STRIPERS FOREVER
"MAKE IT A GAME FISH" WWW.STRIPERSFOREVER.ORG

January 4, 2014

Ms. Tina Berger, Director of Communications
Atlantic States Marine Fisheries Commission
1050 N. Highland
Suite 200 A-N
Arlington, VA 22201

SUBJECT: Comments to Atlantic Striped Bass Stock Assessment for 2013.

Dear Ms. Berger:

Attached, please find Stripers Forever's comments on the subject Stock Assessment.

Stripers Forever is a non-profit, internet-based conservation organization seeking game fish status for wild striped bass on the Atlantic Coast in order to significantly reduce striper mortality, to provide optimum and sustainable public fishing opportunities for anglers from Maine to North Carolina, and to secure the greatest socio-economic value possible from the fishery. We believe that striped bass should be managed for the best overall economic return to society. Trying to manage this fishery on the brink of catastrophe for the benefit of a relatively small commercial industry fails to capitalize on the current value of the fishery and jeopardizes its economic future as well.

The full stock assessment report was not available at the annual meeting in GA, there has been no other formal opportunity for public comment on this document, and the Atlantic Striped Bass Management Board is expected to approve some range of management policy changes based on this assessment at the winter meeting in February. Given the levels of data uncertainty described in the assessment report, we feel that the most conservative approach to restoring this over-fished resource is justified.

Please ensure that these comments are provided to the Atlantic Striped Bass Management Board and included on the briefing cd.

Sincerely,

Ken Hastings
Stripers Forever
Policy Coordinator to the ASMFC
(301)884-4872

Stripers Forever
Comments on Striped Bass Stock Assessment for 2013

INTRODUCTION.

Stripers Forever recognizes the challenges to making accurate estimates of stock assessment parameters given the seemingly endless data uncertainties. It is not our intention to be critical of ASMFC staff or the vast array of technical experts wrestling with this challenging endeavor. We also do not intend to second-guess the statistical techniques used or the estimates derived from them. For the purpose of this review of the 2013 SB Stock Assessment report, our goal is to reinforce the vast threats, fueled by seemingly endless compounded uncertainties, as a means of influencing ASMFC management policies away from its legacy Maximum Sustainable Yield (MSY) mindset. We believe that these quotes copied from "Development and Use of Reference Points, ASMFC Assessment Science Committee, December 2008" should be reinforced by the candid explanations of uncertainties in the SA report:

"Managers should understand not all variables are under their control. They should account for this by using harvest strategies and control rules that apply a precautionary approach to scientific uncertainty."

"The more uncertainty in the estimate of fishing mortality rate, the greater the buffer zone should be between F_{target} and $F_{threshold}$ (NAFO SCS Doc. 4/12, 2004)."

For reference, some of the variables are discussed below. Note that each key issue was first addressed by ASMFC either in public at the GA annual meeting or in the SA report. Quotations from the SA report are in bold italics.

VARIABLES AND RISKS.

Tagging.

Much of the uncertainty regarding Fishing Mortality (F) and Natural Mortality (M) apparently stems from tagging recovery results. The Stock Assessment (SA) report is very candid in its description of the associated threats. For examples copied from the report:

"It should be noted that the reporting rate is used mainly to apportion the total mortality into its F and M components. Hence, a modest misestimation of the reporting rate leads to little error in the estimated total mortality, but has a large effect on estimates of F and M."

"Tagging data suggest there has been an increase in M in recent years (Kahn and Crecco 2006; Section B8 of this report). However, some of that increase may be a function of misspecification of parameters such as tag reporting rates, which makes the absolute estimates of natural mortality less reliable"

"….even small errors in our ability to estimate fishery sector-specific tag reporting rates are propagated into large errors in the harvest and catch and release tag reporting rate estimation…"

"Tag returns for most of the programs have been historically low and have continued to decline in recent years. This has likely only served to inflate the magnitude of the sampling error."

"In recent assessments of the striped bass fishery, doubt was raised over the validity of low fishing mortality (F) estimates produced by the tagging models. The low F estimates obtained could reflect reality, or more likely given the recent static management of the fishery, reflect an artifact created by the tag reporting rate (λ) declining or natural mortality rate (M) increasing."

The number of uncontrolled variables associated with the tagging results seems overwhelming. First, it appears that the expected return rate is something of an educated guess based on assumptions about how many tags would be returned if all of the intercepted tags were returned and no fish died of natural causes. Deviations from this best case scenario could be caused by any one or a combination of natural mortality, poaching (poachers don't return tags), lack of fisherman cooperation, changes in catch success, etc. – none of which can realistically be treated as constants.

Fishing Mortality

It is assumed that fishing mortality (F) includes all the ways in which fish die that would not be present for an un-fished population and that poaching is not included. Intentional removals by commercial and recreational fishermen along with the dead discards are all included in F but not those fish released alive that don't die later from the experience.

