Atlantic States Marine Fisheries Commission

Atlantic Striped Bass Management Board

October 19, 2017
8:00 – 9:15 a.m.
Norfolk, Virginia

Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*J. Gilmore*) 8:00 a.m.

2. Board Consent 8:00 a.m.
   - Approval of Agenda
   - Approval of Proceedings from May 2017

3. Public Comment 8:05 a.m.

4. Consider 2017 Fishery Management Plan Review and State Compliance Reports (*M. Appelman*) **Action** 8:15 a.m.

5. Recommendations for the 2018 Benchmark Stock Assessment **Possible Action** 8:30 a.m.
   - Technical Committee Report on Management Objectives of Different Biological Reference Points (*N. Lengyel*)
   - Provide Guidance on Reference Points

6. Elect Board Chair and Vice-Chair **Action** 9:10 a.m.

7. Other Business/Adjourn 9:15 a.m.

The meeting will be held at the Waterside Marriott Hotel; 235 East Maine Street; Norfolk, Virginia 757.627.4200

MEETING OVERVIEW

Atlantic Striped Bass Management Board Meeting
October 19, 2017
8:00 – 9:15 a.m.
Alexandria, Virginia

Chair: Jim Gilmore (NY) Assumed Chairmanship: 02/16	Technical Committee Chair: Nicole Lengyel (RI)	Law Enforcement Committee Rep: Kurt Blanchard (RI)
Vice Chair: Russ Allan (NJ)	Advisory Panel Chair: Louis Bassano (NJ)	Previous Board Meeting: May 9, 2017
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, NMFS, USFWS (16 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 2017

3. Public Comment – At the beginning of the meeting, public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance, the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Review and Consider the 2017 Fishery Management Plan Review and State Compliance (8:15 a.m. – 8:30 a.m.) Action

Background

- Annual state compliance reports for Atlantic striped bass are due June 15th
- The Plan Review Team reviewed the reports and drafted the 2017 Fishery Management Plan Review **(Briefing Materials)**

Presentations

- 2017 FMP Review and State Compliance by M. Appelman

Board Actions for Consideration

- Consider the 2017 Fishery Management Plan Review and State Compliance

5. Recommendations for the 2018 Benchmark Stock Assessment (8:30 a.m. – 9:10 a.m.) Action

Background

- There has been debate regarding the current biological reference points (BRPs) (i.e., fishing mortality and spawning stock biomass targets and thresholds) for Atlantic striped

bass, and the 2018 benchmark stock assessment provides an opportunity to explore a variety of BRPs with varying management objectives (e.g., aim to maximize yield versus maximizing fishing opportunity).

- The type of reference points pursued is ultimately a policy-based decision and should reflect the direction of management. Accordingly, the Technical Committee (TC) and Stock Assessment Subcommittee (SAS) needs direction from the Board regarding the types of BRPs to pursue.
- The TC and SAS have prepared a presentation highlighting the management objectives of various types of reference points to guide the Boards discussion.

Presentations

- N. Lengyel will review the objectives of different types of biological reference points

6. Elect Management Board Chairman and Vice-chairman

7. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

ATLANTIC STRIPED BASS MANAGEMENT

The Westin Alexandria
Alexandria, Virginia
May 9, 2017

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INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).

2. **Approval of proceedings of February 2017** by consent (Page 1).

3. **Move to approve Draft Addendum V for Public Comment** (Page 11). Motion by John Clark; second by Mike Luisi. Motion failed (Page 20).

4. **Move to approve the 2018 Atlantic Striped Bass Benchmark Stock Assessment Terms of Reference as presented today** (Page 24). Motion by John Clark; second by Russ Allen. Motion carried (Page 24).

5. **Move to adjourn** by consent (Page 26).

ATTENDANCE

Board Members

Patrick Keliher, ME (AA)
Steve Train, ME (GA)
Sen. Joyce Maker, ME, proxy for Sen. Langley (LA)
Sen. David Watters, NH (LA)
Dennis Abbott, NH, Legislative Proxy
G. Ritchie White, NH (GA)
Doug Grout, NH (AA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)
Rep. Sarah Peake, MA (LA)
Raymond Kane, MA (GA)
David Pierce, MA (AA)
Mike Armstrong, MA, Administrative proxy
David Borden, RI (GA)
Mark Gibson, RI, proxy for J. Coit (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Mark Alexander, CT (AA)
James Gilmore, NY (AA)
Steve Heins, NY, Administrative proxy
Emerson Hasbrouck, NY (GA)
John McMurray, NY, proxy for Sen. Boyle (LA)
Russ Allen, NJ, proxy for L. Herrighty (AA)
Tom Fote, NJ (GA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Andrew Shiels, PA, proxy for J. Arway (AA)
Loren Lustig, PA (GA)
John Clark, PA, proxy for D. Saveikis (AA)
Roy Miller, DE (GA)
Craig Pugh, DE, proxy for Rep. Carson (LA)
Ed O'Brien, MD, proxy for Del. Stein (LA)
Mike Luisi, MD, proxy for D. Blazer (AA)
Rachel Dean, MD (GA)
Rob O'Reilly, VA, proxy for John Bull (AA)
Catherine Davenport, VA (GA)
Michelle Duval, NC, proxy for B. Davis (AA)
Doug Brady, NC (GA)
David Bush, NC, proxy for Rep. Steinburg (LA)
Martin Gary, PRFC
Derek Orner, NMFS
Sherry White, USFWS

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Nicole Lengyel, Technical Committee Chair

Staff

Robert Beal
Toni Kerns
Katie Drew
Max Appelman

Guests

Alex Aspinall, VMRC
Robert Brown, Sr., MCBA
Victoria Brown, MCBA
Benson Chiles, Chiles Consulting
Matthew Gates, CT DEEP
Colleen Giannini, CT DEEP
Robert Glenn, MA DMF
Zach Greenberg, PEW
Ken Hastings, Ships Forever
Ken Hinman, Wild Oceans
Mike Jarbeau, Save the Bay
Aaron Kornbluth, PEW
Wilson Laney, USFWS
Phil Langley, MD Charterboat Assn.
Arnold Leo, E. Hampton, NY
Chip Lynch, NOAA
Jason McNamee, RI DEM
Mike Millard, USFWS
Robert Newberry, DelMarVa Fishermen Assn.
Patrick Paquette, MA SBA
Stacie Ross, Malkin & Ross
Alexei Sharov, MD DNR
Jack Travelstead, CCA
Paul Eidman, Anglers Cons. Network
John Bello, VA Saltwater Sportfishing Assn.

The Atlantic Striped Bass Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, May 9, 2017, and was called to order at 1:35 o'clock p.m. by Chairman James J. Gilmore, Jr.

CALL TO ORDER

CHAIRMAN JAMES J. GILMORE, JR.: Let me jump right into it.

APPROVAL OF AGENDA

CHAIRMAN GILMORE: First off we have our first agenda item, approval of the agenda. You've got them in your briefing package. Does anybody have any additions or changes to the agenda? Seeing none; we'll adopt those by consensus.

APPROVAL OF PROCEEDINGS

CHAIRMAN GILMORE: Second is the approval of the proceedings from February, 2017.

Are there any changes or modifications to the proceedings? Seeing none; we'll adopt those by consensus.

PUBLIC COMMENT

CHAIRMAN GILMORE: Before each meeting we have the opportunity for public comment for issues not on the agenda. I did not see anyone sign up for this part of it; but is there any public comment for issues not on the agenda? Oh, sorry, Des. You can grab a microphone right there Des, any open one is fine.

MR. DESMOND KAHN: My name is Desmond Kahn; for you who do not know me. My background is I have a PhD in Population Ecology, and I have 25-years experience in stock assessment and marine fisheries management. I was on the Striped Bass Technical Committees for about 15 years or so.

I just have some sort of broad comments at this point on the overall direction of striped bass management. I'm currently thinking of fisheries management as the balance between two goals; one is conservation, the other is utilization. I think we need both in my opinion. In my opinion, striped bass management currently lacks balance.

It is tilted very far toward the conservation end, and it is denying people the utilization of this resource. There are some tradeoffs that occur when that happens that I would just like to briefly outline for you. One thing that causes this is the current reference points. I am very aware that the 1995 biomass level is the current overfishing threshold.

Now I know and you know there is no scientific basis for that choice. It was just something that the Board, as I remember, said they liked that biomass level that was the level they declared the stock restored, so that's going to be our overfishing threshold, we're not going to let the stock fall below that. But that's not a scientific choice.

Then the target is so high that it's really in the realm of the carrying capacity of the stock. I would like to request that the Board ask the Technical Committee to develop a set of reference points based on maximum sustainable yield; which is the Magnuson-Stevens standard and what the federal fisheries used for their management. Now I'm not saying that should be automatically the reference points for this management process, but I think it would be something that would give you a valuable perspective on your current reference points; which are extremely conservative. I have seen a maximum sustainable yield modeling approach; surplus production modeling of the striped bass stock. What it found was that the biomass that would produce maximum sustainable yield.

Now that is in many of the federal fisheries that is the target. The biomass that would produce maximum sustainable yield is below the current overfishing threshold for striped bass. That is how high the reference points are. Now, if you remember under the usual federal system they frequently will set the overfishing.

CHAIRMAN GILMORE: Des, we're actually going to be talking about this later on for some of the

later on discussion. This is stuff for really not on the agenda.

MR. KAHN: Excuse me, okay. I wasn't sure about what your discussion was going to involve. Okay. Well let me just talk about the conservative nature real quickly, okay. The tradeoffs for that are two. One is when we have a very high density, this is known from ecology, we will get negative feedback; density dependent mortality due to interspecific competition.

That has been documented extensively in the Chesapeake Bay. There has been a great waste of striped bass due to very high mortality; due to disease and starvation. This has been published in scientific papers. I'm not sure the management board realizes that by setting the biomass target so high, they've caused that waste and mortality.

Second off, the impact of a very high abundance of very large fish on other species, is well documented; although the Board's don't seem to have seen this information, and I'm talking about particularly American shad and river herring. In the Delaware River the spawning stock is negatively correlated with the abundance of striped bass.

That tells me, and there are extensive dive studies in the Connecticut River that striped bass are eating even adult male shad, and they definitely eat the juveniles. There is a lot of published information indicating striped bass predation is depressing the abundance of shad and river herring now, at these high levels.

Now on the one hand you're wearing a hat of a striped bass manager, and on the other many of you are on the Shad and River Herring Board. What you're doing is you're working at cross purposes. I'm not sure you're even aware of this or have been informed of this. I would like to request some investigation of these issues. Thank you very much.

CHAIRMAN GILMORE: Thanks, Des. I have two others for comments. But I understand they're going to be reserved until later on if we get into motions. Unless there is anyone else that has a public comment on things not on the agenda; we're going to move on.

CONSIDER DRAFT ADDENDUM V FOR PUBLIC COMMENT

CHAIRMAN GILMORE: Okay, next agenda item is Consider Draft Addendum V for public comment. As you are all aware that we have an addendum before us that was essentially brought up by the Chesapeake Bay states for a consideration of maybe some liberalization and Max is going to lead us through that discussion.

MR. MAX APPELMAN: Yes, today I'm going to walk the Board through Draft Addendum V. The proposed options themselves are relatively simple; but there is a lot of important background information I need to get through, so bear with me. At the end I'll take any questions on the document before Nichole, our TC Chair takes us through the TCs comments on those options. A look at the timeline, today the Board will consider approval of Draft Addendum V for public comment. If approved the public comment will be May through July.

Then in August the Board will review public comment, select final options and take final action on the addendum. This is a look at the outline of the document. We have a statement of the problem. There is an overview of management history, stock status, fishery status, there is a section on the performance of Addendum IV, which bleeds into the management options and then wraps up with the compliance schedule.

Draft Addendum V was initiated to consider a relaxation of the coastwide commercial and recreational regulations, to bring fishing mortality to the target level based on the 2016 stock assessment update. This action came in response to concerns raised by Chesapeake Bay jurisdictions regarding the continued economic hardship endured by its stakeholders, since the implementation of Addendum IV; but also following information coming from the 2016

stock assessment update indicating that fishing mortality in 2015 was below the target.

You'll also see throughout my presentation, Chesapeake Bay abbreviated as C. Bay. I just wanted to let folks know that that is what that stands for. Okay so as we know, Atlantic striped bass has a very impressive management history. In the interest of time I'm just going to highlight those management documents and decisions most relevant to this draft addendum.

With the implementation of Amendment 4 in 1990, the foundation of this management plan has been to maintain fishing mortality at or below an F target. Currently Atlantic striped bass is managed under Amendment 6, and its Addenda I through IV. Aside from phasing in new commercial and recreational regulations, Amendment 6 also modified the F reference points.

The coast operated under a single set of F reference points while the Chesapeake Bay and other producer areas operated under a lower F target. Amendment 6 also put in place a new set of biological reference points; based on the 1995 estimate of female spawning stock biomass. In addition to all this, Amendment 6 put in a set of management triggers that are based on those biological reference points.

Fast forward into Addendum IV, which was implemented just prior to the 2015 fishing season, a lot of things happened with Addendum IV; one of which is that it implemented a single set of F reference points for all areas. Now the coast, the Chesapeake Bay, all the other producer areas operate under a single set of F reference points.

Additionally the addendum required a reduction in removals, to reduce fishing mortality to a level at or below this new target. To achieve this, fisheries implemented regulations to reduce removals by 25 percent along the coast; relative to 2013, and 20.5 percent in the Chesapeake Bay, relative to 2012.

This is a quick reference of those Addendum IV measures. I'm not going to waste the time on this slide now. I'll come back to this in a little more detail, when we go over the proposed management options. This is a figure of spawning stock biomass relative to its reference points. What you can see here is a decline in SSB that has been observed since about 2003; and in 2015 was estimated at 58,853 metric tons, which is just above the threshold of 57,626 metric tons. I would like to remind the Board at this point that if biomass falls below the threshold it will trigger management action, requiring the Board to adjust the program to rebuild biomass to the target. This is a figure of fishing mortality relative to those reference points.

You can see F reaching a peak around 2006, and then becoming somewhat variable since then. In 2015, F was estimated at 0.16; which is below the threshold and below the target, the threshold being 0.22 the target is 0.18. However, the TC has noted that the assessment may not be able to distinguish between point estimates of 0.16 and 0.18; essentially that the confidence intervals around these two point estimates would overlap.

Okay, moving on to fisheries status, so starting with the commercial sector. From 2003 to 2014, under the Amendment 6 quota system, commercial harvest has been relatively stable. Coastal fishery harvest estimates have ranged from 2.4 to 3.1 million pounds over that time period, and Chesapeake Bay estimates have ranged from 3.3 to 4.4 million pounds.

In 2015, following the implementation of the Addendum IV regulations, so cutting back on the quotas; the coastal fisheries harvested an estimated 1.9 million pounds, and the Chesapeake Bay 2.9 million pounds. Just a couple more points on the commercial sector. First off commercial dead discards continues to be a source of uncertainty in stock assessment.

Estimates do vary considerably from year to year, which has made it difficult to account for these when developing alternative management measures. In any event, in 2015 commercial

dead discards were estimated at just shy of 300,000 fish; which is a 68 percent decrease from the 2014 estimates, so a pretty big difference there.

Another point is that the coastal commercial fishery under achieves its quota by 20 percent annually. Some of that can be attributed to striped bass being designated as game fish in some states; those being Maine, New Hampshire, Connecticut and New Jersey. Collectively those states account for 9 percent of the annual quota.

But in addition in recent years, striped bass have not been available to the ocean fisheries in North Carolina, resulting in minimal harvest there and I think that North Carolina holds 10 or more percent of the annual quota. Moving on to the recreational sector from 2003 to 2014; again under the Amendment 6 regulations harvest has been somewhat variable, but it has been trending down since about 2006.

Coastal fishery harvest estimates have ranged from 16.7 to 26.6 million pounds; with 77 percent of that coming from Massachusetts, New York, and New Jersey. Then Chesapeake Bay harvest estimates ranging between 2.5 to 6.4 annually. In 2015, following implementation of Addendum IV, again harvest reductions measures were put in place; coastal fisheries harvesting 13.3 million pounds in 2015 and Chesapeake Bay 3.5 million pounds.

From 2003 to 2008, recreational releases averaged 17 million pounds, I'm sorry million fish. That equates to roughly 1.5 million dead discards annually. Now from 2009 to 2015 that number of fish released has been much lower; averaging only 7.1 million fish, which equates to just shy of 640,000 dead discards a year. There is a couple theories out there as to why we're seeing those declines in fish released. This list is by no means inclusive. There are certainly other factors that are probably at play. But just to list off a couple; reduced biomass or abundance, it could be the reduced availability of fish in nearshore waters or simply just changes in angler behavior due to management changes.

Building on the last few slides, just want to take a look at what happened in 2015 under Addendum IV.

In early 2015, after states had implemented those measures to comply with Addendum IV, the TC predicted an overall reduction of 25 percent relative to the reference periods. In 2015, what we saw was something very close to that predicted on a coastwide scale; I think it was off by maybe a tenth of a percentage point.

However, harvest from the recreational fisheries in the Bay and along the coast diverged significantly from that predicted value. The TC was tasked to investigate this a little bit further. What they concluded is that changes in effort, changes in the size and age structure of the population, and the distribution of the 2011 year class, were the most significant variables contributing to that large difference between the observed harvest and that predicted by the Technical Committee.

A couple more points on this 2011 year class, so remember that this was the largest recruitment event since 2004; and the TC noted, looking at the catch data that these fish were nearly fully available to the Chesapeake Bay fisheries in 2015, but only partially available to ocean fisheries. Due to the age at first migration, these fish are anticipated to become increasingly available to coastal fisheries in the coming years; and a proportion of which are already of harvestable size.

After receiving this information the Board tasked the Technical Committee to calculate how many fish it would take to increase fishing mortality from that 2015 point estimate of 0.16 to the target, 0.18 in 2017. To do those the TC ran projections through 2017 and determined that F target in 2017 equates to a removal estimate of roughly 3.3 million fish or approximately 10 percent increase relative to 2015.

Accordingly, Draft Addendum V proposes measures to increase removals; so this is your commercial-directed harvest, your recreational-directed harvest and dead discards by roughly

330,000 fish, which is a 10 percent increase relative to 2015. Keep in mind that the proposed options were developed using 2015 catch data; and the Plan Development Team focused on applying those increases to both the recreational and commercial fisheries equally.

Also Draft Addendum V does not propose any changes to the commercial size limits or quota transfer provisions, nor does it propose changes to North Carolina's FMP for the Albemarle Sound and Roanoke River. These are the proposed recreational options first. Option A here is status quo.

For coastal fisheries this maintains the Addendum IV measures, with a 1-fish bag limit and a 28-inch minimum size limit, and any approved conservation equivalency programs. For the Chesapeake Bay, jurisdictions would implement a program that is subject to TC review and Board approval; and that program has to meet the requirements of Addendum IV.

It is important to note that status quo has the potential to increase harvest by more than 10 percent. Coincidentally MRIP came out with their final 2016 estimates last night, and I was able to incorporate those into this PowerPoint. These numbers up on the screen are slightly different than what are in the draft document in front of you. But in 2016, recreational removals, so this is your directed harvest plus your dead discards, are estimated at over 2.5 million fish, which is a 22 percent increase relative to 2015; just talking recreational. But this difference is actually also greater than the 330,000 fish that the addendum is set out to achieve.

Not only does status quo have the potential to increase recreational removals by more than 10 percent, but it also has the potential to increase total removals, commercial and recreational by more than 10 percent. Option B for the recreational sector would be to relax recreational fishery regulations.

These options were developed based on 2015 catch data and 2015 state-specific regulations accounting for any conservation equivalency.

For Option B1, states would maintain a 1-fish bag limit and reduce the minimum size limit to 27-inches. This represents a 1-inch decrease in the minimum size; and based on 2015 information this would achieve roughly a 12 percent increase in removals relative to 2015.

By choosing B1, states would essentially implement those measures that were in place in 2015, including any conservation equivalency programs and adjust the minimum size to 27-inches. Option B2 is a conservation equivalency-type option, where states would go through that process to implement a program that achieves a 10 percent increase relative to 2015.

For the Chesapeake Bay, Options B3 and B4 are very similar to the coastal option. They were also developed based on 2015 catch data and 2015 state-specific regulations; including conservation equivalency that was in place. The difference here is that these measures would only apply to the specific dates listed.

Both B3 and B4 maintain a 2-fish bag limit and decrease the minimum size to 19-inches from September 1st to October 31st for Option B3, or during May 16 to August 31, under Option B4. Also under both of these options, one of the 2-fish bag limit can be greater than 28 inches. This represents a 1-inch decrease in the lower bound of that current slot limit.

Then also based on 2015 information, these options each achieve roughly a 9 percent increase in total Chesapeake Bay removals relative to 2015. Option B5 is again the conservation equivalency type option, where jurisdictions would go through the process to implement a program that achieves a 10 percent increase relative to 2015.

Moving on to the commercial options, so again Option A is status quo. Coastal fisheries would maintain that Addendum IV quota and the state-specific allocations. Chesapeake Bay fisheries would similarly maintain the Addendum IV quota of just over 3 million pounds. Option B is a 10 percent increase to the Addendum IV quota.

For coastal fisheries the quota would be bumped up to a little over 3.1 million pounds, and would be allocated based on those same allocation percentages used in Amendment 6 and Addendum IV. The Chesapeake Bay commercial quota would be bumped up to a little over 3.4 million pounds. This is a table of the proposed quota options in pounds.

I know the numbers might look small upon the screen there. But I'm going to walk you guys through this. At the top, working top to bottom we have the Bay and coastal total quota numbers; and then followed by the state-specific-coastal allocations, and then there are two rows at the bottom, which I'll get into. From left to right we have 2015 harvest for reference. In the middle is Option A, status quo, which is the Addendum IV quota. Option B applies a 10 percent increase to the Addendum IV quota.

