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Maryland's Conservation Equivalency Effectiveness Report

January 2019

Introduction

At the February 2018 Atlantic Striped Bass Management Board meeting, Maryland presented a conservation equivalency plan to lower the minimum size during the Chesapeake Bay summer/fall season with the primary goal of reducing dead discards. The proposal would increase harvest, but decrease dead discards and therefore have an estimated zero or minimal impact on total removals. Anglers were reporting a high number of discards in recent years as a result of the increase in minimum size from 18 to 20 inches during the 2015-2017 fishing seasons, and the availability of several strong year classes. The plan (Option B in proposal) reduced the minimum size from 20 to 19 inches and required the use of non-offset circle hooks when fishing with bait during the summer/fall fishery.

The motion read as follows:

“Move to approve Option B, in Maryland’s conservation equivalency proposal for its summer/fall recreational striped bass fishery in the Chesapeake Bay. Season, May 16 to December 15. Size and bag, 2 fish at 19 inch minimum, with only 1 fish allowed greater than 28 inches. Non-offset circle hooks required when fishing with bait, non-artificial lures. Additionally, Maryland will collect enforcement, compliance and other relevant information during 2018, and will report back to the Board with a conservation equivalency effectiveness review in February, 2019.” The motion passed, with 15 in favor and 1 abstention.

Maryland was able to pass emergency regulations in time for the entire 2018 summer/fall fishery, May 16 – December 15. During the public scoping process following the board meeting, it was determined that requiring circle hooks for all bait fishing would negatively impact tackle shops and anglers targeting species other than striped bass. As the majority of striped bass are targeted using chumming and live-living, the final regulation required the use of non-offset circle hooks while chumming and live-lining, but J-hooks or circle hooks could be used when fishing with dead bait. The regulations were written with a two year sunset provision and they will expire on Dec. 15, 2019. Maryland intends to maintain these recreational measures for the 2019 summer/fall fishery.

Maryland took several steps to educate anglers and assess compliance with the new regulations. This conservation equivalency effectiveness report serves to present that information as required by the board.

Outreach and Education

The Maryland Department of Natural Resources (DNR) developed a multifaceted approach to support implementation of the conservation measure. This involved educating the fishing public on the new requirements and the benefits of circle hooks through all platforms at the unit’s disposal including:

- Distribution of printed outreach material via department service centers, parks, outdoor retail outlets, recreational fishing survey crews and stakeholder events like the Maryland State Fair: 21,000 business cards, 700 index cards, 100 posters and 500 stickers.
- Five separate emails, distributed to approximately 100,000 email addresses.
- Eight seminars devoted to the topic and seven industry shows covering 30 days.
- 15 postings on Facebook and Twitter before and during the fishing season, soliciting over 174,000 views by the public.
- Two 2-hour radio interviews on the Outdoorsman Radio Show.
- Website developed and launched, dedicated to the regulation and proper use of circle hooks.
- Two full press releases distributed to all state news outlets, one to announce the regulation and the second to encourage proper use of circle hooks and handling of fish.
- Multiple 5-minute weekly fishing reports on a local radio show to highlight the new regulation and use of circle hooks.

During 2019, the department plans to continue educating the public on the regulation and the benefits of circle hooks, utilizing many of the same outlets listed above. Staff plan to engage the public at fishing shows and give presentations to additional fishing clubs. To date, staff are scheduled to present at two fishing clubs and work at a booth during two winter outdoors shows (covering 12 days). Another initiative planned for 2019 is the distribution of 2,000 non-offset circle hooks while engaging the public on the topic.

Enforcement and Compliance

Natural Resources Police

Saturation patrols were conducted over the summer by the police. In total, 40 boats (charter and recreational) were boarded and gear was checked for compliance with the circle hook regulation. One warning was issued to a charter boat using J-hooks indicating nearly 100 percent compliance.

Access Point Angler Intercept Survey (APAIS)

The survey is part of the National Oceanic & Atmospheric Administration’s (NOAA) Marine Recreational Information Program (MRIP) and has been conducted for over 26 years. MRIP staff are responsible for survey design, recreational catch and effort estimation, and public data dissemination. As part of MRIP, DNR APAIS staff conduct interviews and collect data using protocols designed by NOAA Fisheries. The survey takes place at beaches, piers, marinas, docks and other marine access sites throughout Maryland and collects data on the catch, participation and effort of recreational anglers. The table below summarizes the number of intercepts for 2018.

