DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

ATLANTIC MENHADEN MANAGEMENT BOARD

The Westin Crystal City
Arlington, Virginia
Hybrid Meeting

April 30, 2024

TABLE OF CONTENTS

INDEX OF MOTIONS

ATTENDANCE

Board Members

Megan Ware, ME, proxy for Pat Keliher (AA)
Steve Train, ME (GA)
Rep. Allison Hepler, ME (LA)
Cheri Patterson, NH (AA)
Doug Grout, NH (GA
Sen. David Watters, NH (LA)
Nichola Meserve, MA, proxy for D. McKiernan (AA)
Raymond Kane, MA (GA)
Sara Ferrara, MA, proxy for Rep. Peake (LA)
Conor McManus, RI, proxy for J. McNamee (AA)
David Borden, RI (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Robert LaFrance, CT, proxy for B. Hyatt (GA)
Marty Gary, NY (AA)
Emerson Hasbrouck, NY (GA)
Joe Cimino, NJ (AA)
Jeff Kaelin, NJ (GA)
Adam Nowalsky, NJ (LA)
Kris Kuhn, PA, proxy for T. Schaeffer (AA)
Loren Lustig, PA (GA)
John Clark, DE (AA)
Roy Miller, DE (GA)
Craig Pugh, DE, proxy for Rep. Carson (LA)
Lynn Fegley, MD, AA (Acting)
Russell Dize, MD (GA)
Allison Colden, MD, proxy for Del. Stein (LA)
Pat Geer, VA, proxy for J. Green (AA)
Chris Batsavage, NC, proxy for K. Rawls (AA)
Chris McDonough, SC, proxy for M. Rhodes (GA)
Ben Dyar, SC, proxy for Sen. Cromer (LA)
Doug Haymans, GA (AA)
Spud Woodward, GA (GA)
Jeff Renchen, FL, proxy for Jessica McCawley (AA)
Gary Jennings, FL (GA)
Ron Owens, PRFC
Max Appelman, NMFS
Rick Jacobson, US FWS

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

Ex-Officio Members

Caitlin Craig, Technical Committee Chair

Staff

Bob Beal
Toni Kerns
Tina Berger
Madeline Musante
Lindsey Aubart
Tracey Bauer
James Boyle
Caitlin Starks
Chelsea Tuohy
Emilie Franke
Katie Drew
Kristen Anstead
Jeff Kipp
Jainita Patel
Trevor Scheffel

Guests

Dennis Abbott
Thad Altman
Mike Armstrong, MA DMF
Steve Atkinson, Virginia Saltwater Sportfishing Assn.
Pat Augustine
Linda Barry, NJ DEP
Mel Bell
John Bello, Virginia Saltwater Sportfishing Assn
Joseph Beneventine
Greg Blackler, Maine Elver Fishermans Assn.
Colleen Bouffard, CT DEEP
Michael Bowen, Cornell Uni.
Ingrid Braun-Ricks, PRFC
Olivia Brocklebank
Delayne Brown, NH FGD
Jeff Brunson, SC DNR
Jeffrey Brust, NJ DFW
John Carmichael, SAMFC
Nicole Caudell, MD DNR
Michael Celestino, NJ DEP
Benson Chiles
Matthew Cieri, ME DMR
Haley Clinton, NC DEQ
Brian Collins
Margaret Conroy, DE DNREC
Matt Corbin, MN NRP
Claire Crowley McIntyr, FL FWC

These minutes are draft and subject to approval by the Atlantic Menhaden Management Board.
The Board will review the minutes during its next meeting.