At the bottom there are two rows, and in some of those cells you see two numbers; a top number and then a bottom number in parentheses. These are two different total estimated harvest scenarios. The top number assumes no harvest for Maine, New Hampshire, Connecticut and New Jersey; these are your gamefish states.

It also assumes no harvest for North Carolina, which we recall that North Carolina hasn't recorded any harvest in recent years. The bottom number in parentheses only assumes no harvest for the gamefish states. What this is saying is that under status quo, even after accounting for no harvest from those states, there is potential to increase harvest by 11 to 18 percent relative to 2015.

Under Option B that potential increases to 22 to 30 percent. Also these estimates do not account for commercial dead discards, which would add to that potential increase. The PDT also wanted to note that what you're not seeing is an option that applies a 10 percent increase to 2015 harvest; which is what the projections say is needed, but that would be an effective reduction in the coastal and state-specific quotas, when the addendum aims to liberalize.

For that reason the PDT removed that potential option from consideration. Lastly the compliance schedule, so this is something the Board would need to decide on sometime between now and final action. If the addendum moves along, final action would take place in August; and presumably these three dates would occur sometime after that.

Just as a reminder, the projections only go through 2017, so the Board should keep that in mind as it considers the compliance schedule. That is the end of my presentation. I'm happy to take any questions. Remember Nichole is going to go over the TCs comments, but that's it for me.

CHAIRMAN GILMORE: Okay, I've got Rob O'Reilly and Tom Fote. Rob.

MR. ROB O'REILLY: I'm wondering with these projections of how much increase there could be. The 2011 year class, I think it was in the document part of the management effort, was to conserve the 2011 year class while it was in Chesapeake Bay. Are there any projections for 2017 and even 2018 with these 2011 year class fish that are recruiting to the coastal fishery; as to what that might be? Nothing like that okay?

DR. KATIE DREW: To correct that sorry, to go back. The projections that were done included moving that 2011 year class forward through the population. The reductions that we're seeing are taking into account the fact that the 2011 year class will be recruiting to these fisheries; and will be available for harvest overall.

MR. O'REILLY: Right, okay so I may follow up, sir? Does that mean there is a probability associated with that; as far as what that increase might be or how does that work? I'm just asking.

DR. DREW: For the way we calculated the projections is essentially to move that population forward and to figure out if you fish at that level, how much fish can you take? If you fish at the target, how much fish can you take given the 2011 year class moving through the population? There is a certain amount of

uncertainty associated with that with the uncertainty coming from the assessment. I don't have those numbers in front of me, but we could go back and look at how much uncertainty there is around that.

MR. THOMAS P. FOTE: Could you put back the numbers of the commercial harvest back up again? I noticed on this table you project that New Jersey will not catch any fish. We're not catching a lot. I think it's about 10 percent of our quota. But we do have the tagging program, the bonus tag program; which basically is fish that come under that number there. It is not at zero harvest, there is a harvest of fish. It's a very small amount. I think it's about 8 percent or 10 percent of what our quota is. But there is a harvest.

MR. APPELMAN: Yes, I think it was the PDTs understanding that those fish that are caught in that bonus program actually are modeled recreationally.

MR. FOTE: That's not true. They are modeled in with the commercial catch, because it goes with the commercial catch quota. That is what the program is set up by legislation; and that's why we always keep it that way. It's a different quota altogether.

MR. APPELMAN: These percentages would go up slightly more.

MR. FOTE: Slightly more. Not dramatically, because we don't harvest a lot.

MR. APPELMAN: I think it's somewhere around 15 to 20,000 fish.

MR. FOTE: That's right. Which is less than 8 percent or something like that but it's there and we want to make sure it is always there.

CHAIRMAN GILMORE: John McMurray.

MR. JOHN G. McMURRAY: Rob already asked part of my question, but I guess I could go a little farther with those 2011s in there; the briefing material is pretty clear that they're going to recruit this year or next year, or a lot of them will recruit this year and next year. I wasn't quite sure what your answer was.

Are we accounting for those in 2017 and 2018, because given where we are now, we're already, just based on the 2016 numbers; we're already likely to be over or right around F target. I think just intuitively that the availability of those 2011s will probably put us way over; and may even put us below that SSB threshold, because we're already pretty close to that now.

DR. DREW: The answer is they are accounted for in the projections; but they are not accounted for in the methods that we use to calculate how you get that increase. The increases are based on looking at how the fishery was performing in 2015; and if you drop that size limit down, people can catch fish that they threw back. But we don't have a way to project that data forward to say in 2017 what percentage of the catch would be in that slot? But the projections to say you can catch this many fish and be at the target, accounted for that 2011 year class moving in. But the methods to say you can reduce your size by 1-inch, or you can go up in your bag limit. That does not take into account the effects of the 2011 year class; which is a source of uncertainty, and you can see how much it affected our reduction calculations. We believe certainly, I'm sorry the TC comments will get into this a little bit. But that is certainly a source of uncertainty; in terms of calculating is this 10 percent on paper versus what we will see if this was implemented.

CHAIRMAN GILMORE: Go ahead, John.

MR. McMURRAY: Thanks. That sort of availability and angler behavior, and as somebody that does that's part of this business I know. If the fish are around people will target them. That is really not taken into account in any of this right now. That is a big uncertainty area.

DR. DREW: Certainly, in trying to calculate how much you'll see an increase or a decrease or a change in the harvest that you could see with these regulations. That is a very large source of uncertainty.

MR. G. RITCHIE WHITE: I want to understand the numbers you provided in terms of why we are here with this addendum. I understand the reason being that a number of charterboat fishermen in the Chesapeake Bay have been experiencing a drop in their business. Help me understand that; 2015 recreational anglers had a 58 percent increase in harvest from 2014. Did I hear that correctly or see that correctly?

MR. APPELMAN: The percentage that you are thinking of is relative to 2012; which were the reference period for the Addendum IV measures. They experienced a 50 something percent increase relative to 2012; which I think that number would be a lot lower if we looked at 2014.

MR. WHITE: Follow up. Okay so from 2012 they had a 58 percent increase. Then in the preliminary 2016 numbers are 22 percent increase over 2015. Is that correct?

MR. APPELMAN: Yes, and that is total recreational harvest and dead discards; so total recreational removals in 2016 is 22 percent higher than what it was in 2015.

MR. WHITE: Additional follow up, Mr. Chair.

CHAIRMAN GILMORE: Go ahead, Ritchie.

MR. WHITE: Then this addendum would account for an additional 9 percent increase; which if I total those up that is an 89 percent increase of recreational harvest since 2012. To me it seems like, I'm not disputing that there aren't some charterboat captains that are experiencing some difficulty. But the recreational angling population in the Bay seems to be doing extremely well. I know we would love to see numbers like that along the coast.

CHAIRMAN GILMORE: John Clark.

MR. JOHN CLARK: Thank you for the presentation. It is good to see the stock is increasing as it was projected to do; even before we took the 25 percent decrease in our harvest with Addendum IV. I just wanted to make a comment on the socioeconomic impacts part of this addendum. Glad to see it's in there, but I think it is pretty thin; considering I know just from Delaware our netters have given up over a half-million dollars over the past three years, by having 25 percent less harvest. We took this cutback on a stock that was not overfished, overfishing was not occurring. Even when we put these much more conservative reference points in. I find the last line of this socioeconomic impacts section particularly gratuitous, in that on an increasing stock it says we have to be aware of the uncertainty in these projections.

Well, there is nothing uncertain about the economic hit that netters in Delaware have taken and the Chesapeake charter fishermen that have been here for the last three or four meeting we've had here. I don't think they're here just because they want a few extra bucks. They're here because they see a real threat to their business. I think this addendum at least gets us on the right track to correcting an over action that we took a few years ago.

MR. MICHAEL LUISI: I just wanted to make a comment regarding Ritchie's comment, and just to provide a little clarification. The 2012 estimate in Chesapeake Bay was I believe to be the lowest recreational estimate in a very long time series. It became the baseline for which we were judged. The year before that estimate came out; the 2011 year class was born.

By the time the 2011 year class recruited to the fishery, we were being judged based on Addendum IV, as it related to a very low recreational harvest estimate in Chesapeake Bay that year. Therefore, the 58 percent increase is an inflated value based on the comparison of those two years. These aren't new issues.

We've discussed these to this point today, and I'll just add one more comment that all of the background materials, which Max, you did a great job getting it all, bringing it all together, getting all the background materials in place. There was a comment early on that this was a Chesapeake Bay issue.

Well, it is not a Chesapeake Bay issue, this is a coastal allowance for increase; which has been supported for the past year and a half by a majority of this Board, to get to the point we are today. I just want to clarify for the record to the audience and the members of the Board that this is not just a Chesapeake Bay thing. We're not looking to just catch as many fish as we can with this addendum. Thank you for allowing me to clarify that, Mr. Chairman.

TECHNICAL COMMITTEE REPORT

CHAIRMAN GILMORE: Okay, I think we're going to go to the TC report now. Nichole.

MS. NICHOLE LENGYEL: My name is Nichole Lengyel; I work for the Rhode Island Department of Environmental management. Max already hit on some of these, and we've had some brief discussion on some of these as well. But today I'm going to be presenting comments from the Technical Committee on the proposed options in Draft Addendum V to Amendment 6.

Again, some of this will be overlap, so I'll try to be quick for time as well. Here is just a list of topics that the TC had comments on; but in particular the TC population projections, preliminary 2016 removals and as Max just said we have the final estimates now available. Discard data sources, the 2011 year class, angler behavior and performance of Addendum IV.

I'm going to hit on the comments that the TC had on each one of these topics. The TC presented the Board with population projections at their February, 2017 meeting, which showed that an approximate 10 percent increase in removals from 2015 levels would increase F to the target of 0.18 in 2017. However, management options adopted by the Board through Draft Addendum V, will most likely not be implemented until late 2017, early 2018; adding an additional year of uncertainty. Regarding the preliminary 2016 removals, the 2016 stock assessment update and the TC population projections used data through 2015 only.

The preliminary 2016 removals were estimated to be approximately 18 percent greater than 2015 removals under Addendum IV with no additional changes; and as Max just noted, the final estimates that came out showed that was more closely 22 percent not 18. Discard data was an important data element that went into the options presented in Draft Addendum V.

These data came from the American Littoral Society or ALS Fish Tagging Program and the MRIP program. These data sources can be variable year to year regarding the number of fish tagged and the level of sampling; and there has also been recent changes in MRIP methodology that the TC just wanted the Board to be aware of.

We've already touched on the 2011 year class a little bit, but we all know it's had a strong presence in the Chesapeake Bay in recent years. A larger proportion is expected to migrate to the coastal fishery in 2017 and in 2018. This will result in changes in catch, harvest and dead discards on the coast and in the Chesapeake Bay; which are not accounted for in Draft Addendum V options.

Angler behavior can be quite variable from year to year, and with changing regulations. It cannot be accounted for and therefore was not considered in Draft Addendum V. When the TC evaluated the performance of Addendum IV, we found that on a coastwide scale the 2015 harvest estimate was very close to the predicted harvest.

For the recreational fishery on the coast and in the Chesapeake Bay, harvest estimates differed significantly from those predicted. Recreational fisheries in the ocean saw a greater reduction than that was predicted; and recreational fisheries in the Chesapeake Bay experienced an increase in harvest relative to the reference period.

The most significant variables found to contribute to these large differences were changes in effort, changes in the size, age structure and distribution of the 2011 year class along the coast, relative to the Chesapeake Bay.

The proposed options in Draft Addendum V make very similar assumptions to those used in developing Addendum IV. The estimated increases therefore could be significantly under or over predicting harvest, and that's it. I would be happy to take any questions.

CHAIRMAN GILMORE: Questions for Nichole. Ritchie White.

MR. WHITE: Does the Technical Committee have any concern over coastal fishery harvesting 27-inch striped bass? We've always operated under 28-inches kind of being a minimum level in that I think it is 60 some percent of 28-inch fish are bred. Does this raise a higher risk if the coast starts harvesting a large number of 27-inchers that seem to be available in the 2011 year class this year and next year?

MS. LENGYEL: The Technical Committee didn't specifically talk about what biological implications could occur from reducing the minimum size. That happened to be one of the only options that came close to that 10 percent.

CHAIRMAN GILMORE: John McMurray.

MR. McMURRAY: I think there is a lot of confusion about what size those 2011s that are flooding the coast this year are. Are they 24 inches or are they 28 inches? I know there is some variability there. But it really makes a difference in the context of this addendum; because if we go down to 27-inches and really anecdotally that is what I'm seeing now, a lot of 27 and 28-inch fish.

If we go down to that 27-inches, we're really going to pound that 2011 year class as it floods the coast. I think to some extent we're already seeing that this year; and one inch probably does make a difference. Anyway, back to my question. What size are those 2011s? What is the range?

MS. LENGYEL: It's a little hard to give you a specific size. The age-length keys can vary not only regionally on the coast and then the Chesapeake Bay, but also state to state and year to year. We know that they have recruited partially to the coastal fishery; and they're going to continue to do so in the next couple of years. An approximate guess without looking at the data, 25 to 30 inches right now, there is going to be a proportion that falls in one of those inch length bins. But it does vary quite a bit.

CHAIRMAN GILMORE: Other questions for Nichole. Go ahead, Michelle.

DR. MICHELLE DUVAL: I don't know if this is for Nichole or for Max. But the 2016 harvest estimates, were you able to break those down into coastal harvest versus Bay harvest?

MR. APPELMAN: Yes. I don't have it at my fingertips right now, and I can get those to the Board as soon as possible.

CHAIRMAN GILMORE: Any other questions before we start getting into motions? Michelle.

DR. DUVAL: Just one more question. The calculated 10 percent liberalization of the 327,000 fish, so that is just broadly calculated across all fleets; so that applies to both the coastal fleet and the Bay fleet, it is not taking into account I guess, the different size limits that are in those different jurisdictions. It is just sort of a "standard size striped bass" is how those 327,000 fish were calculated. Is that correct?

DR. DREW: The selectivity function of the separate fleets and weighted by how much each fleet takes out, was included in that affect. It does take into effect the different effects of the fishing fleet.

MR. APPELMAN: You were asking for the 2016 numbers in the Bay versus the coast. It is 1.18 million fish for the Bay, and 1.38 million for the coast.

CHAIRMAN GILMORE: Any other questions? Loren.

MR. LOREN W. LUSTIG: Thank you for the report that relates to the relative abundance of striped bass for legal fishing. Do we have any updated

information regarding illegal take of fish and the impact on the species?

MR. APPELMAN: I don't have like a great number to give you or anything like that that. There is definitely some information that comes in our compliance reports for last year. The reports covering the 2016 season aren't due until a little later this month. Our LEC Chair to the Striped Bass Board is in the other room right now. Hopefully if he becomes available we might get you some more insight on that.

CHAIRMAN GILMORE: Any other questions? Go ahead.

MR. ANDY SHIELS: Just a quick question. The term angler behavior was used, and it was stated that it varies and it wasn't accounted for. Could you just elaborate on what you meant by angler behavior; and what that means?

MS. LENGYEL: Sure, so angler behavior is the behavior of an individual fisherman, how many trips they're going out for, is it worthwhile for them to go out and target two fish versus one fish. They have to account for their time, the money they're spending on gear, on fuel. Changes like that are not accounted for in any of these options; and it's very difficult to account for those. It's more socioeconomics. Does that answer your question?

MR. O'REILLY: I guess I just wanted to ask the Technical Committee. The idea of everything being in pounds, so fishing mortality rates are calculated based on numbers usually. Is there any similarity here with the pounds? In other words, how did you back everything out to pounds as the currency instead of numbers? How does that work?

MR. APPELMAN: You make a good point and thanks for that question. The removals are estimated and fishing mortality I believe, it is estimated in numbers of fish. The recreational options that you saw in C are based on number of fish. The quota options for the commercial sector are in pounds. There is a disconnect when we talk about a total number of fish that we can remove to achieve F target; and using one currency for the commercial quotas and a separate one for the recreational fisheries.

We thought about a lot of different ways to address that. But the more we got into the weeds it became more and more complex and confusing to try to estimate numbers of fish from the commercial sector. To keep things simple, and the way that it was done for Addendum IV as well. This it he approach that the Plan Development Team took with those two sectors.

CHAIRMAN GILMORE: Any other questions? Okay this is an action item, so if we're going to move this along we kind of need to get a motion up on the board. John Clark.

MR. CLARK: I would like to move that the Board approve Draft Addendum V for public comment.

CHAIRMAN GILMORE: Motion by John Clark and second by Mike Luisi; discussion on the motion. Go ahead, John.

MR CLARK: As stated, as was seen by Delaware's action in appealing Addendum IV, this 25 percent reduction in harvest; I understand why it was taken. I understand your perspective. The status of the striped bass stock depends on where you are on the coast. But we've seen the stock do what it was expected to do. It has definitely increased. Our fishing public has taken a big reduction in this, and the stock is showing all the signs of recovery that we expected. I would hope that at this point the Board can start giving some of that reduction in harvest back to the public.

CHAIRMAN GILMORE: Mike Luisi.

MR. LUISI: Unlike the last two addenda that we discussed this week, with lobster and then tautaug. This one is relatively simple; as far as what the main issue is, and that main issue is whether or not to allow for a 10 percent liberalization in harvest coastwide, both commercial and recreationally.

I've had a couple tacos and I've had about 15 cups of coffee today; so if we need to go back into all the details in the background information of the document, let's do it. It's not the first time we've had to do that. But I think at this point in time I don't need to talk any more, and we need to give the public an opportunity to weigh in on these issues.

We heard based on the report that the 2016 final estimates were made available yesterday. I think that is coming into play here; as far as what board member are thinking about, and how this is going to move forward. But let's let the process complete itself. The Board initiated this addendum, the issues brought up regarding variability and uncertainty, the issues brought up about harvest as compared to Addendum IV in current years has been discussed.

But the Board approved the initiation of this addendum, and I know for certain that my public stakeholders in Maryland want the opportunity to weigh in on this. Once we have all of that information, once we have the Technical evaluation, the public's comment both in opposition and in support. I think as a Board we have all the ingredients we need to make a final decision in August. I would hope that other Board members will also support taking this out to the public.

MR. WHITE: I'm not going to support this motion. I think it is risky on a number of levels. I think there is not enough room in the mortality to implement this. I think it is a knee jerk in that we've got a 2018 stock assessment, so this could be one year and then we'll probably have to go in to a management measure in reaction to the stock assessment.

There are a lot of unknowns. I think there clearly is going to be a change in anglers along the coast with the 2011 year class being available this year. There is going to be a lot of 27, 28-inch fish, as John has mentioned, that he is presently seeing. I think that is going to increase mortality substantially along the coast. I think that it makes no sense to take this risk at this time for one year, and put the Technical Committee and the Commission through the expense and the effort that it takes to go out to public hearing.

I think we all know; I don't think there is anybody at this table that doesn't know what the results of the public comment is going to be. I would be astounded if one person would raise their hand and said; gee I don't know how the public is going to weigh in on this. We know what the public is going to say. Going through all that exercise, to me is a waste of our resources; and I hope we vote this down.

CHAIRMAN GILMORE: I've got Mark Gibson next.

MR. MARK GIBSON: I'm conflicted on this question. On the one hand, you know we're a Commission and we have an obligation to be sympathetic and responsive when members of the Commission come forward with a perception of a problem in one of our FMPs. The Bay jurisdictions have made impassioned arguments about this.

We've had people come to the meetings and speak in favor of this action. But I'm also a fan of the precautionary principle. The foundational element to that is that when you have signs of an improvement you're slow to open the valve. But when you have signs of a problem, you're quick to close the valve. That's the essential element of the precautionary principle.

Unfortunately I'm a fan of both principles, the cooperative and collaborative nature we're supposed to have here to be responsive to jurisdictions needs; but also to deal with the uncertainty. This stock is perilously close to the biomass threshold at this point. I may have some issues about the biomass threshold itself; and we'll talk more about that in the reference points. But I'm conflicted at this point, leave it at that.

CHAIRMAN GILMORE: You're going to have to get un-conflicted, because we're going to have to have a yes or a no. John McMurray.

MR. McMURRAY: Probably not terribly surprising that I don't support the motion. Frankly, I think it's reckless. There is very little biological justification for doing it. We are just a hair over that SSB threshold; and sure we had a couple of good young-of-the-year indices, but when you look at that average over the last ten years it is not great, because we also had two of the worst.

Yes, we're operating below F target, based on the 2015 removals. But when you look at 2016, not so much, and when you project out to 2017 and 2018, and you consider those 2011s recruiting. It seems almost a certainty to me that we're going to go over that F target; and an increase shouldn't be on the table at this point, in my opinion.

Frankly, there has been some impact with Addendum IV, but I'm not convinced that it is as catastrophic as it is being made out to be. When you look at the effort numbers in the Bay, they're up. I don't doubt that there is not some impact in some regionally significant areas, but it's not broad and it is not catastrophic in my opinion.

It's not worth the risk we would be taking with this. Lastly there is the timing issue. Do we really want to go out to public comment for this? Make all these guys to show up to public meetings and inevitably the halls will be filled, at least where I am and to the north, the halls will be filled with angry surf casters not wanting to see this happen.

We're going to have a new stock assessment in 2018, and we're likely going to have to do new management measures once we have the information from that. The next year we're likely going to have to do this all over again; and that just doesn't really make sense to me. For those reasons I'm opposed.

CHAIRMAN GILMORE: Doug Grout.

MR. DOUGLAS E. GROUT: We have heard for three or four meetings since Addendum IV was put forward, the harsh economic impacts that the Maryland Charterboat Fleet and the Chesapeake Bay Charterboat Fleet, as well as other Mid-Atlantic state's businesses have been impacted. I was sympathetic. We saw, if you look at some of the harvest numbers, and they were down in 2015 significantly, about 40 percent.

But that's not the only places we saw this. We saw reductions in New York that were over 50 percent, Massachusetts was over 50 percent, and probably about a 40 percent reduction in Rhode Island. Now as you would expect with a management measure that increased the size limit in the Chesapeake Bay, the reductions were temporary.

