016 | 0.180 | 3,318,723 | 60,310 | 0.307 |
| 2017 | 0.180 | 3,332,337 | 60,595 | 0.277 |

Table 3. Percent liberalization in harvest that would increase fishing mortality (F) from the 2015 terminal year estimate of 0.16 to the FMP target F of 0.18. Removals are in number of fish. *model-based estimate. ^based on 2016 preliminary removals estimate; 3,557,510 fish (see footnote above).

| Scenario | 2015 Removals | 2017* Removals | Change in Removals | Percent Change in Removals From 2015 | Percent Change in Removals From 2016^ | Retrospective Bias |
|----------|---------------|----------------|--------------------|--------------------------------------|---------------------------------------|--------------------|
| 1 | 3,017,358 | 3,329,752 | 312,394 | +10% | -6.4% | No |
| | | 3,358,416 | 341,186 | +11% | -5.6% | Yes |
| 2 | 3,017,230* | 3,321,030 | 303,800 | +10% | -6.6% | No |
| | | 3,332,337 | 315,107 | +10% | -6.3% | Yes |

Task 2

In November 2014, the TC set criteria for the development of conservation equivalency (CE) proposals (M14-110). The TC acknowledges that 2011-2013 data are no longer appropriate for CE proposals due to the emergence of the 2011 year class in the catch data and the change in size-frequency of the current population. The TC discussed that a length-based projection model would be the best approach for states to use to address variability concerns, and is interested in pursuing the development of the model. However, until such a model is developed, the TC recommends states use the most recent three years of size-frequency data for preparing CE proposals unless a state can justify using less data. For example, the sample size from the most recent two years (or one year) may be sufficient. States should explicitly state its justification for using less than the most recent three years of data within the CE proposal.