Scott Curatolo-Wagemann, Cornell Cooperative Extension of Suffolk County

Guests (continued)

Caitlyn Czajkowski
Tanya Darden, SC DNR MRRI
Conor Davis, NJ DEP
Montgomery Deihl, Ocean Fleet Services
Taylor Deihl, Ocean Harvesters
Greg DiDomenico
Steve Doctor, MD DNR
C. Dollar, CCA National
Roman Dudus
Phil Edwards, RI DEM
Julie Evans, East Hampton Town Fisheries Advisory Cmte.
Steve Fagan, SMRFO
James Fletcher, Unites National Fisherman's Association
Anthony Friedrich, ASGA
David Frulla
Alexa Galvan, VMRC
Keilin Gamboa-Salazar, SC DNR
Matthew Gates
Shaun Gehan
Lewis Gillingham, VMRC
Angela Giuliano, MD DNR
Berlynna Heres, FL FWC
Jaclyn Higgins, TRCP
Peter Himchak, Omega Protein
Harry Hornick, MD DNR
Jesse Hornstein, NYS DEC
Derrek Hughes, NY DEC
Bill Hyatt, CT (GA)
Todd Janeski, VCU
Mike Jech, NEFSC
TJ Karbowski, Rock & Roll Charters
Amy Karlnoski, Office of NYS Assemblyman Fred W. Thiele, Jr.
Carrie Kennedy, MD DNR
Aaren Kornblutit
Adrienne Kotula
R. Kramer, Wild Oceans
Robert LaCava, MD DNR
Ben Landry, Omega Protein
Laure Lee, US FWS
Nicole Lengyel Costa, RI DMF
Ben Levitan, Earthjustice
Brooke Lowman, VMRC
Michael Luisi, MD DNR
Shanna Madsen, VMRC
John Maniscalco, NYS DEC
Anthony Mastitski, Marine Stewardship Council
Joshua McGilly, VMRC
Daniel McKiernan, MA (AA)
Alexandre Meirhaeghe, NYS DEC
Steve Meyers
Chris Moore, Chesapeake Bay Foundation
Janelle Morano, Cornell Uni.
Molly Morgan-Ogren, RI DEM
Ray Mroch, NOAA
Dale Neal
Jean Nelson
Thomas Newman, North Carolina Fisheries Assn.
Jeff Nichols, MA DMR
Scott Olszewski, RI DEM
Marina Owens, FL FWC
Danielle Palmer, NOAA
Alexis Park, MD DNR
Michael Pirri
Brandon Price, VMRC Marine Police
Jill Ramsey, VMRC
Davis Reed, Chesapeake Legal Alliance
Harry Rickabaugh, MD DNR
Bailey Robertory, Chesapeake Research Consortium
James Rogers
Kevin Rose
Amy Schueller, NOAA
Chris Scott, NYS DEC
Tara Scott, NOAA
Alexei Sharov, MD DNR
David Sikorski
Ethan Simpson, VMRC
Joseph Smith
Somers Smott, VMRC
Blaik St. Amand, CT DEEP
John Sweka, US FWS
Kristen Thiebault, MA DMF
Chad Thomas, NC Marine & Estuary Foundation
Jim Uphoff, MD DNR
Taylor Vavra, Stripers Forever
Tim Wheeler, Bay Journal
Ritchie White
Kelly Whitmore, MA DMR
Lowell Whitney, US FWS
Angel Willey, MD DNR
Travis Williams, NC DEQ
Steven Witthuhn, NY MRAC
Gregory Wojcik, CT DEEP
Rich Wong, DE DNREC
Chris Wright, NOAA
Phil Zalesak
Daniel Zapf, NC DEQ
Renee Zobel, NH FGD

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, via hybrid meeting, in-person and webinar; Tuesday, April 30, 2024, and was called to order at 1:15 p.m. by Chair Conor McManus.

CALL TO ORDER

CHAIR CONOR McMANUS: Good afternoon, everybody. For those of you who do not know me, my name is Conor McManus. I am the Chair for the Atlantic Menhaden Management Board. I would like to call the meeting to order.

APPROVAL OF AGENDA

CHAIR McMANUS: With that being said; we'll move on to our first item, which is Approval of the Agenda. Is there anyone who has comments or revisions to the agenda as written? Seeing no comments or hands, I assume that we can approve with consent.