If you look at 2016 estimates, they are back up to the second highest levels of estimate of harvest they've had in the past seven years. That didn't occur on the coast. In those three states, all Rhode Island, Massachusetts, and New York, where a large portion of these charterboat harvests take place, continued in 2016 to see reductions.

My concern here is if you remember the reason we, if we were to move forward with this, if you remember the reasons that we took action in 2014 with our Addendum IV, was because we were required to under our management plan. The trigger that was hit was Number 3, the fishing mortality target is exceeded in two consecutive years, and the female spawning stock biomass was also below the target at the time.

As a result, our plan says the management board must adjust the striped bass management program to reduce the fishing mortality rate to a level that is below the target. Now as you all know, we have a bunch of other triggers. My concern here is the Technical Committee has already indicated that just in 2016 we've already experienced a 22 percent increase; that is more than double the 10 percent buffer we had in between there. People talk about the uncertainty with MRIP estimates. They are an estimate, they have variation around it.

But they are, as I say, outside of the confidence intervals here. We are pushing forward without even this action. We are at risk of starting to exceed the target again. My fear is after we've taken these painful cuts coastwide, and had them in place for at least three years, maybe a fourth by the time we get any kind of management action; depending on what we see on our stock assessment next year that we're going to have to take additional cuts.

If we were to implement an additional 10 percent increase here, those cuts would be even more painful. Not to mention that our public would look at us saying, what are you doing here? You have scientific information that says you're approaching the target again; and yet you're trying to increase it even further?

I think the Commission has to take a long, hard look before we make any further adjustments. We need to at least wait until we get the assessment; and then make a rational decision as to whether we need to make any further management adjustments. I'm hoping when this assessment comes that we can go back to what the pre Addendum IV levels are, because we've taken the pain for a few years and now we've got our spawning stock biomass on the way up, and we're continuing to keep our fishing mortality around the target. Thank you very much for my opportunity here.

CHAIRMAN GILMORE: Rob.

MR. O'REILLY: I think one thing that should be obvious to everyone is there was a lot of talk about 2012 being a low point. When you look through the data it certainly is. But everyone should understand that since 2012 the Bay will be faced with those types of conditions again. From now until the next few years the 2011 year class, which did have conservation attached to that year class in the Bay management measures.

That is not going to be available. There should be empathy with the plight of the charterboat/headboats going forward; because we're going to return to that situation. We're going to return to somewhere near 2012. It is not to say that the Chesapeake Bay, if you cobble together both the Virginia and the Maryland young of the year, that you can't come close to average or a little bit less in some of the years.

There is going to be some fish, but apparently over the years, you know from 2007 forward up until 2011, you can sort of trace what has happened to the stock. I do want to remind everyone to think about what goes around with the Bay is definitely going to turn; starting in 2017. The other thing that has been interesting to me, as I thought about it a lot the last few days, is when Amendment V started the work that was done in 1994, and Mark Gibson was one of the architects of the overall harvest control model, along with Lou Rugulo and Vic Crecco.

At that time there was a pretty equal distribution of harvest between the Bay and the coastal fishery. It was set up that way to have somewhat of an equal distribution. It seems to me that in the intervening years it's been sometimes not working out that way; you know feast or famine type of situation, depending on where you are.

Even with the Amendment 6 process, if you remember. Amendment 6 was delayed because there was a hiccup in that. There was a proposal to have everyone at 24 inches, which everyone thought would be great. We'll have one uniform size. Until it was pointed out that if that happens you shift allocation. You know you take exploitable stock biomass away from the Bay.

I think you have to think about the differences, as well as the similarities when you look at striped bass management. But clearly the most important thing is we can't solve some of these issues until we have a stock assessment. I understand that. I will have comments about that later. But for right now, consider not 2016. Start thinking about 2017, '18, and '19; and what it is going to be like in the Bay, because you have the information before you that should tell you exactly how it's going to be.

CHAIRMAN GILMORE: Matt.

MR. MATTHEW GATES: I can certainly sympathize with the frustration that the Bay anglers must have with so many fish available to them, that are below the minimum size, and the discard issue that that could create. That is why back in February I supported initiating the addendum; because it seemed fair to develop the analysis, and give an opportunity for this concept to be discussed at this meeting. But it seems that liberalization in management measures, based on this very small difference between the 2015 F and the target F, and for other reasons that we've all talked about here. It doesn't seem prudent to me to take this out at this time.

CHAIRMAN GILMORE: I have Marty Gary.

MR. MARTIN GARY: The Chesapeake for-hire fleet has been brought up a few times, but it's not just them it's our commercial sector as well. You've noticed at several meetings in the past, I count three, that we had multiple bus-loads of our for-hire sector and other fishery constituents that have taken the time to come up to these meetings.

Not that we haven't seen that in other areas up in New England, and seen all the passion on both sides of this issue. But I just wanted to say that they are not here today, because they're in the throes of their most important part of their season right now; the opening of the spring striped bass season. Their leadership is here today. But I think I respectfully disagree with a couple of comments that I heard that it would be a waste of our resources to take this out to public comment.

Those folks took a lot of their time over multiple iterations. You've seen them yourselves show up here. Their leaders are here. They may say something today. But I do think we owe it to the public, our fishing constituencies and the constituencies up and down the coast, to let this go out to public comment. I appreciate that and hopefully folks can support that.

DR. DUVAL: I'll be brief. I'm not going to echo all the comments that I made at the last meeting; with regard to my own conflicted views on this. I definitely am sympathetic to the unique nature of the Bay fishery. We have the same thing with Albemarle/Roanoke stock in North Carolina.

I really do truly think that the only way to address these is through the upcoming stock assessment, and looking at the reference points again; and coming out with a solution that addresses the unique characteristics of the Bay fishery. I am concerned about timing on this. You know we heard some public comment prior to the start of our deliberations today; with regard to the reference points, which we will get into a discussion about next. It is not 1995 anymore, and I think we would support a different approach.

CHAIRMAN GILMORE: Okay, I think I'm going to go to the public now. We had a couple folks sign up for comment. Phil Langley, would you like to come up and make a comment?

MR. PHIL LANGLEY: Good afternoon. My name is Phil Langley; I'm President of Maryland Charterboat Association. I set on the Potomac River Fisheries and Maryland's Sport Fish Advisory. I would like to thank you, Mr. Chair, for the opportunity to make public comment; and I would like to thank the Board as well.

We are now entering our third year of Addendum IV reductions. Some of the things I was going to speak of have already been said here today. I'm going to be kind of brief. But I can assure you that it is difficult to get charterboat captains to local meetings, versus getting them to Alexandria for a public meeting. If it had not been an issue of concern for these guys, they would have not made the trip. Most of the 2011 year class has now entered the coastal migration. The 2015 stock update assessment showed that we were fishing below the Addendum IV target. I'm here this afternoon just I would like to ask the Board to approve Addendum V for public comment; and allow the process to continue.

There are hundreds and thousands of individuals who would like the opportunity to comment,

whether being for or whether being against Addendum V. By not allowing this addendum to move forward for public comment, we are silencing the voices of many who would like the opportunity to comment on the subject. That is all I have to say, thank you for your time.

CHAIRMAN GILMORE: Robert Brown.

MR. ROBERT T. BROWN: Robert T. Brown; President of the Maryland Waterman's Association. I would like to thank the Technical Committee for their work in preparing this data, and we're looking forward to having a public comment period. We ran into problems when our benchmark was changed, when it was raised up a few years ago.

It just threw us. Less than 1 percent and we ended up with a 25 percent reduction. There is one thing we have to remember; that Mother Nature's going to give us a balance. That may not be what we desire for all fisheries in the Bay. We need a multi-management plan also, because with these predators, these rockfish we have in the Bay, it is spot that they eat on, which has plummeted down.

Also we have the crabs, which have made a rebound, but I don't believe that has to do with the grasses. I just want to thank you all for letting me speak here today. The reason that some of the watermen are not here today, if you haven't noticed the last two weeks the way the weather has been blowing so hard, they haven't been able to work.

I mean today is finally a half-way decent day, and we all have to make a living. Hopefully you will proceed forward with this public comment period. Just remember, we've got to protect more than just the rockfish. If we end up with nothing but rockfish in our Chesapeake Bay, our other fisheries are going to hurt.

CHAIRMAN GILMORE: Patrick.

MR. PATRICK PAQUETTE: Thank you, Mr. Chairman, Patrick Paquette; past President and current Government Affairs Officer for the Massachusetts Striped Bass Association. I also represent a coalition of angling groups from the northeast; regarding this subject. I just wanted to point out a couple of things that I didn't think were adequately covered during your discussion.

One is that there was reference to the conservation measures that have already been taken toward the 2011 class in the Bay. That is only partially true, because according to the science, those reductions were not met. The reductions that were successful in the overall previous addendum were carried by the coastal fisheries and our achieving and over achieving the cutbacks in our fisheries. But down in the Bay they did not meet the reduction that they were required to.

Let's please remember that. That we've already paid for some of that and we don't want to pay for any more of it. We would like it to be equal shared paying it. I think Mr. Grout got along there. But the Bay did not meet the reduction. Effort, the effort projection regarding this 2011 year class should not be blown away in the projections.

It was very clear from the TC that the increased effort that is guaranteed to happen, with more availability along the coast, is not projected. As bad as the projection numbers look, it is going to be worse. But that is clear to those of us that are in the fishery. Along the coast we are going to catch more than what is projected.

Next, the 2011 year class, a fishery cannot be built and maintained on one single year class. Reports from Rhode Island and Massachusetts are a little bit concerning to me; because there is a window of the way the migration reaches New England states. What happens is the really smaller fish tend to show up, and then it's always normally three, four weeks until the first keeper. That is not what we have seen this year.

In both the West Wall and the first keeper, the West Wall in Rhode Island being like sort of the traditional place that people monitor for when the fish are up in Rhode Island. The first keepers were reported at the Salt Water Edge in

Narragansett, exactly three days after the schoolies showed up.

In Massachusetts, on Cape Cod, the first keepers were caught within two days, and worst of all in Martha's Vineyard, which usually sees the smaller sublegal fish for a good six to eight weeks prior to the first keeper showing up. It was the same day that the fish arrived at all that the first keepers were caught.

What that tells me is that there is a big giant hole of years and a lot of small fish prior to the 2011 that aren't there; the year class that is after 2011 are not good and the year classes before we know that story, because they triggered the last reduction. To build a fishery on 2011 and to not be ultra conservative with it is just irresponsible in our opinion.

Also, I would like those of you who love to look at the MRIP data to take a good long look, because what is being reported about the Chesapeake Bay charter fishery is not matching what that fishery is saying on the internet, what they're advertising and fish reports tools are saying, and the MRIP data is clear that catch and number of trips in that fishery are on the rise. Things are getting better there already, without an action. An action is not required. You should consider the next action after the next benchmark.

MR. ARNOLD LEO: I am Arnold Leo; and I am an element of the socioeconomic sector of this fishery. I speak on behalf of the fishing industry of the town of East Hampton. We have very significant commercial and recreational elements in this fishery. It seems to me over the years, and I can't even remember how many decades I've been doing this with striped bass.

We're always getting a reduction, which is very rarely leading to an increase when things begin to look better with the abundance of the stock. It seems to me that there is at least enough evidence to warrant allowing this to go out for public comment and allow yourselves to hear from the socioeconomic element of the fishery. Thanks.

CHAIRMAN GILMORE: Thank you, Arnold.

CAPTAIN ROBERT NEWBERRY: Thank you, Mr. Chairman, my name is Captain Robert Newberry; I am Chairman of DelMarVa Fisheries Association. We represent those on the DelMarVa Peninsula; not only in the commercial entity, but also in the recreational and in the charter industry. One thing I want to say.

I've been in the charter business 35 years of my life, and on the Chesapeake Bay and in Massachusetts. I learned to fish in Massachusetts during the summers. What we're seeing in the Chesapeake, yes last year was probably the worst year that I had ever seen; as far as catching of fish. I don't know where these numbers that granted they may be putting it on the internet. But the old saying is believe none of what you read, half of what you see, and all of what you do.

In respect to my fellow fishermen from Massachusetts, I think that needs to be taken into consideration. The fact is we had people traveling as far as 30 to 40 miles a day coming to the northern reaches of the Bay to catch fish. Because when I moved my business down to the southern reaches of the Bay eight years ago, three years ago it took me 300 fish to catch to put a limit of 12 in my cooler, because the fish were 18, 18.5, 19, 19.5, so by moving to the northern reaches of the Bay I alleviated that problem.

Fortunately I have some property in the northern Bay and I was eligible to do that. But this year specifically, we're in a bad situation too. I've had to cancel the majority of my trips because the availability of the spawning fish. These fish spawned early, as early as the end of February, beginning of March.

I've run 12 trips and I've caught 18 fish. A lot of my guys leave the harbor, fish eight, ten hours, have maybe one pull down, and one fish. It is not the fact that the fish are not there, they've spawned and they've gone. But on the other hand DNR, our department is seeing record

numbers of large spawning cows in the reaches of the Susquehanna.

The fish are just not there. They left, we missed them; and that is because of Mother Nature. I think a lot of what we're seeing in these numbers of fish, are where the fish are spawning. They're short spawning. They're going to different areas. I mean it's like they say all the big fish leave the Bay. Well, last summer there were a lot of large fish, just large fish were caught.

We do have a resident school of large fish that maintain in the Chesapeake, but a lot do go up to Massachusetts. Now I've talked to some people this week, for instance on the headwaters of the Hudson River up at Lake Champlain. They're catching huge fish right now. Connecticut River they're catching big fish.

Have these fish missed Maryland? No, most of them are heading up the coast; the surf people in the coast off of Ocean City are catching a lot of fish. You know they're three weeks ahead right now. With Addendum V, I think to bring it to public comment. You know fortunate I was able to come here today. I do have someone running my boat today, because this is a passion to me.

To not have the public comment on this and not to adopt this addendum. I see what the fishery does. I'm out there every day. Fortunately, a lot of the people in the room here are not able to do that. I'm seeing more rockfish than I have ever seen in my entire life in the Bay right now, little ones that are going to grow. I mean I do refute some of the young-of-the-year index and how they do that; but that is for another time another date. But I would implore this Board, and not to offend anybody on here, but I kind of have a saying that I've earmarked. The politicizing of a natural resource is the damnation of that resource.

I mean the technical group has done a very good job of presenting these issues, and to throw personal agendas and politicism, because I don't like this person, I don't like that person. This state doesn't like that state. It is for the betterment of the fish, and that is why I think that we need to go forward with this public comment.

We need to address this; because I just don't want to see us get into a situation in the Bay where we have a bio crash, where we've missed something and all of a sudden bam! All of a sudden more fish show up than we know what to do with. Then bottom line, the only one that suffers is the natural resource. I thank you very much.

CHAIRMAN GILMORE: Okay I'm moving back to the Board, any comments? Go ahead.

MR. DAVID BUSH: Maybe a kind of mixed bag between questions and comments. But if I understand correctly, we have the stock assessment that will be coming up in 2018 and then subsequent management measures might fall. If anybody can help me, what will be the earliest those might hit the ground – or the water I should say?

MR. APPELMAN: The benchmark is scheduled to be completed at the end of 2018, which I believe the Board review of that would be early 2019, which would be the earliest. February would probably be the earliest point you could take action following the assessment.

MR. BUSH: What we're looking at is potentially two and a half, three years before any assessment might change, make an increase or decrease or any availability of harvest. I think at this point, I mean there may be a lot of mixed opinions about what the correct action is to go at this point.

But it seems to be obvious that this has impacted some folks; and all they're asking us to do is consider it. Let us have some time to public comment on it. Let us get some more facts, some more data. Nothing on this, if we made any decision and even approved it in August, would happen before 2018, before that stock assessment or benchmark stock assessment would occur.

In which case I'm sure there are several safeties to say look, we put something in place. Now we know it's a bad idea and we can call it. It is just my opinion at this point, now granted, I'm going to have to discuss this further with my peers. But we're not taking any actions today; we're simply considering them for the future.

CHAIRMAN GILMORE: Okay, Doug.

MR. W. DOUGLAS BRADY: Just a follow up on David's comments. I just want to get clear here. If we followed the process on this addendum and went to the public comment period and took action. That action would be implemented in 2018 at the earliest, and if we waited for the stock assessment and took action, whatever came out of that measures could be implemented in 2019. We're looking at, back to Ritchie's comment. It's a one-year difference that there would be between waiting for a stock assessment and doing action from that or going through this process. Am I clear on that?

CHAIRMAN GILMORE: Yes that's roughly, give or take a few months, yes. John Clark.

MR. CLARK: I just have to question that timeline, Mr. Chairman. If the assessment isn't released to the Board until late 2018, there is no way we're going to have the assessment and a new addendum approved in 2019 for action in 2019. It will be 2020 at the earliest, before there are any actions taken on the benchmark assessment.

CHAIRMAN GILMORE: Yes, John, again that is depending upon how fast the Board can move. But you're probably right; it would probably take us that long. Mike.

MR. LUISI: I'll agree with John. We started this action back at the annual meeting in Florida, which was about 18 months ago. That is how long it's taken us to do an assessment update, and consider the information and draft an addendum. I just want to make sure it's clear that I doubt that 2019 would be the first time that we would be able to take action.

CHAIRMAN GILMORE: All right Marty, you get the last shot; then we're going to caucus.

MR. GARY: Just quick clarification. The Addendum V, if it were to pass, would it be possible for that to be implemented in fall of '17?

MR. APPELMAN: If the Board took final action in August, and states could go through their processes then yes. But if not, I think many states need some time with that as well. It could be as early as January, 2018.

CHAIRMAN GILMORE: Okay, I understand and this is about as difficult as it gets. We're faced with, I think everybody understands the issue with the Chesapeake and the industry, and everyone is concerned about that and the stock being so close to significant changes maybe in the not too distant future.

At that note, I think we're going to take a three-minute caucus. You guys can talk, we'll come back and we'll call the vote. Okay if everybody could grab their seats. We've had several requests for roll call votes, John Clark. Anyway, we'll be doing a roll call vote, so is everybody ready for the question? Okay Max will call the roll.

MR. APPELMAN: North to south starting with Maine.

MR. TERRY STOCKWELL: No.

MR. APPELMAN: New Hampshire.

MR. WHITE: No.

MR. APPELMAN. Massachusetts.

MR. RAYMOND KANE: No.

MR. APPELMAN: Rhode Island.

MR. GIBSON: No.

MR. APPELMAN: Connecticut.

SENATOR CRAIG A. MINER: No.

MR. APPELMAN: New York.

MR. JOHN McMURRAY: No.

MR. APPELMAN: New Jersey.

MR. RUSS ALLEN: Yes.

MR. APPELMAN: Pennsylvania.

MR. ANDY SHIELS: No.

MR. APPELMAN: Delaware.

MR. CLARK: Yes.

MR. APPELMAN: Maryland.

MR. LUISI: Yes.

MR. APPELMAN: District of Columbia, Potomac River Fisheries Commission.

MR. DAVE BLAZER: Yes.

MR. APPELMAN: Virginia.

MR. O'REILLY: Yes.

MR. APPELMAN: North Carolina.

DR. DUVAL: No.

MR. APPELMAN: National Marine Fisheries Service.

MR. DEREK ORNER: No.

MR. APPELMAN: U.S. Fish and Wildlife Service.

MS. SHERRY WHITE: No.

CHAIRMAN GILMORE: The motion fails, 5 in favor, 10 against, no null votes and no abstentions.

REVIEW AND CONSIDER APPROVAL OF 2018 ATLANTIC STRIPED BASS BENCHMARK STOCK ASSESSMENT TERMS OF REFERENCE

CHAIRMAN GILMORE: Okay, we need to move on to the next item of business; which is the Benchmark Stock Assessment Terms of Reference. Katie Drew is going to do a presentation for us.

DR. DREW: Just to refresh the schedule in everybody's mind. I think Max touched on this briefly. Here's our benchmark assessment timeline. We've already had our data workshop planning call webinar. Hopefully today we will have the Board approval of the TORs, which gives us the framework to start moving forward with the assessment. We plan to spend the first year, so basically through 2017, working on developing the model with data up through 2016.

That will give us time to test the model, test any new development or structure, and have an assessment workshop at the end of this year to look at that. Then we plan to have another assessment workshop in the middle of next year; which will give us time to incorporate the new 2017 data into the assessment, so that we can go to peer review with the data through 2017, sometime in early December, so that the results will be available to the Board for review in February.

As I said, today we are going to hopefully approve these TORs. Basically, as you all know, the terms of reference for the stock assessment are a way to give us framework and guidance to help us identify important issues that need to be considered as part of this assessment. But it's also important for us to kind of keep this a little bit flexible and open, so that we are not bound to something that turns out it's going to fail.

The ASFMC external review process, which is what we're going through this time, requires two sets of terms of reference; one for the Stock Assessment Subcommittee to guide our model development process, and one for the reviewers

to guide their review process. I'm going to go through these fairly quickly, and try to highlight what the TCs intention is behind some of this language; in the hopes that it allays any concerns that the Board has, in terms of the development of this assessment.

Starting with the Stock Assessment Subcommittee set the terms of reference. TOR1 and 2 are really focused on the data. We used a lot of fairly standard language in this, so I'm going to try to focus on things that are new or special for striped bass. But TOR1 is just focused on investigating all the sources of data, identifying strengths or weaknesses, and discussing how that impacts the assessment.

This includes the fishery independent and dependent datasets, life history, tagging data, indices of abundance and that sort of thing. TOR2 is focused on estimating the commercial and recreational landings and discards; including characterizing the uncertainty of the data and the spatial distribution of the fishery. What is special for this assessment is of course we plan to have the new MRIP estimation of striped bass in this assessment, as well as the calibration effort that's going on.