Wave	Number of Charter Angler Interviews	Number of Private Angler Interviews	Number of Shore Angler Interviews	Number of All Interviews Obtained
3 (May/Jun)	360	1,012	281	1,653
4 (Jul/Aug)	285	556	352	1,193
5 (Sept/Oct)	137	445	136	718
6 (Nov/Dec)	37	198	123	358
2018 TOTAL	900	2,485	1,009	4,394

During summer/fall 2018, DNR staff included two additional circle hook questions, separate from the APAIS questionnaire, in order to assess compliance with the new circle hook regulations. When interviewers had time available with zero impact to the regular conduct of APAIS, staff asked these two additional questions of

saltwater, recreational, finfish anglers who had completed their fishing for the day and were fishing using hook and line from either shore or private/rental boats in Chesapeake Bay waters. Charter anglers were not asked these questions. The two questions were:

- Q1: Were you primarily chumming or live lining or fishing with bait today? (IF no/don't know/refused then end survey)
- Q2: Were you using circle hooks while using [fishing method from Q1] today?

After interviews, staff distributed circle hook information cards and notes on handling fish during the summer heat. We plan to continue the circle hook questionnaire during 2019 sampling and will distribute circle hooks and other outreach material as a thank you for participating.

Analyses

Summary of APAIS Circle Hook Questionnaire

Between May 16 and Dec. 16, 2018, APAIS staff asked 887 anglers to participate in the circle hook interviews. Of these interviews, 1 angler refused the interview, 10 anglers didn't know what fishing method they were using, and 4 interviews did not have fishing method entered. The majority of the interviews (61 percent) were conducted in June, July and November.

As the circle hook gear regulations were not striped bass specific, these interviews included anyone fishing using hook and line from shore or private/rental boats in Chesapeake Bay. Of the 872 interviews completed with known fishing method, 400 anglers (45.9 percent) were not chumming, live lining, or using bait and were therefore exempt from the new circle regulations. These anglers were likely trolling or using artificial lures. Of the anglers that were subject to the new circle hook regulations:

- 48 (5.5 percent) anglers reported that they were chumming and 45 of the 48 (94 percent) reported using circle hooks.
- 34 (3.9 percent) anglers reported that they were live lining and 33 of the 34 (97 percent) reported using circle hooks.
- 390 (44.7 percent) anglers reported that they were fishing with baited hooks. Of these 390 anglers, 119 (30.5 percent) reported using circle hooks. As the use of treble hooks was banned when using bait, the remaining anglers were likely using J-hooks.

Overall, compliance with the use of circle hooks when chumming and live lining among shore or private/rental boat anglers was high (>90 percent), suggesting that outreach efforts on the new regulations were successful in making anglers aware of the new requirements. Live lining was a smaller proportion of the Chesapeake Bay summer/fall fishery than expected, which may be due to the following: 1) the additional APAIS questions were asked of all hook and line anglers, not just those targeting striped bass; 2) live lining may be more popular with the charter boat fleet than the private fleet; 3) the scarcity of small spot in recent years may have lowered the prevalence of live lining; and 4) a lower number of circle hook interviews were conducted in August and September when live lining is popular, likely due to APAIS interviewers not having time to ask the additional circle hook questions of anglers.

Quantitative Analyses of Regulatory Changes

The minimum size limit for striped bass was 20 inches for the 2015-2017 fishing seasons and was decreased to 19 inches for 2018. It was expected that reducing the minimum size limit would result in fewer discards while increasing harvest. The reduction in discards was expected to come not only from discarded fish being harvested, but from anglers limiting out more quickly and not discarding as many fish.

First, the 2018 MRIP harvest and discard estimates were examined. The 2018 wave 6 estimates of harvest and live releases from MRIP have not yet been released, so the comparisons of the harvest and live releases will focus on preliminary data from waves 3-5 (May-October). The results of this comparison suggest that some, but not all, waves in 2018 had higher harvest and lower discards compared to 2015-2017 (Figure 1). Analysis of this nature is complicated by the fact that other factors can affect harvest and discards year to year, regardless of regulatory changes. These factors include year class strength, such as the large 2011 and 2015 year classes moving into and through the fishery, as well as weather, fish distribution patterns, and changes in angler behavior. In addition to this straightforward comparison of 2018 with 2015-2017 estimates of harvest and discards, another attempt to quantify the success of the regulation was made and is explained below.