APPROVAL OF PROCEEDINGS

CHAIR McMANUS: Which will then move us to approval of the meeting summary from October, 2023. Are there any revisions recommended by the Board? Seeing none; then we will consider that approved by consent.

PUBLIC COMMENT

CHAIR McMANUS: Which then brings us to Public Comment. Just by a quick show of hands in person and online, how many folks do we have who are interested in providing public comment?

MS. TONI KERNS: Just to be clear, we see no hands raised right now online. If there is anyone online that wants to make public comment, please make sure you raise your hand now, three minutes.

CHAIR McMANUS: What we'll do now is we'll enter into public comment. I'll look to folks in the room first, and then we'll look to those online for three-minute public comment for items not on the agenda. Remember it's public comment, not a dialogue with the Board, so hopefully looking to obtain your public comments and then the Board is listening. With that I think I'll look to the room first for public comment. Yes, feel free to step to the microphone.

MR. PHIL ZALESAK: All right, Mr. Chairman. My name is Phil Zalesak; I am the spokesman for the Save Our Menhaden Coalition. Striped bass are dependent on menhaden for their survival. The higher the mortality rate of menhaden, the higher the mortality rate of striped bass will be. The current Virginia Atlantic menhaden reduction fishery allocation is 158,000 metric tons. That is three-quarters of a billion fish approved to be removed from the Chesapeake Bay and its entrance, during a period of time of little migration.

That is two-thirds of the total allowable catch for the entire Atlantic coast. This is the very definition of localized depletion. According to NOAA, the recreational harvest of striped bass has declined 72 percent in Maryland/Virginia from 2016 to 2022. During the same period of time, the reduction fishery exceeded its Chesapeake Bay quota by 15,000 metric tons in 2019, which created further foraging pressure on striped bass. Therefore, striped bass are most likely being starved to death, not overfished.

Further, the Maryland Department of Natural Resource's Stripe Bass 2023 Young of the Year Index, is 1.0, well below the long term 11.1. That is five straight years of poor performance. Mr. Chairman, the Coalition recommends that the Board task the Technical Committee to complete the following, no later than August of this year.

First, determine the ecological and economic benefit of ending reduction fishing in Virginia waters. Second, determine the ecological and economic benefits, realized by New Yorkers and ending reduction fishing in their waters. Oh, by the way, the Coalition is comprised of scientists like Dr. Noah Bressman of Salisbury University, thousands of recreational fishermen, the Sierra Club, the Audubon Society, and the Internation Osprey Foundation. I thank you for your time.

CHAIR McMANUS: Thank you for your public comment. Do I have a hand for someone next? Yes, feel free to step to the microphone.

MR. DAVID REED: Good afternoon, my name is David Reed. Fisheries managers for the Virginia Marine Resource Commission recently advised that Commission not to act on a petition for rulemaking. In one breath the fisheries manager positively stated that overfishing and localized depletion is not occurring, and that the petition intentionally misled the Commission to think otherwise.

But immediately following this, Ms. Madsen and others lamented that they simply don't have the data to determine whether localized depletion is occurring in the Bay, so which is it? The fact is, unbalanced the totality of evidence, including the data and modeling in the Atlantic, as well as back of the envelope modeling of local stocks, and also anecdotal data, shows that it is more likely than not that localized depletion is occurring in the Bay and the mouth of the Bay.

With the 2019 Liljestrand and Wilberg study showing minimal communication and disbursement between Atlantic regional populations, this strongly suggests that it is more likely than not that when regional and local populations are depleted, they are not quickly replenished. In this case over 200 million pounds in a single season from the Bay and the mouth of the Bay.

Both Virginia fisheries law and the Magnuson-Stevens Act require not only an ecosystem-based management approach, but a precautionary one. That is inaction until scientific certainty demands a response runs afoul of the legal requirements for fisheries managers and of science itself. Furthermore, a failure to properly acquire the data, the largest and most important estuary in the Atlantic coast is not a justification for inaction.