As you may or may not be aware, MRIP is going to update how they estimate effort; when they're transitioning from the telephone survey to a mail-based survey that has a better response rate, a better estimate of effort. But that is going to change the estimates of total catch for a number of our species. We anticipate striped bass will be one of them. However, we plan to have those new estimates ready to go for the assessment, so that the assessment can incorporate the best available science on that issue. The TOR3 is focused on the statistical-catch-at-age model, and we are going to be trying to develop and estimate an age-based model that can estimate annual fishing mortality recruitment, total abundance and spawning stock biomass for the time series; as well as estimate their uncertainty and perform the standard retrospective analyses.

But we also would like to be able to provide estimates of these quantities by stock component and sex, where possible, as well as for the total stock complex. By stock component, we're really talking about what we consider sort of the major producer stocks within the coastwide meta-population; which includes the Chesapeake Bay stock, the Hudson River stock, and the Delaware Bay stock, as well as looking at any new data that we have for the North Carolina component of this.

We would also like to do this by sex. However, we do include the where possible caveat here, because it is really going to depend on the quality of available data; not just for the most recent years, but for the entire time series. TOR4 is about the tagging model, where we have an extensive set of tagging data to estimate mortality and abundance.

We use that to really complement the work that is done through the statistical catch-at-age model. We've done a tremendous amount of work in the past trying to merge these two data streams together, and that has not really worked out for us; so they continue to be separate models. I think certainly we'll revisit that question, but for now they are separate models and sort of intended to complement each other.

As well as we would like to continue to provide suggestions for the further development of this dataset and this model to make it more complementary, and to help it support our management process better. I'm sure this is the one that everybody is interested in. TOR5 and 6 are focused on the biological reference points, and the TACs.

TOR5 is update or redefine biological reference points, which include point estimates or proxies for BMSY, SSBmsy, FMSY, and MSY itself. We currently use a proxy for these quantities; but this opens up the possibility of using these estimates themselves, using a different definition of a proxy, and we would define stock status based on these BRPs, again by stock component where possible.

We'll touch a little bit more on this on the next topic. But we know there is interest in the Board in redefining these reference points; and that's definitely an important component of this stock assessment process. We will be looking to you guys for further guidance on what reference points to use. But I think for the TORs we want to keep it just vague and open at this point; until we get better guidance from you guys.

TOR6 is to provide annual projections of catch and biomass under alternative harvest scenarios. This is a pretty standard estimate and report annual probabilities of exceeding these threshold biological reference points for F and for SSB, and under different harvest scenarios. TOR7 is just focused on future work.

Review and evaluate the status of our research recommendations, come up with new research recommendations, and recommend the timing and the frequency of future assessment updates and the benchmark assessment process. Those are the TORs for the Stock Assessment Subcommittee. For the peer review process it is essentially the same wording, but instead they will focus on evaluating of the datasets, evaluating the methods used to estimate the commercial and recreational discards, evaluate the uncertainty in the new MRIP estimates of catch.

Evaluate the methods and models. There is really focusing on evaluating the work that we have done. Again, evaluate the tagging model. Evaluate the choice of reference points and the methods that we use to estimate them. Recommend the stock status determination based on what we present; or if appropriate, specify alternative methods or measures.

Again, evaluate the annual projections of catch. The review panel will also provide research recommendations and recommend frequency of timing of the next benchmark assessment; and then write their own report, to be completed within four weeks of the workshop conclusion. I'm going to pause here for questions about the TORs, to make sure that I think this addresses people's concerns about the direction of the stock assessment. See if there are any edits that you guys want to make to those.

CHAIRMAN GILMORE: Questions for Katie? John Clark.

MR. CLARK: Thank you, Katie. Maybe you'll go into this the next part. But just when you were talking about the proxies, you said you were going to use a different definition of a proxy? Would you be explaining that more?

DR. DREW: Sure. At this point with this TOR, and at this point in the process, it is extremely open whatever the future reference point will be. Right now we use the '95 value as the target, or as the threshold, and another value as the threshold that we could move those up or down as a proxy, if we like the empirical based as opposed to a model base. But again that is something we're going to look to the Board for guidance on. But that is what that is referring to.

MR. O'REILLY: Thank you Katie, I have two questions. You said it yourself how difficult it's been over time to juxtapose the tagging data with the model; whether it was VPA or now statistical-catch-at-age. Is it really something else that can be done? In other words, the tagging data might have applicability for TOR2, maybe for some distributional aspects.

But the track record on the tagging data is, I mean some really bright people working on the Tagging Subcommittee over the years, but never could get a corroborative fix between the model and the tagging data. That's one question. The other question is very simple. You mentioned in TOR5 updating the biological reference points and I assume part of that will be looking at natural mortality rate.

DR. DREW: Yes. I guess the first part of your question, getting the tagging data. It has always been supportive of the statistical-catch-at-age model, in terms of total mortality rates. They're actually saying very similar things about the total mortality rate. Some of the disconnect comes between how you're handling natural mortality within that.

Hopefully, we may be able to get some spatial information or migration rates out of these datasets. But it's true that this isn't the first time we've tried to answer this question. I think it's still an important component of data that we need to evaluate for this process. But can we take the next step with it, in terms of enhancing the statistical catch-at-age model? It's unclear at this point, but we certainly want that consideration to be on the table. In terms of natural mortality that would be part of the overall life history information going into both the model, and the reference points coming out would be looking at natural mortality at age, potential changes over time and things like that.

CHAIRMAN GILMORE: Mike Luisi.

MR. LUISI: I appreciate your expansion of TOR3, as it related to the producer areas. Something that we certainly have an interest in is the evaluation of the age-based model on, we use the term resident stock; and resident stock would be those fish that have yet to become part of the migratory stock.

I just want to be clear in that as we proceed. You didn't use the word resident stock, but I'm assuming that it's those areas, Chesapeake Bay, Delaware Bay, Hudson where we have the young fish that have yet to become mature, and you'll be looking at when available the model would be looking at exploitation of those residents, even without using the word residents.

DR. DREW: Right. Obviously the issue that we've struggled with in trying to incorporate some spatial structure is really that immigration and emigration rate. They do as young ones, they're available in their natal bays and estuaries, and they move out at some point during their life to the coastal population; where they become vulnerable to a different fishery.

However, they also do return to those natal bays and estuaries to spawn, where they're again vulnerable. Separating that kind of movement patterns out in the catch and in the biology is always the difficult part; and I think that is what is going to hold us back. But the intent would be to look at the numbers and the fishing mortality rates on that component of the larger coastwide meta-population. Track them while they're in the Bay and they're vulnerable to the Bay fishery.

Track the ones that stay in and the ones that move out and join the coast and then are vulnerable to the coastal fishery. But separating them out as these are fish that came out of the Chesapeake Bay and were subject to Chesapeake Bay mortality versus these are the ones that came out of the Hudson River, and are subject to the Hudson River mortality; I think is what we're trying to go for with understanding kind of these complex stock dynamics within the larger meta-population of striped bass on the coast.

CHAIRMAN GILMORE: Any other questions for Katie? Okay we're going to need a motion on this. Oh, go ahead, Mike.

MR. LUISI: Sorry Mr. Chairman, just one last question. I wonder Katie; you know we talked a lot over the years regarding the triggers that have put us in a position to have to take action. If we're going to be considering new biological reference points, we're obviously going to need some evaluation or consideration of potential new triggers.

How those are related, I wonder can you speak to whether or not that is something that needs to be done as a part of this benchmark, or would we have a follow up action once the benchmark is complete and we have new reference points? I think the Board would be looking for technical advice as to how those triggers relate to the new reference points.

DR. DREW: Yes, the TC did discuss this issue; and we felt it was more appropriate to have that analysis and discussion after the benchmark was complete and the reference points have been selected by the Board. Because there is a certain element of risk tolerance in that; so that we would like it to be more of a dialogue, and a back and forth with the Board, in terms of if you select this reference point here is a potential trigger.

Here is the risk associated with it; and how much risk do you want to tolerate? What happens if you have a more conservative reference point versus a less conservative reference point? I think we would be happy to work with the Board on developing more robust triggers, or triggers that reflect a level of risk that you're willing to take. But it would probably be more efficient use of time to have that after the benchmark process, and after we've decided on the reference points that we would like to use going forward.

CHAIRMAN GILMORE: Any other questions? Mike.

MR. MIKE ARMSTRONG: It's more of a statement. I've watched this Board over the years from when I was technical to my career progression; and the Board has never really decided what it wants this fishery to look like. I bring this up as we talk about reference points, because MSY is a commercial reference point.

It maximizes poundage from a fishery, which is not necessarily what you want from a recreational fishery. I just thought I would raise if as we go along, we may not just want to say MSY is where we want to be, and throw that out to the Technical Committee to consider. Because there are many other places we can go with that rather than perform or go forward with what is recognized in fishery science as a commercial reference point. I thought I would throw that out there.

DR. DREW: I have a whole set of slides on that that we'll get to in the next agenda item, actually.

MR. ARMSTRONG: What a good segue way.

CHAIRMAN GILMORE: Segue way, except for Mark Gibson wants to talk now.

MR. GIBSON: Given that we're going to touch on what Mike just spoke to in the next agenda item, I'll wait until then.

CHAIRMAN GILMORE: Okay, I need a motion if it is the pleasure of the Board, because we have to approve the TORs. Does anybody want to offer one? John Clark.

MR. CLARK: Move to approve the Terms of Reference.

CHAIRMAN GILMORE: Can I get a second? Russ Allen. Any discussion on the motion? Is there any objection to the motion? Okay seeing none; we'll adopt that as unanimous consent.

BOARD GUIDANCE TO SAS REGARDING DEVELOPMENT OF BIOLOGICAL REFERENCE POINTS FOR THE 2018 BENCHMARK STOCK ASSESSMENT

CHAIRMAN GILMORE: Now we can move on to our next item. Katie's going to do a presentation on this, and I think Mike, you did start off the conversation on this. This is kind of food for thought for the future. We can have a little discussion on it, but we really want to get the bigger discussion as we move forward, so Katie, take it away.

DR. DREW: Basically this is, as our Chair was saying, this is not a question that I want an answer to now, today. But it is an answer that the TC is going to look to you guys for over the next couple of months; as we begin work on this assessment, which is basically what types of biological reference points should we be pursuing?

Just as a quick review of the history of the assessment, of reference points that we've used, from 2003 under Amendment 6, we had sort of a mish-mash of FMSY based reference points for the coast and the Chesapeake Bay for F, and then empirical reference points related to the SSB threshold in 1995, as the SSB threshold and the SSB target as a value over that.

In Addendum IV to Amendment 6, we made those reference points line up better. The problem was that the FMSY reference points, if you fished at them, would not get you to your target and threshold. We made them line up,

and so that the rate that you're fishing at will get you to your target and your threshold SSB values; given the recruitment history that we've seen in the past.

There were no reference points specifically for the Chesapeake Bay, because the model already incorporated the Chesapeake Bay specific fishery performance within it. But the 2018 benchmark is going to give us an opportunity to really revisit the management and fishery goals for this species; which is what I think is what we've been trying to get at through a lot of this discussion today.

The current biological reference points are based on historical performance that when we put these into management, we were satisfied with the performance in the fishery in 1995. We were satisfied with what the stock looked like, and we wanted to keep it there at or above those levels going forward.

The question now is is this still what the Board wants, or do we have different management goals at this point? Do we want to maximize yield, which as Mr. Armstrong was saying is a historical traditional reference point for a commercial fishery is MSY. Do we want to maximize catch rates, so that you can go out and have a high chance of catching a fish?

Is that what we want? Do we want to maximize trophy-sized fish? Do we want regional reference points or do we want a coastwide reference point? Do we want a less conservative threshold? Do we want that threshold to really represent a threshold that is a danger zone, or do we want it to represent something different?

Do we want ecosystem considerations to be in here? We've talked a lot about what is the effect of striped bass on other species. What is the effect of menhaden on striped bass? Are we ready to start linking some of these things up, and consider the overall ecosystem considerations when we design a reference point?

What we're planning to do, so that is just a taste of some of the questions that we would like you guys to wrestle with over the next couple of months. What we would like to do is have the TC prepare a detailed memo on some of these options, or some of these concepts. I've kind of thrown out a bunch of stuff, but we would like to sit down and prepare some background material and a detailed memo; to give you guys before the summer meeting week, and then put together a Board workshop or subcommittee to start hashing out some of these questions, and decide what you want this fishery to look like, what you want this stock to look like.

When we go forward and develop this assessment, we can develop reference points that reflect the management goals of this Board. I know this is something we've tried in the past, and it's kind of gotten deadlocked in other things. But I think this is a great opportunity, especially given the concerns that have been raised, with the reference points as they are now; to really reevaluate what we want out of this stock and out of this fishery.

As I said, we're not really looking for discussion or input now at this moment. But to give you guys time to start thinking about this, to think about your own states needs and desires, and then to think about this in a larger context and a more structured context at meeting week over the summer. We do have plenty of time before this becomes critical, so hopefully it's not something that we need to do in a hurried fashion, but something that we can do with a lot of thought and consideration to really get at, what do you want this fishery and the stock to look at?

CHAIRMAN GILMORE: Food for thought and I'm not going to open it to questions, so I can gain some time. But I'm sure Katie will be around here. She's not going anywhere.

DR. DREW: No promises.

CHAIRMAN GILMORE: Emerson.

MR. EMERSON C. HASBROUCK: Thank you, Katie. This sounds like a good idea to go forward with. Do you need a consensus of the Board to put that together? Do you need a motion, or are you just going to go forward, pulling this all together?

CHAIRMAN GILMORE: The latter. This is food for thought, at the next Board meeting in August; we'll have a more detailed discussion on it I'm sure. Okay that is the last agenda item we have other than Other Business.

ADJOURNMENT

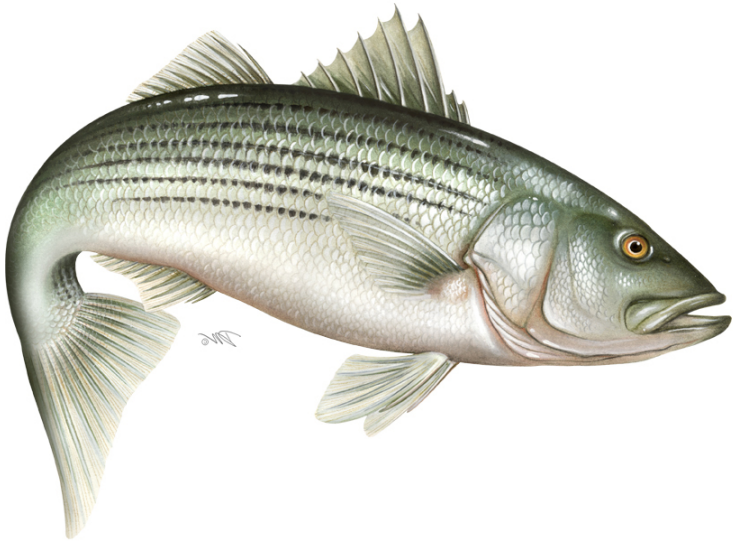
CHAIRMAN GILMORE: Is there any other business to come before the Striped Bass Board? Seeing none; I think we're adjourned.

(Whereupon the meeting adjourned at 3:37 p.m. on May 9, 2017.)

2017 DRAFT REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

ATLANTIC STRIPED BASS
(Morone saxatilis)

2016 FISHING SEASON



Atlantic Striped Bass Plan Review Team
Max Appelman, Atlantic States Marine Fisheries Commission, Chair
Charlton Godwin, North Carolina Division of Marine Fisheries
Wilson Laney, US Fish and Wildlife Service

Developed September 2017

Executive Summary

Atlantic striped bass from Maine through North Carolina are managed under Amendment 6 and Addenda I-IV to the Interstate Fishery Management Plan.

A benchmark stock assessment was peer reviewed by the 57th Stock Assessment Review Committee and approved by the Board for management use in October 2013. Addendum IV to Amendment 6 was approved by the Board in October 2014, and implemented prior to the start of the 2015 fishing season. The addendum contained new fishing mortality reference points, and required coastal and Chesapeake Bay states/jurisdictions to reduce removals by 25 and 20.5%, respectively, in order to reduce F to a level at or below the new target.

In 2016, total Atlantic striped bass removals (i.e., commercial and recreational harvest plus dead discards, excluding harvest of the Albemarle-Roanoke stock from internal coastal waters of North Carolina) was estimated at 3.58 million fish, which is a 19% increase relative to 2015. Total striped bass harvest in 2016 is estimated at 2.14 million fish or 24.7 million pounds. The recreational fishery harvested 1.52 million fish (19.9 million pounds) in 2016, while the commercial fishery harvested 614,469 fish (4.82 million pounds). Dead discards from the recreational and commercial fisheries are estimated at 1.04 million fish and 404,815 fish, respectively.

In 2016, all states implemented management and monitoring programs consistent with Amendment 6 and Addenda I-IV. Monitoring requirements vary by state, and may include monitoring commercial and recreational catch, effort, and catch composition; monitoring commercial tagging programs; and performing juvenile abundance surveys, spawning stock surveys, and research tagging programs. In 2016, three states exceeded their coastal commercial quota allocation. Massachusetts exceeded its quota by 68,927 pounds, Rhode Island by 32 pounds, and Virginia by 589 pounds. However, the total coastal and Chesapeake Bay commercial quotas were not exceeded.

For the 2017 review of JAIs, the analysis evaluates the 2014, 2015, and 2016 JAI values. No state's JAI met the criteria for recruitment failure, although Maryland's and New York's 2016 JAI values were below the Q1 threshold.

Table of Contents

I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – 1981
Amendments:	Amendment 1 – 1984 Amendment 2 – 1984 Amendment 3 – 1985 Amendment 4 – 1989; Addendum I – 1991, Addendum II – 1992, Addendum III – 1993, Addendum IV – 1994 Amendment 5 – 1995; Addendum I – 1997, Addendum II – 1997, Addendum III – 1998, Addendum IV – 1999, Addendum V – 2000 Amendment 6 – 2003; Addendum I – 2007, Addendum II – 2010, Addendum III – 2012, Addendum IV – 2014
Management Unit:	Migratory stocks of Atlantic striped bass from Maine through North Carolina
States With Declared Interest:	Maine - North Carolina, including Pennsylvania
Additional Jurisdictions:	District of Columbia, Potomac River Fisheries Commission, National Marine Fisheries Service, United States Fish and Wildlife Service
Active Boards/Committees:	Atlantic Striped Bass Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Tagging Subcommittee, Plan Review Team, and Plan Development Team

The Atlantic States Marine Fisheries Commission (Commission) developed a fisheries management plan (FMP) for Atlantic Striped Bass in 1981 in response to declining juvenile recruitment and landings. The FMP recommended increased restrictions on commercial and recreational fisheries, such as minimum size limits and harvest closures on spawning grounds. Two amendments were passed in 1984 recommending additional management measures to reduce fishing mortality. To strengthen the management response and improve compliance and enforcement, the Atlantic Striped Bass Conservation Act (P.L. 98-613) was passed in late 1984, which mandated the implementation of striped bass regulations passed by the Commission, and gave the Commission authority to recommend to the Secretaries of Commerce and Interior that states be found out of compliance when they failed to implement management measures consistent with the FMP.

The first enforceable plan under the Striped Bass Act, Amendment 3, was approved in 1985, and required size regulations to protect the 1982-year class, which was the first modest size cohort in the previous decade. The objective was to increase size limits to allow at least 95% of the females in the 1982 cohort to spawn at least once. Smaller size limits were permitted in producer areas than along the coast. Several states, beginning with Maryland in 1985, opted for a more conservative approach and imposed a total moratorium on striped bass landings for several years. The amendment contained a trigger mechanism to reopen the fisheries when the 3-year moving average of the Maryland juvenile abundance index (JAI) exceeded an arithmetic mean of 8.0 which was attained with the recruitment of the 1989 year class. Also, in 1985, the Commission determined the Albemarle Sound-Roanoke River (A-

R) stock in North Carolina contributed minimally to the coastal migratory population, and was therefore allowed to pursue an alternative management program.

Consequently, Amendment 4, implemented in 1989, aimed to rebuild the resource rather than maximize yield. The amendment allowed state fisheries to reopen under a target fishing morality (F) of 0.25, which was half the estimated F needed to achieve maximum sustainable yield (MSY). The amendment allowed an increase in the target F once spawning stock biomass (SSB) was restored to levels estimated during the late 1960s and early 1970s. The dual size limit concept was maintained, and a recreational trip limit and commercial season was implemented to reduce the harvest to 20% of that in the historic period of 1972-1979. A series of four addenda were implemented from 1990-1994 to maintain protection of the 1982 year class.

In 1990, to provide additional protection to striped bass and ensure the effectiveness of state regulations, NOAA Fisheries passed a final rule (55 Federal Register 40181-02) prohibiting possession, fishing, (i.e., catch and release fishing), harvest and retention of Atlantic striped bass in the Exclusive Economic Zone (EEZ), which the exception of a defined transit zone within Block Island Sound. Atlantic striped bass may be possessed and transported through this defined area, provided that the vessel is not used to fish while in the EEZ and the vessel remains in continuous transit.

In 1995, Chesapeake Bay, Delaware Bay and Hudson River striped bass were declared recovered by the Commission (the A-R stock was declared recovered in 1997), and Amendment 5 was adopted to increase the target F to 0.33, midway between the existing F target (0.25) and $F_{MSY,}$ and increased again to 0.40 after two years of implementation. Regulations were developed to achieve the target F (including measures aimed to restore commercial harvest to 70% of the average landings during the 1972-1979 historical period) and states were allowed to submit proposals for alternative regulations that were conservationally equivalent. From 1997-2000, a series of five addenda were implemented to respond to the latest stock status information and adjust the regulatory regime to achieve each change in target F.

In 2003, Amendment 6 was adopted to address five limitations within the existing management program: 1) potential inability to prevent the Amendment 5 exploitation target from being exceeded; 2) perceived decrease in availability or abundance of large striped bass in the coastal migratory population; 3) a lack of management direction with respect to target and threshold biomass levels; 4) inequitable effects of regulations on the recreational and commercial fisheries, and coastal and producer area sectors; and 5) excessively frequent changes to the management program. Amendment 6 completely replaced all previous Commission plans for Atlantic striped bass.