Updated Analysis of Original Proposal

The original conservation equivalency proposal submitted by Maryland in December 2017 used data from 2000-2014 to estimate the expected total removals when reducing from a 20 inch minimum size limit to a 19 inch minimum size limit. These years were used in the analysis as regulations were constant and they reflected a variety of fishing conditions (strong and poor year classes, various weather conditions, etc). While specific years were estimated to have a net increase or decrease in total removals when going from a 20 inch minimum size to a 19 inch minimum size, the average percent change in total removals over those years was zero. This means that on average, we would expect a 0 percent change in total removals when going from a 20 to 19 inch minimum size limit. Several assumptions were made regarding fishing methods and circle hook use in the original analysis. Specifically, the proportions of anglers using artificial lures (i.e. trolling) and bait (i.e. chumming and live lining) were estimated by month based on general knowledge of the striped bass fishery. Additionally, it was assumed that all anglers using bait (i.e. chumming, live lining, or using other cut bait) would be using circle hooks, an assumption that did not ultimately align with the final regulations. Through the circle hooks questions asked by APAIS interviewers, we were able to quantify these two assumptions and adjust our calculations to reflect the observed 2018 values of fishing method and circle hook usage. In addition, we updated the analysis to use the new estimates of harvest and live releases following the MRIP update in 2018.

The estimates of fishing method (bait vs. artificials) were fairly similar between the original and updated analyses, differing by less than 15 percent in all waves (Table 1). However, the observed proportion of bait fishermen (e.g. chumming, live lining, or using cut bait) using circle hooks ranged from 26-63 percent depending on wave and was lower than the 100 percent circle hook usage assumed in the original analysis (Table 1). While almost all anglers chumming or live lining used circle hooks as required by the regulation, a lower proportion of anglers fishing with cut bait used circle hooks. This is unsurprising as anglers fishing with cut bait were allowed to use either circle hooks or J-hooks. Based on the wave 3-5 private and shore MRIP interviews in 2018, and assuming that these circle hook interviews are representative of the overall private and shore based MRIP sample, approximately 50 percent of the anglers fishing in Chesapeake Bay said they were targeting striped bass.

Similar to the original conservation equivalency proposal, analyses were conducted two ways: 1) assuming a 9 percent discard mortality rate across all waves and 2) a 27 percent discard mortality rate in waves 3-4 and a 9 percent discard mortality rate in waves 5-6 (Table 2). This higher mortality rate was based on a study by Lukacovic and Uphoff (2007), which documented higher release mortality in June and July due to high water and air temperatures. In both scenarios, an adjusted (lower) discard mortality was also applied to account for the lower mortality associated with circle hook use, as described in the original proposal.

In the updated analysis under scenario 1 (9 percent discard mortality and decreasing from a 20 to 19 inch minimum size), the dead discards are expected to decrease 10-14 percent (average=12 percent), harvest is expected to increase 11-38 percent (average=21 percent), and total removals are expected to range from a 1

percent decrease to a 13 percent increase (average=6 percent increase). In the updated analysis under scenario 2 (27 percent mortality in waves 3-4 and decreasing from a 20 to 19 inch minimum size), the dead discards are expected to decrease between 10-13 percent (average=11 percent), harvest is expected to increase between 11-38 percent (average=21 percent), and total removals are expected to range from a decrease of 4 percent to an increase of 7 percent (average=1 percent increase). The results of this analysis align with Option B approved in the original conservation equivalency proposal. In the original proposal, we estimated that there would be a 0 percent change in total removals \pm 2.5 percent; however, estimated changes in total removals ranged from -8 percent to +7 percent. While the final circle hook regulations did not result in as many dead discards being saved as originally anticipated, the 6 percent average calculated in the updated analysis is still within the range calculated in the original proposal.

Conclusion

Maryland was successful in implementing new regulations (19 inch minimum size, mandatory use of non-offset circle hooks while chumming or live-living) prior to the start of the 2018 summer/fall fishery through the use of emergency regulations. An extensive public outreach campaign educated anglers on the new regulations and benefits of circle hooks through a variety of sources including distribution of printed materials, emails, social media, presentations, radio shows and press releases. Data collected by the Maryland Natural Resources Police showed high compliance with the new regulations for both charter boat and recreational anglers. Additionally, APAIS staff on the ground helped get the word out and questioned almost 900 shore and private boat anglers about their compliance with the new regulation. The APAIS interviews showed >90 percent compliance with the use of circle hooks when chumming and live lining. Lastly, while the final circle hook regulations did not result in as many dead discards being saved as originally anticipated, the 6 percent average calculated in the updated analysis is still within the range calculated in the original conservation equivalency proposal.