Lamenting the lack of that data is not a response. This Board should not follow the agenda of any particular stakeholder/staff member, but instead manage the regional fishery to protect the regional estuary, and not to ignore the obvious and enormous difference between managing the Atlantic stock and the Bay stock. The Board made the right decision in 2017 to reduce the Bay cap. It should further reduce the cap unless and until the data is available to determinately show the Bay stock is healthy on an ecosystem basis. Finally, because we have three minutes and not two. Most scientists bristle at both letter conclusions and studies, and potentially skewed analyses interpretations for the purpose of both claims, I get that.

All that said, folks generally don't understand that most research merely shows a strong tendency. This is true of modeling and experimental designs. Statistical significance is not a smoking gun. We today have the opportunity to put all this in perspective. Don't wait for smoking gun science that we all know isn't coming, which virtually no field can produce, without which we simply cannot know anything.

Ecosystem pressures, species pressures could be climate, bacteria, dissolved oxygen and a litany of other drivers, but that is obfuscation with an agenda not to act. Menhaden removal from the system is a substantial and maybe even primary driver of both osprey and striped bass population stress. That we can't know with certainty which one it is, not precluded for consideration for menhaden.

CHAIR McMANUS: Thank you very much for your comments. Yes.

MR. BRIAN COLLINS: Thank you, my name is Brian Collins, I consider myself a concerned citizen and active participant in dialogue on the concerns you've heard about. I've put a few things together that are questions that our informed group has raised, and the answer that we currently have, for your consideration and the ability to clarify. I know this isn't an interactive session.

What does ASMFC and VMRC know about the availability and ecosystem demands from menhaden in the Chesapeake Bay, the largest and most important estuary in the United States?

Reportedly nothing. How does ASMFC set the quota of 112 million pounds, 51,000 metric tons of menhaden in the Bay? By using historical catch data.

How is the quota at the mouth of the Chesapeake Bay of 230 million more pounds related to the Bay quota? It's not. Industrial fishing can remove all menhaden coming and going from the mouth of the Bay, up to another 230 million pounds. How did menhaden quotas adjust for striped bass failure, since the Bay is the nursery for 60 to 80 percent, you know there is different percentages out there, of the east coast stock in the nursery of the Bay for nine years?

We need to feed those fish so that they can supply the east coast supplies. The striped bass regulations this year have no adjustments whatsoever for the quota, to address the striped bass concerns. All the blame was placed on recreational and commercial fishing. How can we get an ecosystem monitoring threshold for menhaden in the Chesapeake Bay, like Rhode Island has for Narragansett Bay? Answer, we need either ASMFC or VMRC to step to the plate and take care of that. Thank you very much for your time.

CHAIR McMANUS: Thank you very much for your comments, is there anybody else in the room, just confirming? Excellent, so now we will be moving to folks online. First online, look to Steve Atkinson, if you can unmute on your end, feel free.

MR. STEVE ATKINSON: Yes, Steve Atkinson, I'm with the Virginia Saltwater Sportfishing Association. I would like to point out that there is some science that is available right now for menhaden that in our view, strongly suggests that a precautionary approach is needed in the Chesapeake Bay, with a significant reduction in the Bay cap.

What I'm referring to is the fact that the industry, last year in particular, was not able to hit their Bay cap or was not able to hit their total allowable catch, in spite of adding an additional harvest shift. That in itself is data. During the first part of the summer, particularly May, June, July, many of the local area bait shops reported having great difficulty finding menhaden for bait.

Their source of menhaden is usually pound netters, and the pound netters simply were not finding menhaden at that part of the season. The osprey research, you're certainly familiar with that. I won't dwell on that. More recently, of course you've heard, we had a promising bill in the General Assembly and from everything I can tell, the industry helped lobby against the bill for the second year in a row.