The goal of Amendment 6 is to perpetuate, through cooperative interstate management, migratory stocks of striped bass; to allow commercial and recreational fisheries consistent with the long-term maintenance of a broad age structure, a self-sustaining spawning stock; and also to provide for the restoration and maintenance of their essential habitat. In support of this goal, the following objectives are included:

- Manage striped bass fisheries under a control rule designed to maintain stock size at or above the target female spawning stock biomass level and a level of fishing mortality at or below the target

exploitation rate.

- Manage fishing mortality to maintain an age structure that provides adequate spawning potential to sustain long-term abundance of striped bass populations.
- Provide a management plan that strives, to the extent practical, to maintain coastwide consistency of implemented measures, while allowing the States defined flexibility to implement alternative strategies that accomplish the objectives of the FMP.
- Foster quality and economically viable recreational, for-hire, and commercial fisheries.
- Maximize cost effectiveness of current information gathering and prioritize state obligations in order to minimize costs of monitoring and management.
- Adopt a long-term management regime that minimizes or eliminates the need to make annual changes or modifications to management measures.
- Establish a fishing mortality target that will result in a net increase in the abundance (pounds) of age 15 and older striped bass in the population, relative to the 2000 estimate.

Amendment 6 modified the F target and threshold, and introduced a new set of biological reference points (BRPs) based on female (SSB), as well as a list of management triggers based on the BRPs. The coastal commercial quotas for striped bass were restored to 100% of the states' average landings during the 1972-1979 historical period, except for Delaware's coastal commercial quota which remained at the level allocated in 2002. In the recreational fisheries, all states were required to implement a two-fish bag limit with a minimum size limit of 28 inches, except for the Chesapeake Bay fisheries, fisheries that operate in the A-R (i.e., internal coastal waters of NC), and states with approved alternative regulations. The Chesapeake Bay and A-R regulatory programs were predicated on a more conservative F target than the coastal migratory stock, which allowed these jurisdictions to implement separate seasons, harvest caps, and size and bag limits as long as they remain under that F target. No minimum size limit can be less than 18 inches under Amendment 6. The same minimum size standards regulate the commercial fisheries as the recreational fisheries, except for a minimum 20 inch size limit in the Delaware Bay spring American shad gillnet fishery.

States are permitted the flexibility to deviate from these standards by submitting proposals for review to the Striped Bass Technical Committee (TC), Advisory Panel (AP), and Plan Review Team (PRT) and contingent upon the approval of the Atlantic Striped Bass Management (Board). A state may request a change only if it can demonstrate that the action is "conservationally equivalent" to the management standards or will not contribute to the overfishing of the resource. This practice has resulted in a variety of regulations among states (see Table 8 and Table 9).

In 2007, Addendum I was implemented to establish a bycatch monitoring and research program to increase the accuracy of data on striped bass discards and also recommend development of a web-based angler education program. Also in 2007, President George W. Bush issued an Executive Order (E.O. 13449) prohibiting the sale of striped bass (and red drum) caught within the EEZ. The order also requires the Secretary of Commerce to encourage management for conservation of resources, including State designation as gamefish where the state determines appropriate under applicable law, and to periodically review the status of the populations within US jurisdictional waters.

In 2010, Addendum II was approved. The addendum established a new definition of recruitment failure such that each index would have a fixed threshold indicating failure, rather than a threshold that changes annually with the addition of each year's data. The new definition of recruitment failure is "a value that is below 75% of all values in a fixed time series appropriate to each juvenile abundance index."

In 2012, Addendum III was approved. The addendum requires all states and jurisdictions with a commercial fishery to implement a uniform commercial harvest tagging program. The addendum was initiated in response to significant poaching events in the Chesapeake Bay and aims to limit illegal harvest of striped bass.

In 2014, Addendum IV was approved. The addendum was initiated in response to the 2013 benchmark assessment which indicated a steady decline in SSB since the mid-2000s. The addendum established new F reference points (i.e., target and threshold), and a suite of regulatory measures to reduce F to a level at or below the new target by 2016. Prior to the start of the 2015 fishing season, all jurisdictions were required to implement regulations to achieve a 25% reduction from 2013 removals for the coastal fisheries and a 20.5% reduction from 2012 removals for Chesapeake Bay fisheries. Additionally, since tagging studies conducted on the A-R stock demonstrate that the stock contributes minimally to the total coastwide complex (Callihan et al. 2014), Addendum IV defers management of the A-R stock (i.e., internal coastal waters) to the state of North Carolina using A-R stock-specific BRPs approved by the Board. Striped bass in the ocean waters of North Carolina continue to be managed under Amendment 6 and Addenda I-IV.

While NOAA Fisheries continues to implement a ban on the possession, fishing (i.e., catch and release fishing), harvest and retention of striped bass in the EEZ, Amendment 6 includes a recommendation to the Secretary of Commerce to consider reopening the EEZ to commercial and recreational striped bass fisheries. In July 2003 and continuing for several years, NOAA Fisheries took steps in the rulemaking process to consider the recommendation. In September 2006, NOAA Fisheries concluded that it would be imprudent to open the EEZ to striped bass fishing and chose not to proceed further in its rulemaking. Specifically, NOAA Fisheries concluded that "(1) it could not be certain, especially after taking into account the overwhelming public perception that large trophy sized fish congregate in the EEZ, that opening the EEZ would not increase effort and lead to an increase in mortality that would exceed the threshold, and (2) both the Commission's and NOAA Fisheries ability to immediately respond to an overfishing or overfished situation is a potential issue, particularly given the timeframe within which Amendment 6 was created, and given the lag time in which a given year's data is available to management" (71 FR 54261-54262).

II. Status of the Stocks

Atlantic Striped Bass Stocks

The 2013 benchmark stock assessment for Atlantic striped bass was peer-reviewed at the 57th Stock Assessment Workshop (SAW)/Stock Assessment Review Committee (SARC). Based on recommendations by the 46th SAW/SARC in 2007, the statistical catch-at-age (SCA) model was generalized to allow specification of multiple fleets (an ocean fleet, a Chesapeake Bay fleet, and commercial discard fleet), different stock-recruitment relationships, and year- and age-specific natural mortality rates, among other changes. New F reference points were chosen to link the target and threshold F with the target and threshold female SSB. The 2013 assessment, and the new F reference points, were approved by the Board for management use at its October 2013 meeting.

The 2013 SCA model was updated in 2016 to estimate F, SSB, abundance, and recruitment of striped bass during 1982-2015. Based on results of the 2016 stock assessment update, and in comparison to the biological reference points below, Atlantic striped bass are not overfished and are not experiencing overfishing.

	Female SSB	***Fully-Recruited F***
Threshold	SSB_{1995} = 57,626 metric tons	0.22
Target	$SSB_{threshold}$ x 1.25 = 72,032 metric tons	0.18

In 2015, female SSB was estimated at 58,853 metric tons (mt) (129.7 million pounds) which is above the SSB threshold but below the SSB target (Figure 1). The 2015 estimate is a decrease from the 2014 estimate of 63,918 mt (140.9 million pounds). In 2015, recruitment (age-1 abundance) was estimated at 122.7 million fish which is above average for the most recent 20 years (98.0 million fish) and is the second highest value since 2005; the 2012 estimate (i.e., the 2011 year-class) was 123.9 million fish (Figure 1). In 2015, fully-recruited F was estimated at 0.16 which is below both the F threshold and F target (Figure 2). Overall, the conclusion is that female SSB has declined since the 2003 time series high. Although there appears to be an increasing trend in recreational catch over the last five years, the decline in SSB may be reflected in the coastwide harvest which has been decreasing from about 2007 to present (Figure 5). A new benchmark assessment is currently underway and scheduled for completion at the end of the 2018.

Albemarle Sound-Roanoke River Striped Bass Stocks

The most recent A-R benchmark stock assessment (data through 2012) utilized the ASAP3 statistical catch-at-age model. The model was peer reviewed by an outside panel of experts and approved for management use by the Board in October 2014. The model incorporated all commercial and recreational harvest and discard data for the A-R stock, as well as abundance data from fishery independent surveys conducted by North Carolina Division of Marine Fisheries (NCDMF) and North Carolina Wildlife Resources Commission staff. The benchmark assessment produced new BRPs and annual harvest quota to prevent overfishing. The model was most recently updated in 2016 with catch and index data through 2014. Based on results of the 2016 update, and in comparison to the BRPs below, A-R Atlantic striped bass are not overfished and are not experiencing overfishing.

	F	*Female SSB*	*Total Allowable Landings (TAL)*
Threshold	0.41	772,588 lbs.	275,000 lb (split evenly between recreational and commercial sectors)
Target	0.33	965,735 lbs.	

In 2014, female SSB was estimated at 2,024,583 pounds which is above the peak in 2003 and the highest value in the time series (1982-2014; Figure 3). In 2014, F was estimated at 0.06 which is below both the F threshold and target (Figure 4). Caution should be used, however, when evaluating the estimate of SSB and F in the last year of the assessment. The estimated SSB value in 2014 is the largest value in the entire time series and is likely an overestimate, based on past years of retrospective bias exhibited by the model. Subsequent assessments, incorporating additional years of data and possibly a revised stock-recruit relationship, may reduce the magnitude of the 2014 value. (Flowers, J., et al. 2016). A-R striped bass experienced a period of unusually strong recruitment (number of age-1 fish entering the population) from 1994-2001 followed by a period of lower recruitment from 2002-2013 and higher recruitment again in 2014 and 2015 (Figure 1).

Overall, the trends in the A-R stock abundance are quite similar to the Atlantic striped bass stocks described above, with a steady decline in female SSB since about 2003. Total stock abundance reached its peak in the late 1990s, declined gradually through about 2005 and peaking again in 2012 before declining again. A new benchmark A-R stock assessment with data through 2016 is currently underway and is scheduled to be completed at the end of 2018.

III. Status of the Fishery

Chesapeake Bay and Coastal Atlantic Striped Bass Fisheries

In 2016, total Atlantic striped bass removals (i.e., commercial and recreational harvest plus dead discards, excluding harvest from the A-R stock) was estimated at 3.58 million fish, which is a 19% increase relative to 2015. In 2016, total striped bass commercial and recreational harvest (excluding harvest from the A-R) was estimated at 24.7 million pounds or 2.14 million fish, which is a 7% increase by weight and a 9% increase by number relative to 2015 (Table 1 and Figure 5). In 2016, the commercial and recreational fisheries harvested 20 and 80%, respectively by weight, and 29 and 71% by number.

In 2016, the commercial fishery (coastal and Chesapeake Bay combined) harvested 4.82 million pounds or 614,469 fish, which is 8,988 less fish than that harvested in 2015, but only a slight decrease from 2015 by weight (2,794 pounds) indicating an increase in the average weight of fish harvested in 2016 relative to 2015 (Table 2 and Table 3; Figure 6). The Chesapeake Bay jurisdictions accounted for 62% of 2016 commercial landings by weight; Maryland landed 30%, Virginia landed 22%, and PRFC landed 10%. Additional landings came from Massachusetts (19%), New York (12%), Rhode Island (4%), and Delaware (3%). Total commercial dead discards were estimated at 404,815 fish, which is below average for the last 10 years (Table 6). It is important to note, however, that commercial discard estimates are based on the ratio of tags returned from the recreational fishery to those from the commercial fishery and continue to be a source of uncertainty in the stock assessment.

In 2016, the coastal and Chesapeake Bay combined recreational harvest (A + B1) was estimated at 19.9 million pounds or 1.52 million fish which is a 9% increase by weight and a 14% increase by number from 2015 landings (Table 4 and Table 5; Figure 7). The coastal recreational harvest was 14.7 million pounds which is 56,251 pound more than 2015 (<1% increase). The Chesapeake Bay-wide recreational harvest was 5.15 million pounds and represents nearly a 47% increase in Chesapeake Bay harvest from 2015.

In 2016, recreational releases (B2) were estimated at 11.5 million fish which is a 37% increase from 2015 (8.40 million fish) indicating anglers released more of the fish they caught in 2016 relative to 2015 (Table 6 and Figure 7). The 2016 recreational catch estimate (13.0 million fish) is the highest estimate since 2008 (15.0 million fish) but is still 50% less than the peak in 2006. In 2016, the proportion of catch released was estimated at 88%. Using a 9% post-release mortality rate, recreational dead discards are estimated at 1.04 million fish, which is a 37% increase relative to 2015. Total recreational removals (harvest and dead discards combined) in 2016 was 2.56 million fish which is an 18% increase from 2015 (2.09 million fish). Maryland landed the largest percentage of the total recreational harvest in number of fish[1] (39%), followed by New York (19%), New Jersey (18%), Massachusetts (9%) and Virginia (7%). The remaining states each landed 4% or less of the 2016 recreational landings by number of fish (Table 4 and Table 5).

Albemarle Sound and Roanoke River Atlantic Striped Bass Fisheries

In 2016, total commercial and recreational harvest in the Albemarle Sound Management Area (ASMA) and the Roanoke River Management Area (RRMA) was 202,815 pounds (57,126 fish). Commercial harvest in the ASMA was 123,111 pounds (31,072 fish). Recreational harvest in the ASMA was 14,486 pounds (4,794 fish), and recreational harvest in the RRMA was 65,218 pounds (21,260 fish).

IV. Status of Research and Monitoring

Amendment 6 and its Addenda I-IV set the regulatory and monitoring measures for the coastwide striped bass fishery in 2016.

The management plan requires certain jurisdictions to implement fishery-dependent monitoring programs for striped bass. All jurisdictions with commercial fisheries or substantial recreational fisheries are required to define the catch and effort composition of these fisheries. Additionally, all states and jurisdictions with a commercial fishery must implement a commercial tagging program pursuant to Addendum III to Amendment 6.

The management plan also requires certain states to monitor the striped bass population independent of the fisheries. Juvenile abundance indices are required from Maine (Kennebec River), New York (Hudson River), New Jersey (Delaware River), Maryland (Chesapeake Bay tributaries), Virginia (Chesapeake Bay tributaries), and North Carolina (Albemarle Sound). Spawning stock sampling is mandatory for New York (Hudson River), Pennsylvania (Delaware River), Delaware (Delaware River),

[1] In terms of pounds of fish, New Jersey landed the largest proportion of the total recreational harvest (28%) in 2016, followed by New York (26%), Maryland (22%) and Massachusetts (10%).

Maryland (Upper Chesapeake Bay and Potomac River), Virginia (Rappahannock River and James River), and North Carolina (Albemarle Sound-Roanoke River). Amendment 6 requires NOAA Fisheries, USFWS, Massachusetts, New York, New Jersey, Maryland, Virginia, and North Carolina to continue their tagging programs, which provide data used to determine survivorship and migration patterns.

V. Status of Management Measures and Issues

Coastal Commercial Quota

In 2016, one state had a coastal commercial quota lower than their Addendum IV allocation due to quota overages in 2015 (Rhode Island exceeded its quota by 6,903 pounds resulting in an effective quota of 174,669 in 2016). In 2016, the total coastal commercial quota was 2,838,715 pounds and was not exceeded, however three states exceeded their coastal commercial allocation; Massachusetts by 68,927 pounds, Rhode Island by 32 pounds, and Virginia by 589 pounds. The 2016 commercial quotas and harvest and 2017 commercial quotas are listed in Table 7, by state.

Chesapeake Bay Quota

In 2016, per Addendum IV, the Chesapeake Bay-wide quota was 3,120,247 pounds. Shares are allocated to Maryland, the PRFC, and Virginia based on historical harvest. In 2016, the bay-wide quota was not exceeded and all bay-jurisdictions maintained harvest below its respective quota (Table 7).

Chesapeake Bay Spring Trophy Fishery

Recreational fishermen in the Chesapeake Bay are permitted to take adult migrant fish during a limited seasonal fishery, commonly referred to as the Spring Trophy Fishery. From 1993 to 2007 the fishery operated under a quota. Beginning in 2008, the Board approved non-quota management until stock assessment indicates that corrective action is necessary to reduce F on the coastal stock. The Spring Trophy Fishery is managed via bag limits and size restrictions. In 2016, the estimate of migrant fish harvested during the trophy season was 74,349 fish (74,139 fish in Maryland and 210 fish in Virginia) and represents a twofold increase from the 2015 estimate of 30,779 fish (2016 and 2017 state compliance reports).

Wave-1 Recreational Harvest Estimates

Evidence suggests that North Carolina, Virginia, and possibly other states have had sizeable wave-1 (January/February) recreational striped bass fisheries beginning in 1996 (NEFSC 2013b). The Marine Recreational Information Program (MRIP), formerly the Marine Recreational Fisheries Statistics Survey (MRFSS), has sampled for striped bass in North Carolina during wave-1 since 2004. Other states are not currently covered during wave-1.

However, striped bass distributions on their overwintering grounds during December through February has changed significantly since the mid-2000s. The migratory portion of the stocks has been well offshore in the EEZ (>3 miles) effecting both Virginia's and North Carolina's striped bass winter ocean fisheries in recent years. Furthermore, North Carolina has reported zero striped bass landings during wave-1 in the ocean for 2012-2016.

Addendum II: Juvenile Abundance Index Analysis

Amendment 6 requires the following states to conduct striped bass young-of-year juvenile abundance index (JAI) surveys on an annual basis: Maine for the Kennebec River; New York for the Hudson River; New Jersey for the Delaware River; Maryland for the Maryland Chesapeake Bay tributaries; Virginia for the Virginia Chesapeake Bay tributaries; and North Carolina for the A-R stock.

The PRT (including members of the TC) annually reviews trends in all required JAIs. Per Addendum II to Amendment 6, recruitment failure is defined as a value that is below 75% (the first quartile, or Q1) of all values in a fixed time series appropriate to each JAI. If any survey's JAI falls below their respective Q1 for three consecutive years, then appropriate action should be recommended by the TC to the Management Board. The Management Board is the final arbiter in all management decisions.

For the 2017 review of JAIs, the analysis evaluates the 2014, 2015, and 2016 JAI values. No state's JAI met the criteria for recruitment failure (Figure 8). Maine's JAI was below the Q1 threshold in 2015, near the long-term average in 2014, and slightly below average in 2016. New York's 2016 JAI value was below the Q1 threshold, but the JAI was slightly above average in 2014 and 2015. New Jersey's JAI was above average in 2014 and 2016, but was below average in 2015. Maryland's JAI was below the Q1 threshold in 2016, well above average in 2015 (the 2015 value is the 7th highest in the time series), and slightly below average in 2014. Virginia's JAI was below average in 2016 and slightly above average in 2015 and 2014. North Carolina's JAI for the A-R stock was slightly below average in 2016 but well above average in 2015 and 2014.

Addendum III: Commercial Fish Tagging Program

Addendum III to Amendment 6 includes compliance requirements for monitoring commercial fishery tagging programs. In 2016, The PRT determined that all states implemented commercial tagging programs consistent with the requirements of Addendum III. Table 10 describes commercial tagging program requirements by state.

Albemarle-Roanoke Striped Bass FMP

The Interstate FMP for Atlantic Striped Bass requires North Carolina to inform the Commission of changes to striped bass management in the Albemarle Sound/Roanoke River (A-R) System. North Carolina must adhere to the compliance criteria in Amendment 6. After review, the PRT determined that North Carolina's FMP is consistent with the mandatory components of Amendment 6.

Estuarine striped bass in North Carolina are currently managed under Amendment 1 to the North Carolina Estuarine Striped Bass Fishery Management Plan (FMP) and its subsequent revision (NCDMF 2014). It is a joint plan between the North Carolina Marine Fisheries Commission (NCMFC) and the North Carolina Wildlife Resources Commission (NCWRC). Amendment 1, adopted in 2013, lays out separate management strategies for the Albemarle Sound-Roanoke Rive (A-R) stock and the estuarine (non-migratory) Central and Southern striped bass stocks in the Tar/Pamlico, Neuse, and Cape Fear rivers. Management programs in Amendment 1 utilize annual total allowable landings (TAL), daily possession limits, open and closed harvest seasons, gill net mesh size and yardage restrictions, seasonal attendance requirements, barbless hook requirements in some areas, minimum size limits, and slot limits to maintain a sustainable harvest and reduce regulatory discard mortality in all sectors.

Amendment 1 also maintains the stocking regime in the central and southern systems and the harvest moratorium on striped bass in the Cape Fear River and its tributaries (NCDMF 2013). Striped bass fisheries in the Atlantic Ocean of North Carolina are managed under ASMFC's Amendment 6 and subsequent addenda to the Interstate FMP for Atlantic Striped Bass.

Law Enforcement Reporting

States are asked to report and summarize law enforcement cases that occurred the previous season in annual compliance reports. In 2016, reported law enforcement cases (e.g., the number of warnings and citations) were similar to those reported in 2015. The most common violations were recreationally harvested fish under the legal size limit and possessing fish in excess of the bag limit.

VI. Annual State Compliance and Plan Review Team Recommendations

The following regulatory changes occurred in 2016:

- Maryland: effective June 1, 2016, the ocean recreational fishery bag and size limit changed from one fish at 28" minimum size to two fish at 28-38" total length slot size limit, or greater than 44", through conservation equivalency.

In 2016, and based on the annual state compliance reports, the PRT determined that each state and jurisdiction implemented a management program consistent with the requirements of Amendment 6 and addenda I-IV (Table 11). Refer to Table 8 and Table 9 for 2016 striped bass fishing regulations by state.

Amendment 6 includes compliance requirements for monitoring programs (summarized in *Section IV*). Compliance with these requirements is summarized in Table 11. The PRT determined that each state and jurisdictions carried out the required monitoring programs in the 2016 fishing year. No monitoring program changes were documented in the 2017 compliance reports, or provided via personal communication.