In a perfect world, the intentional removals should be a solid, accountable number. However, in those jurisdictions that rely on un-audited reports of fish weights to ensure the total catch doesn't exceed their weight quota, the actual harvest weight could be higher than what is reported to ASMFC on compliance reports. Even when each dead fish is supposed to have a harvest tag, the fishermen sometimes under-report the weight as a ploy to catch more than the allocated weight. Since estimates of dead discards are related to the estimates of discards in general, which are in turn related to catch data, poor catch data could tend to corrupt the dead discard data contribution to F.

Estimates of commercial discards are especially difficult since the commercial sector has by far the lowest reporting rates. By basing the commercial rates on the questionable recreational rates, discard data are further compromised.

"Discard estimates for fisheries in Chesapeake Bay, and coastal locations since 1982 are based on the ratio of tags reported from discarded fish in the commercial fishery to

tags reported from discarded fish in the recreational fishery, scaled by total recreational discards."

"Expanding recreational discards to commercial discards based on reported tag returns assumes equal reporting tag rates in commercial and recreational fisheries but in fact this is not true. To correct for this bias, a correction factor is calculated by dividing the three-year mean of ratios of commercial to recreational landings by the three-year mean of ratios of tags returned by the two fisheries."

There also appears to be an issue with the estimates of which sizes of fish are resident, resulting in yet another threat to F estimates:

"These low values of F in recent years are not consistent with the high levels of harvest in the Chesapeake Bay. The assumption that 18-28 inch males are all resident fish may be incorrect. If the fish are emigrating from the Bay at a smaller size and the tags are not recovered or not used in the analysis, the emigration will result in an over-inflated estimate of natural mortality. This in turn will lead to an underestimated fishing mortality, as will overestimating the reporting rate."

Recreational harvest, discards and discard mortality are all based on MRFSS/MRIP data. In an attempt to reduce uncertainty with the older Marine Recreational Fishing Statistics Service (MRFSS) data, a transition to Marine Recreational Information Program (MRIP) was made but initial attempts to recalculate the MRFFS into MRIP standards did not yield significant changes. One limitation of both systems is that neither covers the inland portion of the fisheries, biasing the recreational harvest lower than it really is. Another limitation is the absence of MRIP data collection during wave 1. The stock assessment team assumed the resulting errors were negligible.

<u>Reliance on the 2011 year class</u>.

The remarkable Chesapeake Bay YOY index in 2011 spurred hope that the stock would recover on its own if given enough time. By 2016, it is anticipated that the 2011 year class will help bolster the decreasing spawning stock biomass (SSB). The F reduction scenarios rely heavily on this factor as evidenced by these quotations from the SA report:

"Young-of-the-year and age-1 indices in Chesapeake Bay were variable but declines were observed during 2004-2010 and in some years close to low values not observed since 1990."

"Even if F in 2015 was reduced to zero, the probability of SSB in 2015 being below the SSB reference point would decline to only 0.71, but it would drop precipitously in the following years as SSB grows rapidly."

Missing from this analysis is the fact that the following year (2012) had the worst index ever and there are no more fish coming along to help the SSB – it is all up to the 2011 year class. Also, the analysis apparently didn't take into account the fact that the Bay

quota is based on an analysis of the exploitable biomass of resident fish. If coast-wide reductions had been approved by ASMFC, they wouldn't have had any influence on the Bay quota bolstered by the 2011 year class just entering the over 18" size range in 2014. The Bay jurisdictions (MD, VA, PRFC) have decided to increase their quotas above the 2013 limit by 14% for 2014. It should be noted that a prior SB addendum approved this approach for the Bay without considering that the day might come when the future of the striped bass (SB) fishery could rest on one year class being plundered by the Bay jurisdictions with no regard for the future. It should also be noted that the quota is specified in pounds and this new contribution to the exploitable biomass will be smaller fish so a greater number of fish will be sacrificed in order to meet the weight quota. It would be interesting to see how that 14% increase in weight would translate into reduced SSB estimates for 2016 and beyond.

Natural Mortality.

There is evidence that natural mortality has increased within striped bass stocks in Chesapeake Bay but the SA report included 0.15, 0.26 and 0.82 as estimates of constant age-independent mortality. The 0.15 value was based on biological assumptions prior to the appearance of mycobacteriosis .With each iteration of estimates, the apparent errors associated with the 0.15 value grew and were "compensated" for by new estimates – first 0.26 and then 0.82. All the data pointed to increases in M, possibly due to disease, but a firm value for all ages of fish was not determined. The newest approach was for a tiered approach with highest estimates for the youngest fish graduated down to 0.15 for fish over seven years old. From the SA report:

"The Baywide estimate of natural mortality for 2011 was 0.82 (Table B8.25). Estimates of natural mortality for Chesapeake Bay fish increased from 0.26 during the first mortality period (1987-1996) to 0.82 during the second mortality period (1997-2011). Both values are substantially higher than the previously assumed, biologically based value of M=0.15."

The range of these "estimates" is staggering and it appears that for most years since 1987, the estimated natural mortality was never as low as 0.15.