Once again, there are claims that there is no science to support our concerns, yet the industry apparently is lobbying against these very bills that would give us even more science. Again, therefore I think a precautionary approach is needed, until such time as science can show that it is not causing harm.

I think if we have that hook, we might find that suddenly the industry is much more interested in participating in science. Finally, I have to add, unfortunately the VMRC Board is not capable of doing anything here, and that is largely because the Board is stacked with friends of the menhaden industry. Thank you very much for your time.

CHAIR McMANUS: Thank you for your comments, and we have one last late individual interested in public comment, so we will ask you to unmute, and try to be brief as much as you can. Jim Fletcher.

MR. JAMES FLETCHER: The United National Fishermen's Association for years has said pharmaceutical pesticides and manmade chemicals are the problems for most fisheries. We now know that the PFAS and plastic micro and nano are more of a problem than we realized. Rather than going sport against recreational, why don't we try an enhancement program of spawning trillions of menhaden, and releasing them where the eggs and larvae can grow?

Why not try something different? The situation is, enhancement may be the solution, but the true problem lies with the wastewater that is coming

downstream, and that can be addressed by land applicating all wastewater. Thank you for your time, and hope that somebody listens to the plastic problem and the wastewater problem. Thank you, James Fletcher, United National Fishermen's Association.

CHAIR McMANUS: Thank you for your comments, Jim. With that, that will close out our public comment period for this meeting.

REVIEW REPORT ON ACOUSTIC SURVEY OF OVERWINTERING ATLANTIC MENHADEN OFFSHORE OF NEW JERSEY

CHAIR McMANUS: With that we'll move on to Item 4 on the agenda, which will be Report on and Acoustic Survey of Overwintering Atlantic Menhaden Offshore of New Jersey, presented by Dr. Genny Nesslage. With that, I will pass it to you, Genny.

DR. GENEVIEVE NESSLAGE: Thank you, Chair, and thank you all. Good afternoon; my name is Genny Nesslage. I am now an Associate Research Professor at Chesapeake Biological Lab, and a former member of the Commission family, so it's good to be back and see you all this afternoon. Thank you for letting me have the opportunity to brief you today on a Cooperative Survey that we ran for Atlantic menhaden in the winter of 2022.

This project was highly collaborative, cooperative research done in collaboration between academic and private scientists, industry folks, as well as numerous federal and state partners. There was a large team of folks, including colleagues here at Chesapeake Biological Lab, as well as folks you know well from Virginia Institute of Marine Science, Normandeau working alongside the folks from Lund's Fisheries, our wonderful captain, Stef and Leif Axelsson from the vessel we used for the survey, the F/V Dyrsten.

We were very fortunate to have the feedback and the partnership of the Northeast and Southeast Fisheries Science Centers, as well as New Jersey DEP, all working together on this project. It was such a huge thing to get it done. I just want to extend my thanks to the Commission for your support of this science, as well as the states of Delaware, North Carolina and South Carolina, for providing transfer quota to New Jersey in 2022, to make sure we were able to get this science done, so thank you.

When people hear the phrase menhaden survey, they get very excited. I'm glad they do. I get excited myself, but I just want to tell you a little bit about the very specific goals of this particular survey. This was a project funded by NOAA Fisheries through the Saltonstall-Kennedy Program, with the goal of providing science that promotes sustainable U.S. seafood production and harvesting.

In particular, we started working on this project in response to a need the industry had. There is a winter bait fishery out of New Jersey that operates mostly between January and March. It began in 2014, and they seemed to very easily hit their quota, and they claim that they were seeing a lot more fish out on the water, and were asking for more quota.

But of course, we don't know how many fish are out there. In fact, when I started at the Commission back in 2008, we didn't even think that menhaden were overwintering in that region of the coast. This is really an area where we know very little about their biology, what they're doing up there in the winter, and how many there might actually be off the coast of New Jersey for this particular fishery.

We set out to conduct a hydroacoustic survey of the overwintering menhaden population of offshore of New Jersey, to see basically what the biomass of menhaden might be in that region. Then of course, what is the age, the size, the sex structure, maturity of the fish that we encounter in that study area.