Addendum III to Amendment 6 includes compliance requirements for monitoring commercial fishery tagging programs. The PRT determined that all states and jurisdictions with commercial striped bass fisheries implemented a commercial tagging program consistent with the requirements of Addendum III. Table 10 describes each state's program requirements.

VII. Research Recommendations

The following categorized and prioritized research recommendations were developed by the 2013 Benchmark Stock Assessment Subcommittee and the 57th SARC:

Fishery-Dependent Priorities

High

- Continue collection of paired scale and otolith samples, particularly from larger striped bass, to facilitate development of otolith-based age-length keys and scale-otolith conversion matrices.[1]

Moderate

- Develop studies to provide information on gear specific discard morality rates and to determine the magnitude of bycatch mortality.[2]
- Improve estimates of striped bass harvest removals in coastal areas during wave 1 and in inland waters of all jurisdictions year round.
- Evaluate the percentage of fishermen using circle hooks.[3]

Fishery-Independent Priorities

Moderate

- Develop a refined and cost-efficient, fisheries-independent coastal population index for striped bass stocks.
    - The PRT recommends the SBTC be tasked with exploring whether the Cooperative Winter Tagging Cruise, NEAMAP, and/or NMFS Trawl Survey datasets would prove useful in this respect.

Modeling / Quantitative Priorities

High

- Develop a method to integrate catch-at-age and tagging models to produce a single estimate of F and stock status.[4]
- Develop a spatially and temporally explicit catch-at-age model incorporating tag based movement information.[5]
    - The PRT recommends that the SAS be tasked with reviewing recent published literature examining tag-based movement information to see if they would contribute to the development of such a model (e.g., Callihan et al. 2014)
- Review model averaging approach to estimate annual fishing mortality with tag based models. Review validity and sensitivity to year groupings.[6]
- Develop methods for combining tag results from programs releasing fish from different areas on different dates.
- Examine potential biases associated with the number of tagged individuals, such as gear specific mortality (associated with trawls, pound nets, gill nets, and electrofishing), tag induced mortality, and tag loss.[7]
- Develop field or modeling studies to aid in estimation of natural mortality or other factors affecting the tag return rate.

Moderate

- Develop maturity ogives applicable to coastal migratory stocks.
- Examine methods to estimate annual variation in natural mortality.[8]
- Develop reliable estimates of poaching loss from striped bass fisheries.
- Improve methods for determining population sex ratio for use in estimates of SSB and biological reference points.
- Evaluate truncated matrices and covariate based tagging models.

Low

- Examine issues with time saturated tagging models for the 18 inch length group.
- Develop tag based reference points.

Life History, Biological, and Habitat Priorities

High

- Continue in-depth analysis of migrations, stock compositions, etc. using mark-recapture data.[9]
- Continue evaluation of striped bass dietary needs and relation to health condition.[10]
- Continue analysis to determine linkages between the mycobacteriosis outbreak in Chesapeake Bay and sex ratio of Chesapeake spawning stock, Chesapeake juvenile production, and recruitment success into coastal fisheries.

Moderate

- Examine causes of different tag based survival estimates among programs estimating similar segments of the population.
- Continue to conduct research to determine limiting factors affecting recruitment and possible density implications.
- Conduct study to calculate the emigration rates from producer areas now that population levels are high and conduct multi-year study to determine inter-annual variation in emigration rates.

Low

- Determine inherent viability of eggs and larvae.
- Conduct additional research to determine the pathogenicity of the IPN virus isolated from striped bass to other warm water marine species, such as flounder, menhaden, shad, and largemouth bass.

Management, Law Enforcement, and Socioeconomic Priorities

Moderate

- Examine the potential public health trade-offs between the continued reliance on the use of high minimum size limits (28 inches) on coastal recreational anglers and its long-term effects on enhanced PCB contamination among recreational stakeholders.[11, 13]
- Evaluate striped bass angler preferences for size of harvested fish and trade-offs with bag limits.

Habitat Recommendations

- Passage facilities should be designed specifically for passing striped bass for optimum efficiency at passing this species.
- Conduct studies to determine whether passing migrating adults upstream earlier in the year in some rivers would increase striped bass production and larval survival, and opening downstream bypass facilities sooner would reduce mortality of early emigrants (both adult and early-hatched juveniles).
- All state and federal agencies responsible for reviewing impact statements and permit applications for projects or facilities proposed for striped bass spawning and nursery areas shall ensure that those projects will have no or only minimal impact on local stocks, especially natal rivers of stocks considered depressed or undergoing restoration.[11]
- Federal and state fishery management agencies should take steps to limit the introduction of compounds which are known to be accumulated in striped bass tissues and which pose a threat to human health or striped bass health.

- Every effort should be made to eliminate existing contaminants from striped bass habitats where a documented adverse impact occurs.
- Water quality criteria for striped bass spawning and nursery areas should be established, or existing criteria should be upgraded to levels that are sufficient to ensure successful striped bass reproduction.
- Each state should implement protection for the striped bass habitat within its jurisdiction to ensure the sustainability of that portion of the migratory stock. Such a program should include: inventory of historical habitats, identification of habitats presently used, specification of areas targeted for restoration, and imposition or encouragement of measures to retain or increase the quantity and quality of striped bass essential habitats.
- States in which striped bass spawning occurs should make every effort to declare striped bass spawning and nursery areas to be in need of special protection; such declaration should be accompanied by requirements of non-degradation of habitat quality, including minimization of non-point source runoff, prevention of significant increases in contaminant loadings, and prevention of the introduction of any new categories of contaminants into the area. For those agencies without water quality regulatory authority, protocols and schedules for providing input on water quality regulations to the responsible agency should be identified or created, to ensure that water quality needs of striped bass stocks are met.[12]
- ASMFC should designate important habitats for striped bass spawning and nursery areas as HAPC.
- Each state should survey existing literature and data to determine the historical extent of striped bass occurrence and use within its jurisdiction. An assessment should be conducted of those areas not presently used for which restoration is feasible.

Footnotes

- [1] The Fish and Wildlife Service has archived otolith samples from known-age (CWT-tagged), stocked fish, for which scale ages were derived as well. These fish were collected during past Cooperative Winter Tagging Cruises and the otoliths, once aged, will increase our sample size, and since these are known-age fish, will also allow an examination of extent that which reader error affects both otolith age, and scale age.
- [2] Literature search and some modeling work completed.
- [3] Work ongoing in New York through the Hudson River Angler Diary, Striped Bass Cooperative Angler Program, and ACCSP e-logbook.
- [4] Model developed, but the tagging data overwhelms the model. Issues remain with proper weighting.
- [5] Model developed with Chesapeake Bay and the rest of the coast as two fleets. However, no tagging data has been used in the model.
- [6] Work ongoing by Striped Bass Tagging Subcommittee to evaluate the best years to use for the IRCR and the periods to use for the MARK models.
- [7] Gear specific survival being examined in Hudson River.
- [8] Ongoing work by the Striped Bass Tagging Subcommittee
- [9] Ongoing through Cooperative Winter Tagging Cruise and striped bass charter boat tagging trips. See Cooperative Winter Tagging Cruise 25 Year Report, in preparation.
- [10] Plans for a stomach content collection program in the Chesapeake Bay by the Chesapeake Bay Ecological Foundation.
- [11] Ongoing in New York.
- [12] Significant habitat designations completed in the Hudson River and New York Marine Districts.
- [13] Samples collected from two size groups ($\geq$ 28 inches and 20-26 inches) in Pennsylvania and processed by the Department of Environmental Protection to compare contamination of the two size groups.

VIII. References

Atlantic States Marine Fisheries Commission (ASMFC). 2013. Update of the Striped Bass stock assessment using final 2012 data. A report prepared by the Atlantic Striped Bass Technical Committee. 74 p. Arlington, VA.

Atlantic States Marine Fisheries Commission (ASMFC). 2016. Update of the Striped Bass stock assessment using final 2012 data. A report prepared by the Atlantic Striped Bass Technical Committee. 74 p. Arlington, VA.

Atlantic States Marine Fisheries Commission (ASMFC). 2017. Atlantic Striped Bass Annual Compliance Reports.

Callihan, J. L., Godwin, C. H., Buckel, J. A. 2014. Effect of demography on spatial distribution: movement patterns of the Albemarle Sound-Roanoke River stock of Striped bass (*Morone saxatilis*). Fish. Bull. 112:131-143.

Mroch, R., and C.H. Godwin. 2016. Stock Status of Albemarle Sound-Roanoke River Striped Bass. North Carolina Division of Marine Fisheries, Morehead City, North Carolina.

North Carolina Department of Marine Fisheries (NCDMF). 2013. Amendment 1 to the North Carolina Estuarine Striped Bass Fishery Management Plan. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. Morehead City, NC. 826 pp.

North Carolina Department of Marine Fisheries (NCDMF). 2014. November 2014 Revision to Amendment 1 to the North Carolina Estuarine Striped Bass Fishery Management Plan. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. Morehead City, NC. 15 pp.

Northeast Fisheries Science Center (NEFSC). 2013a. 57th Northeast Regional Stock Assessment Workshop (57th SAW) Assessment Report. US Dept Commer. Northeast Fish Sci Cent Ref Doc. 13-14; 39 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026

Northeast Fisheries Science Center (NEFSC). 2013b. 57th Northeast Regional Stock Assessment Workshop (57th SAW) Assessment Report. US Dept Commer. Northeast Fish Sci Cent Ref Doc. 13-16; 967 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026

National Oceanic and Atmospheric Administration (NOAA). 2012. 2011 Biennial Report to Congress on the Progress and Findings of Studies on Striped bass Populations. Washington (DC): US Department of Congress, NOAA National Marine Fisheries Service. 38 p.

IX. Tables

Tables 1 – 6 report harvest and discard estimates from 1990-2016 due to space constraints.

Table 1. Total harvest of Atlantic striped bass by sector, 1990-2016. Source: MRIP and ACCSP, 2016 estimates queried August 2 and July 28, 2017, respectively. Previous year's estimates may differ from MRIP due to routine updates. Estimates exclude inshore harvest from the A-R.

Year	Commercial Landings		Recreational (A+B1)		Total	
	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers
1990	689,895	115,636	2,226,545	163,242	2,916,440	278,878
1991	1,471,703	153,798	3,643,994	262,469	5,115,697	416,267
1992	1,434,495	230,714	4,026,657	300,180	5,461,152	530,894
1993	1,749,628	312,860	5,651,079	428,719	7,400,707	741,579
1994	1,776,176	307,443	6,777,886	565,167	8,554,062	872,610
1995	3,390,937	534,914	12,425,549	1,089,182	15,816,486	1,624,096
1996	3,367,185	766,518	13,123,332	1,175,112	16,490,517	1,941,630
1997	5,882,643	1,108,612	15,714,071	1,648,127	21,596,715	2,756,739
1998	6,443,874	1,233,089	12,457,222	1,457,062	18,901,096	2,690,151
1999	6,545,102	1,103,812	13,478,473	1,446,388	20,023,575	2,550,200
2000	6,698,988	1,057,712	17,498,212	2,025,113	24,197,199	3,082,825
2001	6,235,788	952,820	19,144,159	2,085,127	25,379,947	3,037,947
2002	5,999,275	658,091	18,219,143	1,973,171	24,218,418	2,631,262
2003	7,072,686	874,817	24,771,639	2,545,052	31,844,325	3,419,869
2004	7,320,357	913,160	29,184,709	2,550,747	36,505,066	3,463,907
2005	7,134,538	973,572	30,222,991	2,441,938	37,357,529	3,415,510
2006	6,783,628	1,054,664	31,044,414	2,788,125	37,828,042	3,842,789
2007	7,050,692	1,023,358	26,994,977	2,523,500	34,045,669	3,546,859
2008	7,188,715	1,010,955	30,595,742	2,466,018	37,784,457	3,476,973
2009	7,215,818	1,043,512	22,937,526	2,040,680	30,153,344	3,084,191
2010	6,979,612	1,030,938	22,994,782	1,986,415	29,974,394	3,017,353
2011	6,783,239	931,570	27,235,091	2,230,256	34,018,330	3,161,826
2012	6,514,238	839,540	19,269,083	1,545,614	25,783,321	2,385,154
2013	5,816,204	765,797	26,411,290	2,120,768	32,227,494	2,886,565
2014	5,937,662	766,610	24,062,167	1,782,868	29,999,829	2,549,478
2015	4,820,489	620,034	18,184,192	1,338,080	23,004,681	1,958,114
2016	4,818,212	614,469	19,879,730	1,524,474	24,697,425	2,138,943
3 yr avg	**5,192,121**	**668,119**	**20,708,696**	**1,550,559**	**25,900,645**	**2,218,678**
10 yr avg	**6,312,488**	**864,962**	**23,856,458**	**1,959,688**	**30,168,894**	**2,824,650**

Table 2. Commercial harvest (pounds) of Atlantic striped bass by state, 1990-2015. Source: ACCSP, 2016 estimates queried July 28, 2017. Previous year's estimates may differ from ACCSP due to routine updates. Commercial harvest and sale prohibited in ME, NH, CT, and NJ. * includes fish taken for personal consumption. ^ North Carolina estimates are from the Atlantic Ocean only.

Year	ME	NH	MA*	RI	CT	NY	NJ	DE	MD	PRFC	VA	NC^	Total
1990			148,000	4,000		81,870		6,509	2,887	169,060	267,735	9,797	689,858
1991			235,000	28,000		105,163		21,079	191,066	216,755	668,454	6,186	1,471,703
1992			239,200	39,000		226,611		17,795	552,451	127,398	204,338	27,702	1,434,495
1993			262,600	40,000		109,362		28,032	916,764	142,742	213,665	36,463	1,749,628
1994			199,600	39,810		171,279		33,897	884,970	149,891	204,124	92,605	1,776,176
1995			782,000	113,461		500,784		38,198	856,568	198,478	557,741	343,707	3,390,937
1996			696,815	122,562		504,350		117,560	1,523,293	346,834		55,771	3,367,185
1997			785,942	96,519		460,762		165,978	2,030,061	731,114	1,153,743	458,524	5,882,643
1998			822,000	94,663		484,900		163,169	2,368,393	726,179	1,476,502	308,068	6,443,874
1999			788,171	119,679		491,790		187,096	2,377,393	653,266	1,538,220	389,454	6,545,069
2000			779,736	111,812		542,659		140,634	2,411,554	666,001	1,883,856	162,736	6,698,988
2001			815,054	129,654		633,095		198,802	1,774,758	658,676	1,675,469	350,280	6,235,788
2002			924,870	129,172		518,573		160,560	1,852,634	521,048	1,592,910	299,508	5,999,275
2003			1,055,439	246,312		753,261		188,419	1,813,727	676,574	1,856,831	482,123	7,072,686
2004			1,206,305	245,204		741,668		181,974	1,899,539	772,333	1,668,307	604,824	7,320,154
2005			1,104,737	242,303		689,821		173,815	2,055,558	533,456	1,746,247	588,601	7,134,538
2006			1,312,168	238,797		688,446		185,987	2,207,350	673,508	1,413,914	63,458	6,783,628
2007			1,040,328	240,627		729,743		188,668	2,336,886	599,261	1,534,799	380,380	7,050,692
2008			1,160,122	245,988		653,100		188,719	2,326,023	611,789	1,714,564	288,410	7,188,715
2009			1,138,291	234,368		789,891		192,311	2,394,620	727,197	1,549,145	189,995	7,215,818
2010			1,224,356	249,520		782,402		185,410	2,150,577	680,496	1,434,219	272,632	6,979,612
2011			1,163,865	228,163		854,731		188,620	1,976,473	694,151	1,434,636	242,600	6,783,239
2012			1,219,665	239,913		681,399		194,324	1,928,982	733,789	1,509,940	6,226	6,514,238
2013			1,004,459	231,280		823,801		191,424	1,755,712	623,792	1,185,736	0	5,816,204
2014			1,138,507	217,037		531,456		167,902	1,926,612	603,068	1,353,080	0	5,937,622
2015			865,753	188,475		509,135		144,068	1,471,493	536,357	1,105,208	0	4,820,489
2016			938,740	174,701		560,803		136,536	1,465,317	500,602	1,041,513	0	4,817,695

Table 3. Commercial harvest (numbers) of Atlantic striped bass by state and annual dead discard estimates, 1990-2016. Source: ACCSP, 2016 estimates queried July 28, 2017. Previous year's estimates may differ from ACCSP due to routine updates. Commercial harvest and sale prohibited in ME, NH, CT, and NJ. * includes fish taken for personal consumption. ^ North Carolina estimates are from the Atlantic Ocean only.

Year	ME	NH	MA*	RI	CT	NY	NJ	DE	MD	PRFC	VA	NC^	Total	Commercial Discards
1990			5,927	784		11,784		698	534	38,884	56,222	803	115,636	510,011
1991			9,901	3,596		15,426		3,091	31,880	44,521	44,970	413	153,798	327,167
1992			11,532	9,095		20,150		2,703	119,286	23,291	42,912	1,745	230,714	186,601
1993			13,099	6,294		11,181		4,273	211,089	24,451	39,059	3,414	312,860	347,839
1994			11,066	4,512		15,212		4,886	208,914	25,196	32,382	5,275	307,443	359,518
1995			44,965	19,722		43,704		5,565	280,051	29,308	88,274	23,325	534,914	515,454
1996			38,354	18,570		39,707		20,660	415,272	46,309	184,495	3,151	766,518	394,824
1997			44,841	7,061		37,852		33,223	706,847	87,643	165,583	25,562	1,108,612	216,745
1998			43,315	8,835		45,149		31,386	790,154	93,299	204,911	16,040	1,233,089	326,032
1999			40,838	11,559		49,795		34,841	650,022	90,575	205,143	21,040	1,103,812	236,619
2000			40,256	9,418		54,894		25,188	627,777	91,471	202,227	6,480	1,057,712	666,997
2001			40,248	10,917		58,296		34,373	549,896	87,809	148,346	22,936	952,820	310,900
2002			48,926	11,653		47,142		30,440	296,635	80,300	127,211	15,784	658,091	168,201
2003			61,262	15,497		68,354		31,531	439,482	83,091	161,777	13,823	874,817	261,974
2004			66,556	15,867		70,367		28,406	461,064	91,888	147,998	31,014	913,160	465,642
2005			65,332	14,949		70,560		26,336	569,964	80,615	119,244	26,573	973,572	798,544
2006			75,062	15,429		73,528		30,212	655,951	92,288	109,396	2,799	1,054,664	194,524
2007			57,634	13,934		78,287		31,090	598,495	86,695	140,602	16,621	1,023,358	606,599
2008			65,330	16,616		73,263		31,866	594,655	81,720	134,603	12,903	1,010,955	308,715
2009			63,875	20,725		82,574		21,590	618,076	89,693	138,303	8,675	1,043,512	611,944
2010			65,277	17,256		81,896		19,830	584,554	90,258	159,197	12,670	1,030,938	254,841
2011			63,309	14,344		87,349		20,517	490,969	96,126	148,063	10,814	931,490	617,457
2012			66,394	14,953		66,897		15,738	472,517	90,616	111,891	323	839,329	792,861
2013			62,570	13,825		76,206		17,679	399,118	78,006	117,697	0	765,101	525,581
2014			60,619	10,468		52,903		14,894	370,661	81,429	175,324	0	766,298	931,391
2015			42,250	11,325		44,809		10,990	300,929	69,981	139,750	0	620,034	299,566
2016			48,044	11,693		50,780		17,584	286,092	70,737	129,539	0	614,469	404,815

Table 4. Recreational harvest (numbers) of Atlantic striped bass by state, 1990- 2016. Source: MRIP, 2016 estimates queried August 2, 2017. Previous year's estimates may differ from MRIP due to routine updates. ^ North Carolina estimates are from the Atlantic Ocean only.

Year	ME	NH	MA	RI	CT	NY	NJ^	DE	MD	VA	NC^	Total
1990	2,912	617	20,515	4,677	6,082	24,799	44,878	2,009	736	56,017	0	163,242
1991	3,265	274	20,799	17,193	4,907	54,502	38,300	2,741	77,873	42,224	391	262,469
1992	6,357	2,213	57,084	14,945	9,154	45,162	41,426	2,400	99,354	21,118	967	300,180
1993	612	1,540	58,511	17,826	19,253	78,560	64,935	4,055	104,682	78,481	264	428,719
1994	3,771	3,023	74,538	5,915	16,929	87,225	34,877	4,140	199,378	127,945	7,426	565,167
1995	2,189	3,902	73,806	29,997	38,261	155,821	254,055	15,361	355,237	149,103	11,450	1,089,182
1996	1,893	6,461	68,300	60,074	62,840	225,428	127,952	22,867	337,415	244,746	17,136	1,175,112
1997	35,259	13,546	199,373	62,162	64,639	236,902	67,800	19,706	334,068	518,483	96,189	1,648,127
1998	38,094	5,929	207,952	44,890	64,215	166,868	88,973	18,758	391,824	383,786	45,773	1,457,062
1999	21,102	4,641	126,755	56,320	55,805	195,261	237,010	8,772	263,191	411,873	65,658	1,446,388
2000	62,186	4,262	181,295	95,496	53,191	270,798	402,302	39,543	506,462	389,126	20,452	2,025,113
2001	59,947	15,291	288,032	80,125	54,165	189,714	560,208	41,195	382,557	355,020	58,873	2,085,127
2002	71,907	12,857	308,749	78,190	51,060	202,075	416,455	29,149	282,429	411,248	109,052	1,973,171
2003	57,765	24,878	407,100	115,471	95,983	313,761	391,842	29,522	525,191	455,812	127,727	2,545,052
2004	48,816	8,386	445,745	83,990	102,844	263,096	424,208	25,429	368,682	548,768	230,783	2,550,747
2005	83,617	24,940	340,743	110,490	141,290	376,894	411,532	20,438	533,929	293,161	104,904	2,441,938
2006	75,347	13,521	314,987	75,811	115,214	367,835	509,606	20,159	669,140	547,482	79,023	2,788,125
2007	53,694	6,348	315,409	101,400	118,549	474,062	289,656	8,465	765,169	353,372	37,376	2,523,500
2008	59,152	5,308	377,959	51,191	108,166	685,589	309,411	26,934	415,403	401,155	25,750	2,466,018
2009	62,153	8,587	344,401	71,427	60,876	356,311	283,024	19,539	501,845	326,867	5,650	2,040,680
2010	17,396	5,948	341,045	70,108	92,806	538,374	320,413	16,244	457,898	102,405	23,778	1,986,415
2011	18,105	32,704	255,507	88,635	63,288	674,844	393,194	18,023	445,171	146,603	94,182	2,230,256
2012	11,624	14,498	377,931	61,537	64,573	424,522	168,629	25,399	262,143	134,758	0	1,545,614
2013	23,143	17,657	298,945	218,236	143,373	490,855	345,008	19,520	477,295	118,686	0	2,152,718
2014	20,750	6,415	277,138	103,516	86,763	409,342	225,910	8,774	583,028	67,486	0	1,789,122
2015	4,720	1,828	170,770	39,857	70,522	262,181	284,257	3,101	406,371	94,473	0	1,338,080
2016	10,557	4,325	131,793	58,247	48,830	290,423	271,451	2,442	595,902	110,504	0	1,524,474

Table 5. Recreational harvest (pounds) of Atlantic striped bass by state, 1990-2016. Source: MRIP, 2016 estimates queried August 2, 2017. Previous year's estimates may differ from MRIP due to routine updates. ^ North Carolina estimates are from the Atlantic Ocean only.