Overall, Maryland feels the public was adequately informed and complied with the new regulations. Maryland will be using these same regulations in the 2019 fishing season. Outreach on circle hook usage and proper fish handling, particularly in summer when discard mortality is highest, will continue throughout 2019.

Table 1. Estimated proportion of anglers by fishing method used in the original analysis compared to the observed proportions of fishing method and circle hook usage by bait anglers from the APAIS circle hook interviews. Bait anglers in this analysis include any anglers chumming, live lining, or fishing with cut bait.

Wave	Original Analysis		Updated Analysis		
	Artificials	Bait	Artificials	Bait	Proportion Bait Anglers Using Circle Hooks
3	0.42	0.58	0.41	0.59	0.49
4	0.25	0.75	0.39	0.61	0.26
5	0.50	0.50	0.56	0.44	0.63
6	0.75	0.25	0.70	0.30	0.32

Table 2. Method 1 estimates of the proportion change in dead discards, harvest and total removals using the updated circle hook data. The top table assumes a 9 percent mortality rate for the entire fishing season. The bottom table assumes a 27 percent mortality rate in waves 3-4.

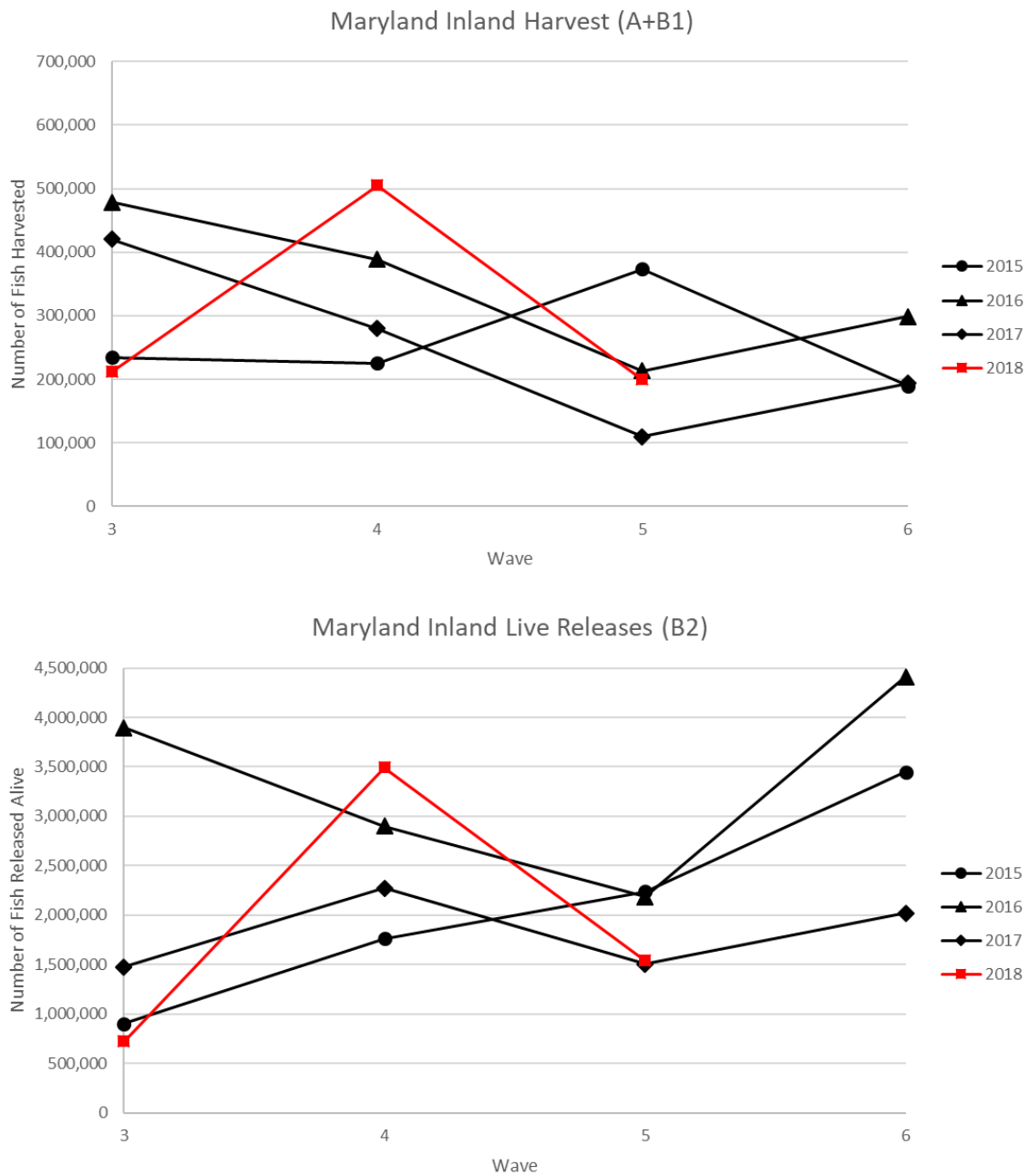
Assuming 9 percent Discard Mortality in All Waves