We were partnering with industry on this, and using an industry vessel, and the acoustics onboard, and so one of our other goals was to see how accurate those industry acoustics were, and whether there was potential for future use in additional cooperative research in the future. Then we also

sampled menhaden. The idea was that if we did encounter menhaden, we would age them in the lab and do a thorough aging evaluation study to see what the uncertainty is for these animals that we anticipated would be some of the older fish, given how menhaden tend to stratify by age along the coast. When we set off to start thinking even about this project, it was back in 2015/2016.

When we sat down to design this survey, we realized how difficult it was going to be, because menhaden don't like to play by normal fish rules. They tend to form, as you know, extremely large, very dense schools. But they are very patchily distributed across the seascape, such that if you run a normal acoustic survey, you might not encounter them.

That was a challenge, and in addition we were trying to survey in the winter. While in the summer, as you all know, large schools are near the surface, you can see them from a spotter pilot in the wheelhouse of a large vessel, and you can harvest them with purse seines pretty easily. That is not so in winter.

In winter the school's kind of go subsurface when the water temperature drops. Therefore, you can't use purse seines, you can't see them, how are we going to survey for them? What we did was we spent quite a bit of time with a project funded by the NSF Science Center for Marine Fisheries to design and simulation test a new acoustic survey that was tailored just for Atlantic menhaden, and to try and meet all those challenges I just mentioned.

We published that approach and the simulation study that we did to accompany that in 2020 in fisheries research, and in that same year we also, thanks to you all, had the Technical Committee review that in our implementation plan for the cruise, and they provided a lot of great feedback, which we incorporated into our final cruise plan.

That is all, and you can also reference the memo from August of 2020 for that. I'll just briefly touch on why this survey design is a little bit different. You've probably seen other acoustic surveys where folks go out, the scientific crew goes out with a vessel, and they run, transect random lines along a study area.

They are looking with the echo sounder, the down sounder, down underneath the boat, for any biomass of fish that they might cruise over. The problem being of course if we did that, we might not see any menhaden, because they are very densely packed in these tight little schools across the landscape.

What we decided to do was use a combination of the down sounder, that you would normally use for an acoustic survey, along with the omnidirectional sonar that is also on this vessel, looking out in front of and beside the boat. That effectively allowed us to expand our search area out to about 1,600 meters each side of the boat, as opposed to just being underneath the vessel, maybe 30 or 50 meters wide.

If we encountered a fish school within that search area, 1,600 meters each side of the boat, then we included that in our analysis. If we saw schools outside of that range, we noted them. But they were not included in the final biomass estimates, just to maintain statistical rigor with this design. The actual survey area that I keep referencing, I'll show you a map here. Our basic operations were in Cape May, and we were surveying the area about 15 to 50 miles offshore from the southern end of Hudson Canyon down to the Delaware/Maryland, excuse me the New Jersey/Delaware border. You can see here that the area outlined in gray, and then the black lines are the actual transects that we ran.

They were straight line transects, perpendicular to shore. You can see the general area of highest concentration where the state fishery is operating, although they do move into offshore waters farther north and farther south, a lot of the fishing occurs in this region. We utilized the fishing vessel the Dyrsten, which many of you may be familiar with.

It's 160-foot midwater trawling vessel, it's quite large and powerful. We had two experienced

captains onboard, who provided a lot of the knowledge we needed to make the logistics actually work in the timeframe we had. We were very fortunate that our partners were the VIMS survey crew, which are usually onboard the NEAMAP and the CHESMAP surveys.

We had a very experienced scientific Chief Science Officer, as well as the sampling crew, that you would normally have for the other coastal surveys. The vessel is equipped with some of the most advanced industry-grade downsounder and omnidirectional sonar on the market, so we felt that this might be a possible substitute for the scientific-grade sonar that is typically used on science vessels.