Year	ME	NH	MA	RI	CT^	NY	NJ^	DE	MD	VA	NC	Total
1990	60,483	11,363	319,092	73,349	193,011	505,440	588,974	18,115	12,967	443,751	0	2,226,545
1991	58,177	6,731	440,605	496,723	125,309	1,053,589	643,571	25,501	456,954	333,743	3,091	3,643,994
1992	107,693	44,612	972,116	203,109	196,278	921,201	746,343	25,677	613,174	187,852	8,602	4,026,657
1993	11,953	28,115	1,113,446	292,428	400,067	1,575,938	874,296	52,540	794,853	505,742	1,701	5,651,079
1994	66,451	66,017	1,686,049	109,817	355,829	1,974,759	438,080	63,832	1,096,409	870,140	50,503	6,777,886
1995	45,933	67,992	1,504,390	436,058	671,647	3,296,025	3,141,222	175,347	2,057,450	955,822	73,663	12,425,549
1996	44,802	102,271	1,291,706	950,973	915,418	4,809,381	1,736,508	281,481	1,560,389	1,340,414	89,989	13,123,332
1997	185,178	206,904	2,891,970	927,919	920,465	4,449,564	821,784	232,186	1,962,947	2,813,471	301,683	15,714,071
1998	178,584	114,342	2,973,456	671,841	989,923	2,318,291	1,333,329	236,926	1,908,344	1,581,560	150,626	12,457,222
1999	98,623	84,255	1,822,818	886,666	824,031	3,171,344	3,342,372	100,541	1,137,940	1,741,857	268,026	13,478,473
2000	269,325	71,370	2,618,216	1,160,304	515,962	4,050,569	4,286,040	346,905	2,100,854	2,005,721	72,946	17,498,212
2001	290,233	223,072	3,644,561	1,138,974	628,044	2,996,805	5,341,867	382,498	2,072,943	2,140,713	284,449	19,144,159
2002	383,270	152,342	4,304,883	1,192,295	600,482	2,813,596	4,133,678	299,561	1,423,515	2,648,115	267,406	18,219,143
2003	253,910	281,549	5,120,554	1,502,455	1,537,899	4,687,685	4,545,515	303,909	2,975,437	2,789,745	772,981	24,771,639
2004	226,200	98,995	6,112,746	1,386,138	1,617,561	3,727,105	5,548,167	330,623	2,347,752	2,956,310	4,833,112	29,184,709
2005	381,058	281,114	5,097,821	1,732,581	2,173,638	5,537,432	5,958,454	286,777	4,612,417	1,996,840	2,164,859	30,222,991
2006	323,355	179,181	4,832,355	999,300	2,030,878	6,028,409	7,067,533	260,134	3,868,944	3,694,529	1,759,796	31,044,414
2007	232,328	68,142	5,136,580	1,584,354	1,468,499	7,913,817	3,718,451	99,800	3,504,041	2,392,258	876,707	26,994,977
2008	271,768	73,807	5,763,763	751,507	1,868,335	10,925,408	4,696,090	333,149	2,728,048	2,657,976	525,891	30,595,742
2009	329,064	113,705	4,786,895	1,123,434	835,970	5,004,604	4,238,319	275,410	4,278,145	1,791,058	160,922	22,937,526
2010	104,117	67,409	4,270,401	1,096,369	1,259,008	6,997,089	5,382,743	251,853	2,630,802	481,147	453,844	22,994,782
2011	91,705	370,798	3,504,522	1,257,302	758,623	8,969,762	6,197,026	241,149	2,640,309	1,160,914	2,042,981	27,235,091
2012	57,509	163,804	5,489,928	851,460	815,545	6,540,024	2,376,866	360,106	1,260,490	1,353,351	0	19,269,083
2013	102,437	233,039	4,193,416	3,043,251	2,286,969	8,624,422	4,945,069	253,062	2,203,319	526,306	0	26,411,290
2014	100,213	78,310	4,397,183	2,161,265	1,783,224	7,552,788	4,133,460	107,421	3,251,151	497,152	0	24,062,167
2015	63,878	30,614	2,701,724	798,394	1,262,377	4,620,923	5,145,204	34,808	3,095,910	430,360	0	18,184,192
2016	128,324	45,719	2,048,238	1,001,147	799,458	5,188,892	5,476,495	40,602	4,312,637	838,218	0	19,879,730

Table 6. Commercial Discards, Recreational Releases and Recreational Dead Discards (numbers) of Atlantic striped bass by state, 1990-2016. Source: MRIP, 2016 estimates queried August 2, 2017. Previous year's estimates may differ from MRIP due to routine updates. Estimates exclude inshore harvest from the A-R.

Year	Commercial Dead Discards	Recreational Releases (B2)	Recreational ^ Dead Discards	Total Dead Discards	%Com	%Rec
1990	510,011	1,653,594	148,823	658,834	77%	23%
1991	327,167	3,061,047	275,494	602,661	54%	46%
1992	186,601	3,367,397	303,066	489,667	38%	62%
1993	347,839	4,344,569	391,011	738,850	47%	53%
1994	359,518	7,930,839	713,776	1,073,293	33%	67%
1995	515,454	9,743,862	876,948	1,392,401	37%	63%
1996	394,824	12,288,668	1,105,980	1,500,804	26%	74%
1997	216,745	15,718,341	1,414,651	1,631,396	13%	87%
1998	326,032	14,928,367	1,343,553	1,669,585	20%	80%
1999	236,619	12,514,721	1,126,325	1,362,944	17%	83%
2000	666,997	16,808,809	1,512,793	2,179,790	31%	69%
2001	310,900	13,444,497	1,210,005	1,520,905	20%	80%
2002	168,201	13,693,056	1,232,375	1,400,577	12%	88%
2003	261,974	14,611,333	1,315,020	1,576,994	17%	83%
2004	465,642	17,053,333	1,534,800	2,000,442	23%	77%
2005	798,544	18,078,899	1,627,101	2,425,645	33%	67%
2006	194,524	23,343,299	2,100,897	2,295,421	8%	92%
2007	606,599	16,110,023	1,449,902	2,056,501	29%	71%
2008	308,715	12,510,987	1,125,989	1,434,704	22%	78%
2009	611,944	7,970,813	717,373	1,329,317	46%	54%
2010	254,841	6,258,081	563,227	818,068	31%	69%
2011	617,457	5,932,480	533,923	1,151,380	54%	46%
2012	792,861	5,191,891	467,270	1,260,131	63%	37%
2013	525,581	8,539,986	768,599	1,294,180	41%	59%
2014	931,391	7,282,547	655,429	1,586,820	59%	41%
2015	299,566	8,397,456	755,771	1,055,337	28%	72%
2016	404,815	11,503,542	1,035,319	1,440,134	28%	72%
3 yr avg	**545,257**	**9,061,182**	**815,506**	**1,360,764**	**38%**	**62%**
10 yr avg	**535,377**	**8,969,781**	**807,280**	**1,342,657**	**40%**	**60%**

^ Dead discards are estimated by multiplying the number of released fish by a mortality rate of 9%.

Table 7. Commercial Quotas, Harvests, Overages, and Adjusted Quotas (in pounds)

Source: ACCSP, queried July 28, 2017.

Atlantic Coast					
State	**Add IV Quota†**	**2016 Quota**	**2016 harvest**	**overage**	**2017 Quota**
Maine *	188	188	-		188
New Hampshire *	4,313	4,313	-		4,313
Massachusetts	869,813	869,813	938,740	68,927	800,886
Rhode Island	182,719	174,669	174,701	32	181,540
Connecticut **	17,813	17,813	-		17,813
New York	795,795	795,795	560,803		795,795
New Jersey **	241,313	241,313	-		241,313
Delaware	145,085	145,085	136,536		145,085
Maryland	98,670	90,727	32,636		90,727
Virginia	138,640	138,640	139,229	589	138,051
North Carolina ^	360,360	360,360	0		360,360
Coastal Total	**2,854,706**	**2,838,715**	**1,982,645**	**69,548**	**2,776,070**
Chesapeake Bay					
Jurisdiction	**Add IV Quota**	**2016 Quota**	**2016 harvest**	**overage**	**2017 Quota**
Maryland	1,471,888	1,471,888	1,432,681		1,471,888
Virginia	1,064,997	1,064,997	902,284		1,064,997
PRFC	583,362	583,362	500,602		583,362
Chesapeake Bay Total	**3,120,247**	**3,120,247**	**2,835,567**		**3,120,247**
Total Commercial	**5,974,953**	**5,965,864**	**4,818,212**		**5,896,317**

* Commercial harvest/sale prohibited, with no re-allocation of quota.

** Commercial harvest/sale prohibited, with re-allocation of quota to the recreational fishery.

^ North Carolina estimates are from the Atlantic Ocean only.

† 25% reduction from Amendment 6 quota allocations. Quota reduced through conservation equivalency for MD (90,727 lbs) and RI (181,572 lbs)

Table 8. Summary of Atlantic Striped bass commercial regulations in 2016. Source: Annual State Compliance Reports. Minimum sizes and slot size limits are in total length (TL). *commercial quota reallocated to recreational bonus fish program

STATE	SIZE LIMITS	SEASONAL QUOTA	OPEN SEASON
ME	Commercial fishing prohibited		
NH	Commercial fishing prohibited		
MA	34" minimum size	869,813 lbs. Hook & line only	6.23 until quota reached, Monday and Thursdays only; 15 fish/day with commercial boat permit; 2 fish/day with rod and reel permit (striped bass endorsement required for both permits)
RI	Floating fish trap: 26" minimum size General category (mostly rod & reel): 34" min.	Total: 181,572 lbs., split 39:61 between the trap and general category. Gill netting prohibited.	Trap: 4.1 – 12.31, or until quota reached; unlimited possession limit until quota reached General Category: 5.29-8.31, 9.8-12.31, or until quota reached. Closed Fridays and Saturdays during both seasons. 5 fish/vessel/day possession limit.
CT*	Commercial fishing prohibited; bonus program: 22 – <28" slot size limit, 5.1 – 12.31 (voucher required)		
NY	28-38" minimum size (Hudson River closed to commercial harvest)	795,795 lb. Pound nets, gill nets (6-8"stretched mesh), hook & line.	6.1 – 12.15, or until quota reached. Limited entry permit only.
NJ*	Commercial fishing prohibited; bonus program: 1 fish at 24 – <28" slot size limit, 5.1 – 12.31 (permit required)		
PA	Commercial fishing prohibited		
DE	Gillnet: 20" min in DE Bay/River during spring season. 28" in all other waters/seasons. Hook and Line: 28" min	Gillnet: 137,831 lbs. Hook and line: 14,509 lbs.	Gillnet: 2.15-5.31 (2.15-3.30 for Nanticoke River) & 11.15-12.31; drift nets only 2.15-28 & 5.1-31; no fixed nets in DE River. No trip limit. Hook and Line: 4.1–12.31, 200 lbs/day trip limit

(Table 8 continued – Summary of commercial regulations in 2016)

STATE	SIZE LIMITS	SEASONAL QUOTA	OPEN SEASON
MD	Bay and Rivers: 18–36” Ocean: 24” minimum	Bay and River: 1,471,888 lbs. (part of Bay-wide quota). Gear specific quotas and landing limits. Ocean: 90,727 lbs.	Bay Pound Net: 6.1-12.31, Mon-Sat Bay Haul Seine: 6.1-12.30, Mon-Fri Bay Hook & Line: 6.1-12.29, Mon-Thu Bay Drift Gill Net: 1.1-2.29, 12.1-12.31, Mon-Thu Ocean: 1.1-5.31, 10.1-12.31, Mon- Fri
PRFC	18” min all year; 36” max 2.15–3.25 (1.1-3.1 for H&L fisheries)	583,362 lbs (part of Bay-wide quota). Allocated by gear and season.	Hook & line: 1.1-3.1, 6.1-12.31 Pound Net & Other: 2.15-3.25, 6.1-12.15 Gill Net: 1.1-3.25, 11.9-12.31 Misc. Gear: 2.15-3.25, 6.1-12.15
DC	Commercial fishing prohibited		
VA	Bay and Rivers: 18” min, and 28” max size limit 3.26–6.15 Ocean: 28” min	Bay and Rivers: 1,064,997 lbs Ocean: 138,640 lbs. (ITQ- system for both areas)	Bay and Rivers: 1.16-12.31 Ocean: 1.16-12.31
NC	Ocean: 28”	360,360 lbs. (split between gear types). Number of fish allocated to each permit holder. Allocation varies by permit.	Seine fishery was open for 120 days, 150 fish/permit Gill net fisher was open for 45 days, 50 fish/permit Trawl fishery was open for 70 days, 100 fish/permit

Table 9. Summary of Atlantic Striped bass <u>recreational</u> regulations in 2016. Source: Annual State Compliance Reports. Minimum sizes and slot size limits are in total length (TL).

STATE	SIZE LIMITS	BAG LIMIT	GEAR RESTRICTIONS	OPEN SEASONS
ME	≥ 28" minimum size	1 fish/day	Hook & line only; circle hooks only when using live bait	All year, except spawning areas are closed 12.1 – 4.30 and catch and release only 5.1 – 6.30
NH	≥ 28" minimum size	1 fish/day	Gaffing and culling prohibited	All year
MA	≥ 28" minimum size	1 fish/day	Hook & line only; no high-grading	All year
RI	≥ 28" minimum size	1 fish/day	None	All year
CT	≥ 28" minimum size	1 fish/day	Spearing and gaffing prohibited	All year
NY	Ocean and Delaware River: 28" minimum size Hudson River: 18-28" slot limit, or ≥40"	1 fish/day	Angling only. Spearing permitted in ocean waters. Catch and release only during closed season.	Ocean: 4.15 – 12.15 Hudson River: 4.1 – 11.30 Delaware River: All year
NJ	1 fish at 28 to < 43", and 1 fish ≥ 43"			Closed 1.1 – 2.28 in all waters except in the Atlantic Ocean, and 4.1 – 5.31 in the lower Delaware River and tributaries (spawning ground closure)
PA	Upstream from Calhoun St Bridge: 1 fish at ≥ 28" minimum size Downstream from Calhoun St Bridge: 1 fish at ≥ 28" minimum size, from 4.1 – 5.31, a 2 fish at 21-25" slot size limit			
DE	28" min, no harvest 38-43" (inclusive). In Del. River, Bay & tributaries, may only harvest 20-25"slot from 7.1-8.31	2 fish/day	Hook & line, spear (for divers) only. Circle hooks required in spawning season.	All year except 4.1-5.31 in spawning grounds (catch & release allowed).

(Table 9 continued – Summary of recreational regulations in 2016)

STATE	SIZE LIMITS	BAG LIMIT	OTHER	OPEN SEASON
MD	Ocean: 28” min^ Bay Trophy: 28 to ≤36” slot, OR ≥40” Bay Summer/Fall: (2) 20-28” slot OR (1) 20-28” slot, (1) > 28” minimum size	Ocean: 1 fish/day Bay Trophy: 1 fish/day Bay Summer/Fall: 2 fish/day	See compliance report for specifics.	Ocean: All year Bay SF: 1.1-5.3 Bay Spring (C&R): 3.1-4.15 Bay Trophy: 4.16-5.15 Bay Summer/Fall: 5.16-12.20
PRFC	Spring Trophy: 35” minimum size limit Summer/Fall: 20” min with 1 fish >28”	Trophy: 1 fish Summer/Fall: 2 fish	No more than two hooks or sets of hooks for each rod or line	Spring Trophy: 4.16 -5.15 Summer/Fall: 5.16-12.31
DC	2 fish at ≥ 20” minimum, only one fish >28”		Hook & line only	5.16-12.31
VA	Ocean: 28” Bay/Coastal Trophy: 36” min (28” max in tribs) CB Spring: 20-28”; only 1 fish can be >36” CB Spring: 20-28”; only 1 fish can be >28”	Ocean: 1 fish/day Bay/Coast Trophy: 1 fish/day Bay Spring/Fall: 2 fish/day	Hook & line, rod & reel, hand line only. Gaffing is illegal in Virginia marine waters.	Ocean: 1.1-3.31, 5.16-12.31 Bay/Tribs Trophy: 5.1-6.15 Coastal Trophy: 5.1-5.15 Bay Spring: 5.16-6.15 Bay Fall: 10.4-12.31
NC	Ocean: 28” min size	Ocean: 1 fish/day	No gaffing allowed.	Ocean: All year

^ 2 fish at 28-38” slot size limit, or >44”, effective June 1

Table 10. Status of Commercial Tagging Programs by state for 2016.

State	Number of Participants	Number of Tags Issued	Number of Tags Used	Point of Tag (sale/harvest)	[1]Biological Metric (Y/N)	Year, State and Unique ID on Tag (Y/N)	Size Limit on Tag (Y/N)	Number of Tag Colors and Tag Color by Gear, season, or area	Annual Tag Color Change (Y/N)
MA	110	65,120	48,044	Sale	Y	Y	Y	one tag color	Y
RI	30	14,290	11,617	Sale	Y	Y	N	two tag colors by gear	Y
NY	437	70,400	49,326	Harvest	Y	Y	N	One tag color	Y
DE*	111 (gill net) 117 (H&L)	41,615	17,584	Both	Y	Y	N	Harvest: two tag colors by gear Sale: one tag color	Y
MD	1052	460,610	328,495	Harvest	Y	Y	N	Three tag colors by gear and permit	Y
PRFC	350	77,585	70,737	Harvest	Y	Y	N	Five tag colors by gear	N
VA	405	153,500	139,750	Harvest	Y	Y	Y	two tag colors by area	Y
NC	92	40,486	29,706	Sale	Y	Y	Y	Three tag colors by area	N

[1] States are required to allocate commercial tags to permit holders based on a biological metric. Most states used the average weight per fish from the previous year, or some variation thereof. Actual biological metric used is to be included in State Annual Commercial Tag Reports.