"In previous assessments, M of 0.15 was assumed constant across ages. In the current assessment, age-specific Ms for ages 1-6 were derived from a curvilinear model fitted to tag-based Z estimates (assuming Z=M) for fish <age3 from NY and tag-based M estimates (Jiang et al., 2007) for striped bass from MD made for years prior to 1997 (Appendix B5). The age-specific M estimates used in the base model are:"

Age	**1**	**2**	**3**	**4**	**5**	**6**	**>7**
M	1.13	0.68	0.45	0.33	0.25	0.19	0.15

"The stock assessment committee chose to use the curve fit/M=0.15 estimates in the SCA model because they thought the estimates were more realistic than the Lorenzen

estimates and M for ages <7 were based on tag model estimates prior to the suspected increase in Mycobacterium related mortality in Chesapeake Bay."

In spite of detailed discussions in the SA report, it isn't clear which method or combination of methods was finally used in the SA but it appears that some combination of the tiered estimates for different ages coupled with a constant offset was used. However, the obvious uncertainties warrant a risk-averse cautious approach.

Biological Reference Points (BRP)Confusion.

From the presentation entitled **"2013 Stock Assessment of Atlantic Striped Bass"** presented at the GA annual meeting by Gary Nelson and Alexei Sharov, it appears that the new F target was exceeded several times between 1997 and 2012 and the F threshold was exceeded between 2004 and 2008 and again in 2011. While the statement about overfishing not occurring in 2012 is technically accurate, it also paints a misleading picture of a stock with F continuously above the new target from 2003 thru 2006 and mostly in the new "over-fishing" region above the threshold between 2004 and 2012.

If the new BRPs are the best way to proceed, then the old ones were not the best way. In retrospect, we needed more conservative BRPs to ensure the stocks are never overfished and overfishing will never occur.

Inconsistent MRFSS/MRIP Results.

A comparative review of the "Recreational Harvest" and "Recreational Dead Releases" slides from the **"2013 Stock Assessment of Atlantic Striped Bass"** presentation reveals some apparent inconsistencies in data derived from the MRFSS/MRIP data. Recreational harvest and recreational dead releases were plotted for 11 ASMFC member states. The data seems extremely erratic given the general consensus that abundance has been steadily decreasing for almost a decade. While absolute accuracy is not expected from MRFSS/MRIP, the data should generally follow trends associated with abundance in the absence of other competing factors. However, the time series values defy correlation with any apparent long-term trends.

Nine of the 11 states show a sharp reduction in recreational harvest in 2012 but the other two show an increase. Both DE and MA showed abrupt increases with MA recovering from a sharp decrease in 2011 to show a sharper increase in 2012. According to the slides, between 2010 and 2011, the harvest in MA dropped 26% but between 2011 and 2012, it increased by 50%. Conversely, the MA recreational dead discards (derived from total estimated discards) decreased very slightly between 2011 and 2012. It appears from this data that MA anglers caught 50% more fish in 2012 but only released as many as they did the prior year. It isn't clear where a spurt in legal-size fish came from when overall abundance was decreasing and it would appear that no additional fish were released as a result of catching the additional 50%. This doesn't seem right.

Further comparison of dead releases with harvest revealed a startling ratio for MD in 2012 where 250,000 were harvested and 200,000 were wasted as dead releases. The ratio of harvested fish to dead releases was 1.25 – for every five fish harvested in MD, four more died and were wasted. Surely, the slides are wrong and this data was not used for stock assessment purposes. However, a spot check for MD in 2005 revealed a ratio of 1.6 – not significantly better.

In 2012, an argument can be made that there was an excess of sub-legal fish from the 2011 year class but they would have only been one year in age at that time. Having an excess of sub-legal fish would tend to account for abnormal numbers of releases but, using .09 as the proportion of discards that died, MD anglers would have released a total of 2.2 million fish.

These are just obvious examples and not intended to include all the potential discrepancies with the data. We should proceed carefully to mitigate the risks of using inconsistent data unless we can come up with rational explanations for why it appears inconsistent.

What is Missing.

Completely missing from ASMFC policies and priorities, as exhibited by various documents, is any interest in ensuring a quality recreational fishery for the majority stakeholders. The SSB threshold is based exclusively on the abundance needed to ensure that the fishery doesn't crash – not the abundance needed to support some theoretically desirable fishing success rate. Setting more conservative BRPs would increase the abundance to ensure suitable recreational success rates while establishing a wider buffer between SSB targets and thresholds to also help mitigate the adverse effects of data uncertainties.

Of course, this would require more information than is presently available. Without knowing how many people are fishing for SB, how often they fish, and how many fish they are catching, it is impossible to compare an existing Catch Per Unit Effort (CPUE) against a target CPUE selected to ensure a quality fishery. MRFSS/MRIP is neither accurate enough nor consistent enough to meet this challenge.

Regardless of what decisions the SB Management Board makes in Feb., it seems virtually impossible to avoid an over-fished condition since the SSB appears to be in a steep dive already at the threshold level. Decreasing abundance cannot be turned around quickly and the majority stakeholders using relatively inefficient recreational gear will get hurt first. A compelling argument can be made that the current policies for setting BRPs discriminates against recreational fishermen and also fails to counter data uncertainties.