Year	Reduction 20''->19'' Proportion Change Dead Discards	Reduction 20''->19'' Proportion Change Harvest	Reduction 20''->19'' Proportion Change Total Removals
2000	-0.12	0.38	0.13
2001	-0.11	0.22	0.05
2002	-0.11	0.17	0.01
2003	-0.11	0.20	0.02
2004	-0.11	0.20	-0.01
2005	-0.10	0.25	0.03
2006	-0.11	0.24	0.07
2007	-0.13	0.27	0.10
2008	-0.11	0.13	0.05
2009	-0.12	0.11	0.05
2010	-0.13	0.22	0.10
2011	-0.14	0.14	0.07
2012	-0.11	0.19	0.01
2013	-0.12	0.23	0.08
2014	-0.11	0.23	0.09
Average	-0.12	0.21	0.06

Assuming 27 percent Discard Mortality Waves 3 & 4 and 9 percent Discard Mortality in Waves 5-6

Year	Reduction 20''->19'' Proportion Change Dead Discards	Reduction 20''->19'' Proportion Change Harvest	Reduction 20''->19'' Proportion Change Total Removals
2000	-0.12	0.38	0.07
2001	-0.11	0.22	0.02
2002	-0.10	0.17	-0.02
2003	-0.11	0.20	-0.02
2004	-0.10	0.20	-0.04
2005	-0.10	0.25	-0.02
2006	-0.12	0.24	0.02
2007	-0.13	0.27	0.05
2008	-0.11	0.13	0.01
2009	-0.12	0.11	0.01
2010	-0.12	0.22	0.04
2011	-0.13	0.14	0.04
2012	-0.10	0.19	-0.03
2013	-0.11	0.23	0.01
2014	-0.11	0.23	0.03
Average	-0.11	0.21	0.01

Figure 1. Estimates of harvest and live released from the MRIP program. 2018 estimates are preliminary and incomplete. Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division, Dec. 18, 2018.





November 19, 2018

Ms. Kelly Denit
Division Chief
Office of Sustainable Fisheries, National Marine Fisheries Service
1315 East-West Highway, SSMC3
Silver Spring, MD 20910

Dear Ms. Denit:

The American Sportfishing Association (ASA), the trade association representing the recreational fishing industry, does not support removing the current prohibition on recreational Atlantic striped bass fishing in the Block Island Transit Zone (BITZ) and asks that the National Marine Fisheries Service not move forward with rulemaking.

While we understand the motivations behind this proposal are focused simply on allowing recreational harvest in this geographical anomaly so as to reduce regulatory confusion and spread out fishing effort, we are concerned about potential unintended consequences. If allowed in this instance, it is likely that proposals to reopen other parts of the Exclusive Economic Zone (EEZ) to striped bass harvest, including for commercial harvest (citing "non-discrimination" under National Standard 4 of the Magnuson-Stevens Act), will emerge. The cumulative impacts of expanding striped bass harvest into areas of the EEZ may threaten the sustainability of the stock.

Many anglers and fisheries managers are concerned with trends in the condition of the striped bass population. Given that a new benchmark stock assessment will not be ready until 2019, and that no analysis has been conducted to determine the potential impacts of opening the BITZ to harvest, moving forward with this proposal could risk the future health of the striped bass stock.

The prohibition on striped bass harvest in the EEZ has unquestionably been an extremely valuable conservation measure. The "slippery slope" that could be created by allowing harvest in the BITZ is too great of a risk. We therefore request that the National Marine Fisheries Service safeguard the EEZ closure and maintain the existing prohibition on striped bass harvest in the BITZ.

Sincerely,

Mike Leonard
Vice President, Government Affairs

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