* the number of tags issued represent the combined total from tags used by harvesters and weigh stations, such that each fish has two tags

Table 11. Status of compliance with monitoring and reporting requirements in 2016. JAI = juvenile abundance index survey, SSB = spawning stock biomass survey, tag = participation in coastwide tagging program, Y = compliance standards met, N = compliance standards not met, NA = not applicable, R = recreational, C = commercial

Jurisdiction	Fishery-independent monitoring		Fishery-dependent monitoring		Annual reporting
	Requirement(s)	Status	Requirement(s)	Status	Status
ME	JAI	Y	composition, catch and effort (R)	NA	Y
NH	NA	NA	composition, catch and effort (R)	NA	Y
MA	tag	Y	composition, catch & effort (C&R), tag program	Y	Y
RI	NA	NA	composition (C&R), catch & effort (R), tag program	Y	Y
CT	NA	NA	composition, catch & effort (R)	Y	Y
NY	JAI, SSB, tag	Y	composition, catch & effort (C&R), tag program	Y	Y
NJ	JAI, tag	Y	composition, catch & effort (R)	Y	Y
PA	SSB	Y	composition, catch and effort (R)	NA	Y
DE	SSB, tag	Y	composition, catch & effort (C), tag program	Y	Y
MD	JAI, SSB, tag	Y	composition, catch & effort (C&R), tag program	Y	Y
PRFC	NA	NA	composition, catch & effort (C&R), tag program	Y	Y
DC	NA	NA	composition, catch and effort (R)	NA	Y
VA	JAI, SSB, tag	Y	composition, catch & effort (C&R), tag program	Y	Y
NC	JAI, SSB, tag	Y	composition, catch & effort (C&R), tag program	Y	Y

X. Figures

Figure 1. Atlantic striped bass spawning stock biomass (SSB) and recruitment estimates (age-1 fish), and biological reference points, 1982-2015. Source: 2016 Stock Assessment Update

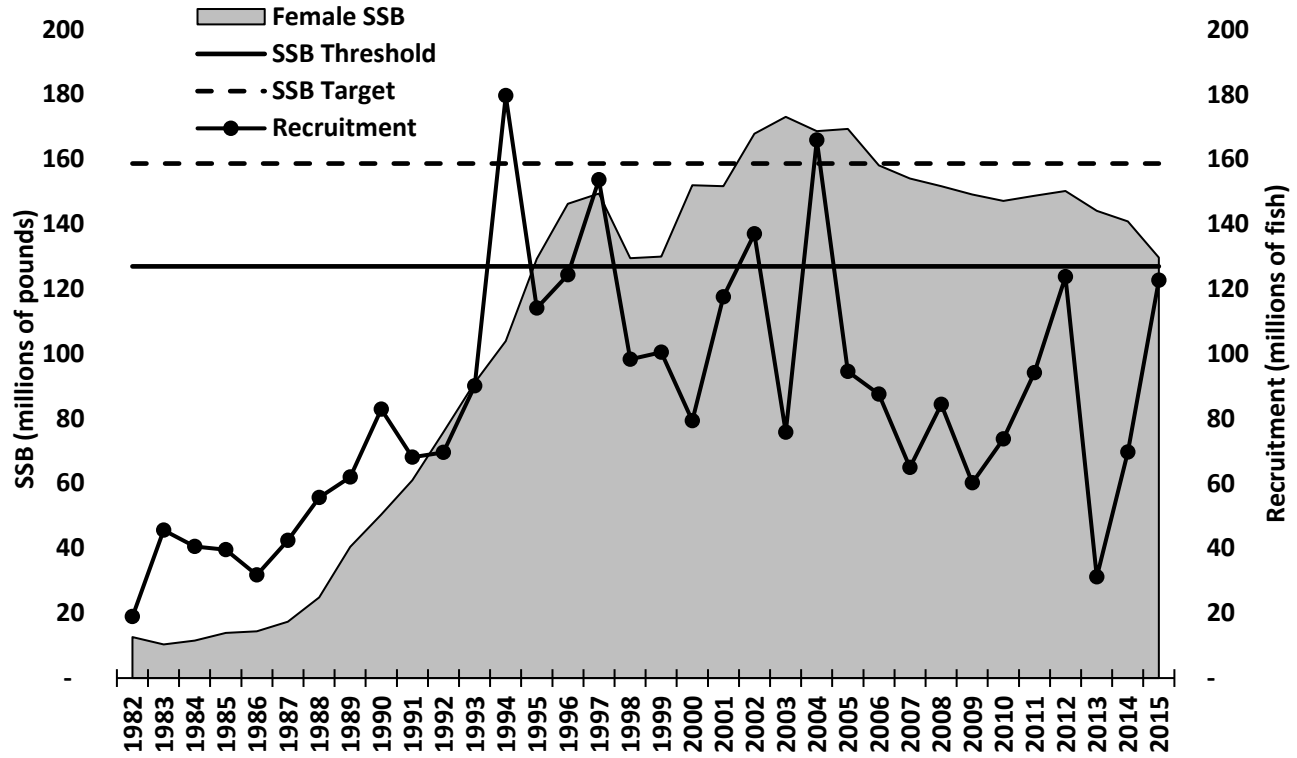


Figure 2. Atlantic striped bass fishing mortality rate (F) estimates, and biological reference points, 1983-2015. Source: 2016 Stock Assessment Update

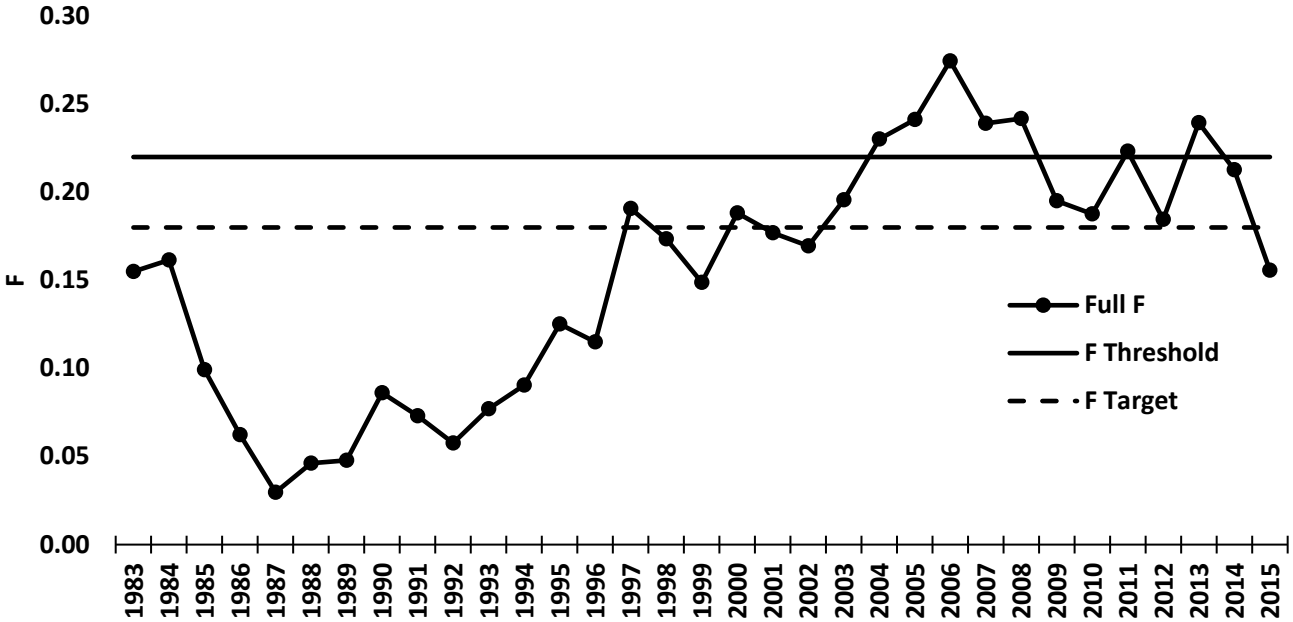


Figure 3. Albemarle/Roanoke striped bass female spawning stock biomass and recruitment (abundance of age-1), and biological reference points, 1982-2014. Source: Stock Status of Albemarle Sound-Roanoke River Striped bass, 2016

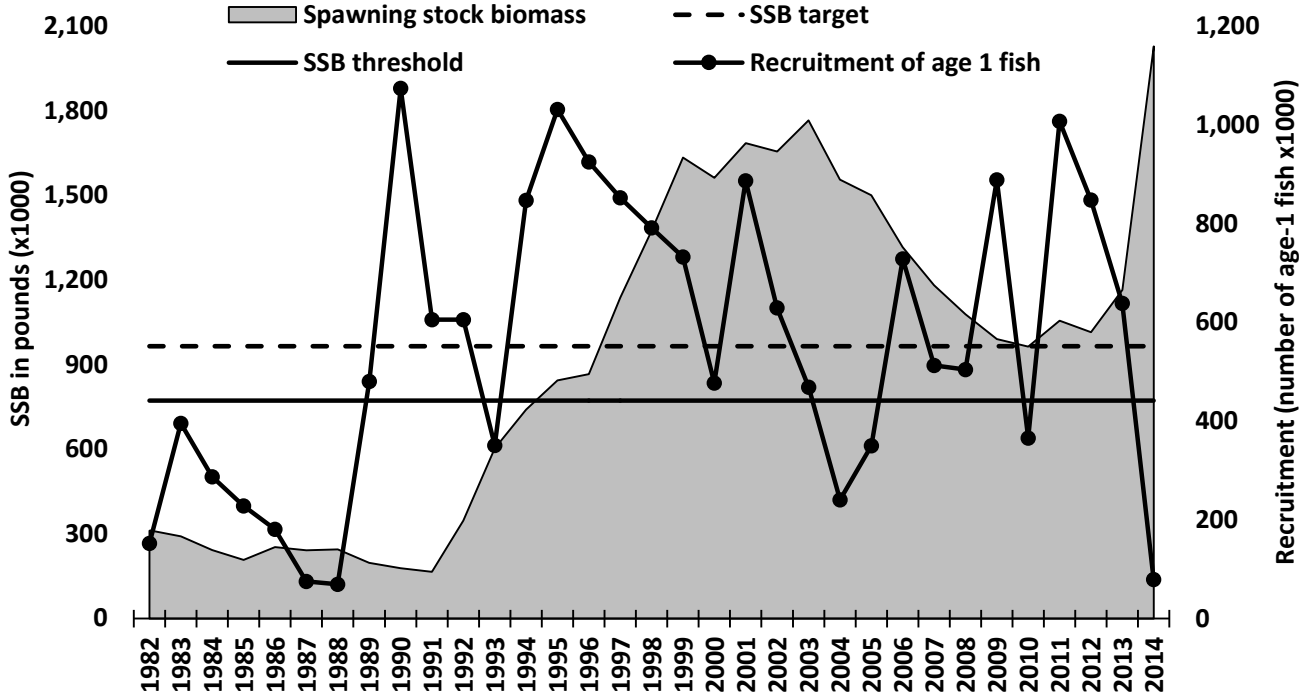


Figure 4. Albemarle-Roanoke striped bass fishing mortality (F) estimates, and biological reference points, 1982-2014. Source: Stock Status of Albemarle Sound-Roanoke River Striped bass, 2016.

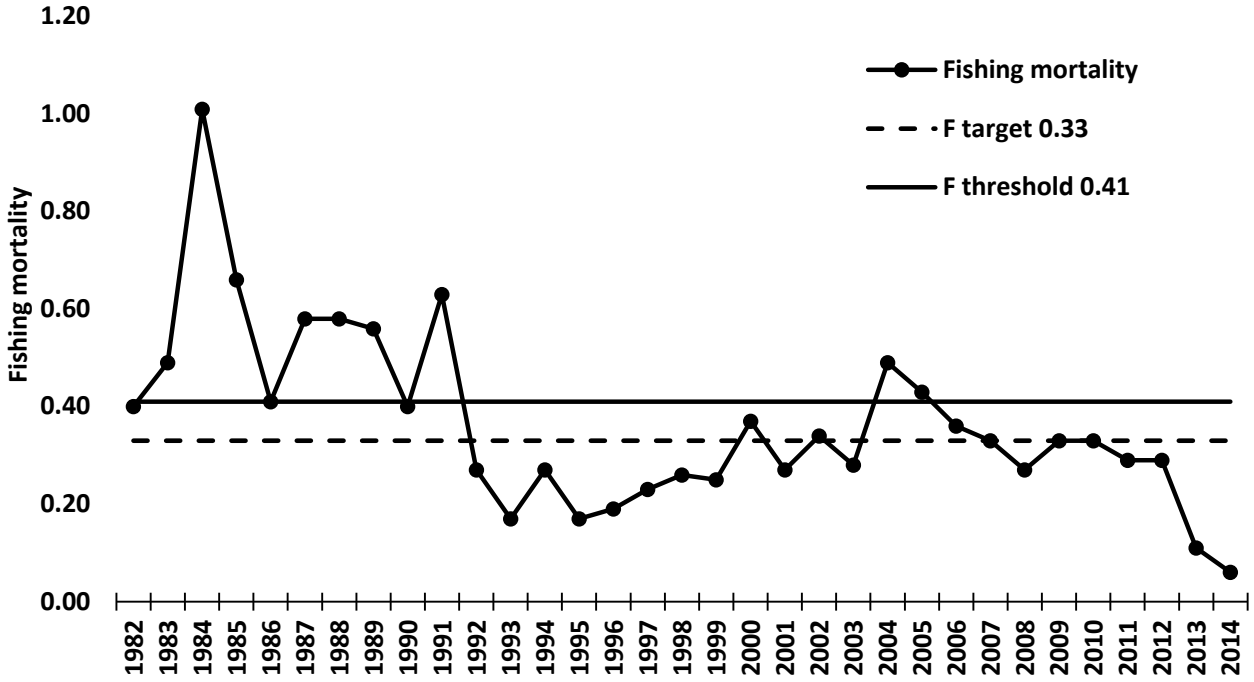


Figure 5. Total removals in millions of fish by sector, 1982-2016. Source: MRIP and ACCSP, 2016 estimates queried August 2 and July 28, 2017, respectively. Previous year's estimates may differ from MRIP due to routine updates. Estimates exclude inshore harvest from the A-R.

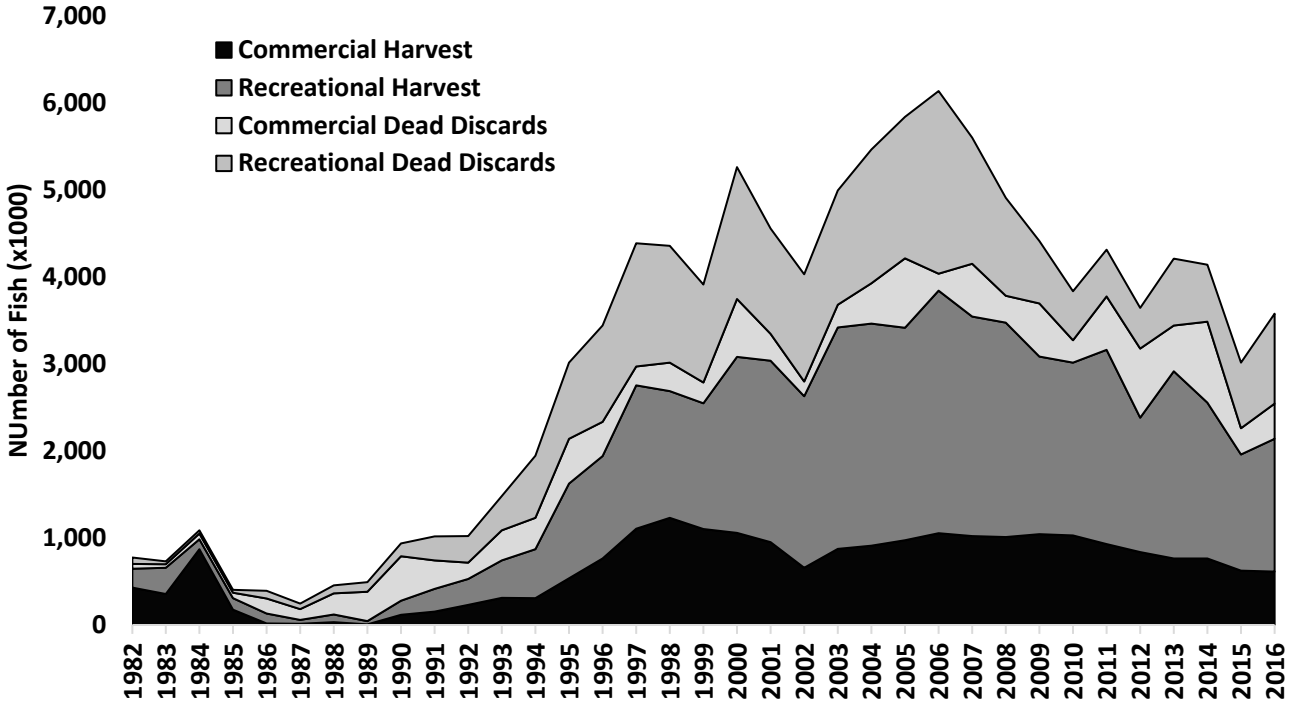


Figure 6. Commercial landings, in pounds, of migratory Striped bass, by state, 1990-2015.

Source: ACCSP, 2016 estimates queried July 28, 2017. Previous year's estimates may differ from ACCSP due to routine updates. Commercial harvest and sale prohibited in ME, NH, CT, and NJ. * includes fish taken for personal consumption. NC is ocean only.

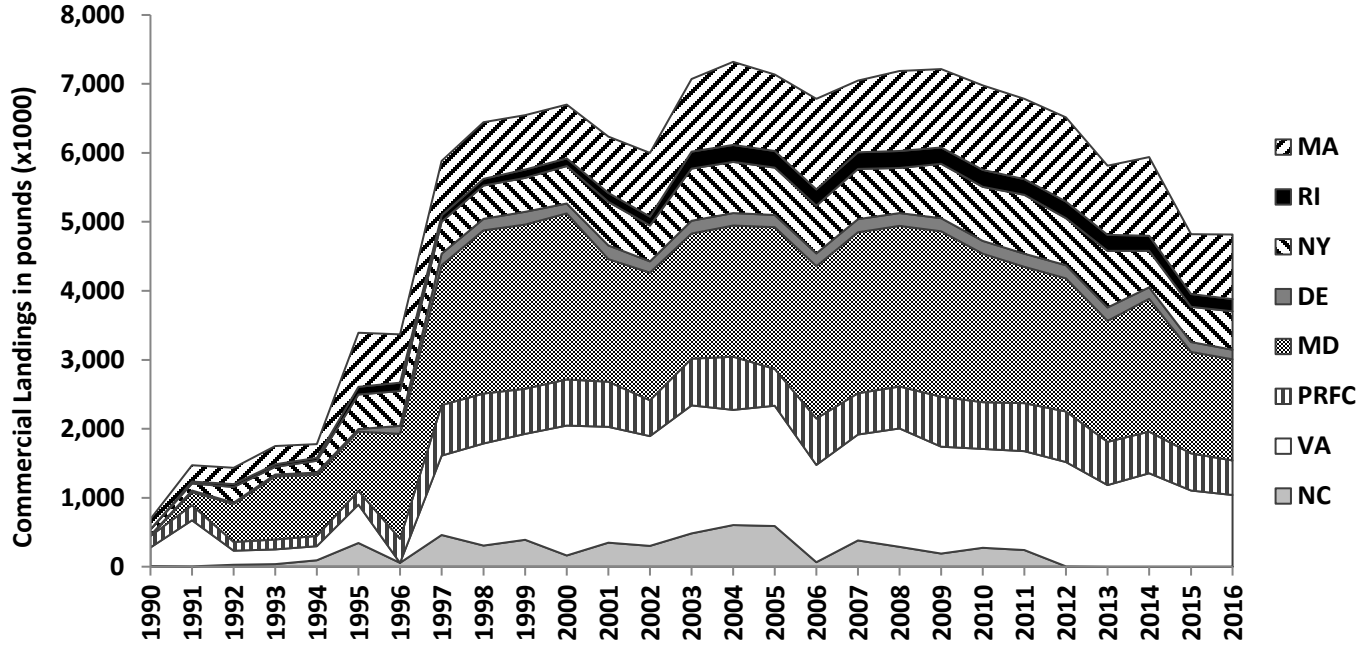


Figure 7. Recreational catch (A + B1 + B2), harvest (A + B1) and the proportion of fish released, 1982- 2015. Source: Marine Recreational Information Program (MRIP) queried June 26, 2016. Estimates may differ from MRIP depending on date queried.

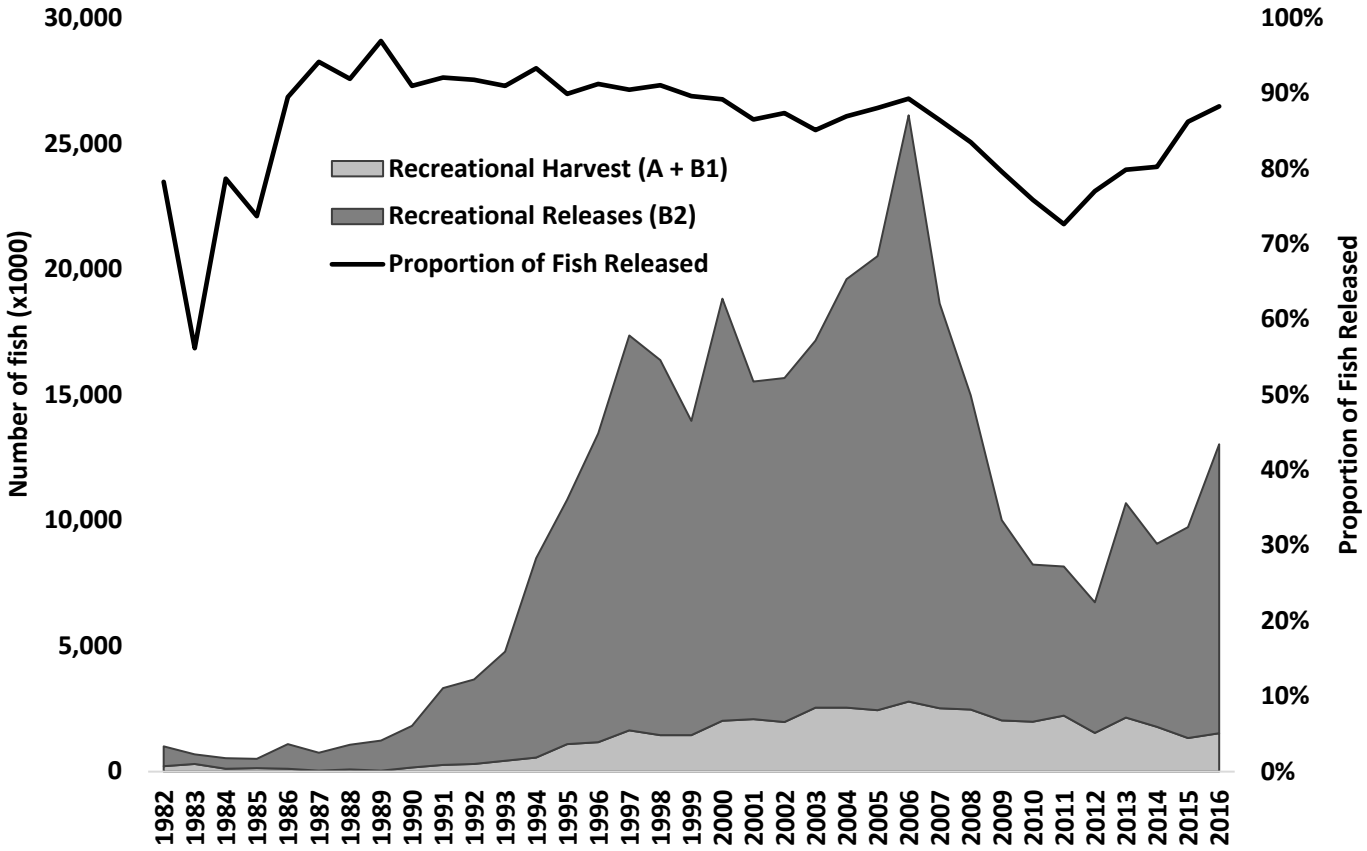


Figure 8. Juvenile abundance index analysis for Maine, New York, Jew Jersey, Maryland, Virginia, and North Carolina. Source: Annual State Compliance Reports. Q1 = first quartile, which is the value that is below 75% of all values in a specified time series. An open bar in the last three years indicates a value below the Q1 threshold.