But of course, we set off to test that, and I'll talk about that in a moment. One of the ways that we were able to test that is that this vessel was large enough to capture with the midwater trawl net, and then store individual schools of menhaden. What this gave us the ability to do was to collect echosounder sonar data on the schools that we encountered under the vessel as we passed over it, and then compare the biomass that we estimated from the sonar with the actual weigh-out at the dock at Lund's.

They individually pumped out each school from each of the individual tanks, and weighed them individually, so we could do a side-by-side and see how accurate our sonar estimates were. We were delayed one year in implementation because of COVID, but we did finally get on the water in winter of 2022, and we spent about three days actually calibrating the sonar.

When I say we, I should thank Dr. Mike Jech and the VIMS crew. Mike Jech is acoustic expert at the Northeast Fisheries Science Center, came down and spent his weekend helping us calibrate the sonar equipment onboard, so that we would have that for post processing. The actual design-based survey was conducted from Valentine's Day through about ten days after that.

We had two days that we weren't on the water, because of a severe storm that came in. But otherwise, we were able to proceed pretty regularly. We actually finished a little bit early, and both the industry and academic folks were so excited about what they were doing, that they actually volunteered to go back out with the crew.

What we ended up doing was collecting fishery dependent data with the VIMS sampling crew onboard for an additional week from the end of February through the beginning of March. Then once the VIMS crew had to go back and actually work on their own surveys, we had Lund's Fisheries kindly continue to do additional port sampling, so that we were getting the most out of that particular year, sampling and collecting as much information as we could as part of this project. I am happy to report that we encountered a lot of menhaden. It was very exciting. A lot of this is new data that no one had ever seen before, so I'm happy to share this with you.

We ended up collecting sonar data on over 100 schools of menhaden. Five of them were sampled individually, stored in individual tanks and then weighed at port, so that we could do that comparison that I mentioned before. We also took advantage of the opportunity, while we ere on the water, to collect as much hydrographic data as we could, so we would get a handle on what the ocean conditions were during the survey, both along the transects at regular locations, and also at the locations where we encountered menhaden schools.

The bottom left figure there, just gives you a few example sonograms of echograms of individual menhaden schools. You can see they are extremely large and extremely dense, if you are used to looking at these sorts of images. The red indicates very densely packed large school. The map on the right is our study area, outlined in black, and the dashed lines are the transects.

The black dots are the locations of the individual schools of menhaden that we encountered during the survey, and then the red triangles are schools that we encountered when the VIMS crew was

onboard with the fishing vessel, while they were doing normal fishing operations.

Now the one hiccup we had, and there is always a hiccup when you do real field research, is that about half way through our survey, we noticed that suddenly overnight, the menhaden changed their behavior, and they were no longer forming these incredibly big, dense schools near the middle or bottom of the water column.

They were suddenly dispersed as tiny schools near the surface. We could see them in the wheelhouse, but it was really difficult to get over them and actually collect sonar information on them. After much consternation and consultation with oceanographers later, when we got back to port, we discovered that a warm core eddy had moved into the region, and it pushed a big ball of warm saline water up into our study area, right in the middle of our survey, which changed the behavior of menhaden, which we had no idea actually occurred.

The fishermen had said, oh yes, we've seen that before. But they didn't know why they did it. It just suddenly happened. Well, now we know why, and we'll know in the future when we go to survey for them again, hopefully someday that we will monitor those warm eddy mass to make sure we go out in the water at the right time.

But what you can see on the bottom left is a graph of the water temperature, both in the bottom and the surface. The blue bars are the first two transects before that warm core eddy really hit the area, and the red is after. On the graph on the right, is salinity. You can see particularly on the bottom there was a big change, an increase in water temperature and an increase in salinity, about halfway through our survey.

In total though, we were able to catch up to and ensonify and do biological collections on a number of schools, and with that we were able to collect lengths and weights on over 4,000 individual menhaden. Three hundred of those we subsampled, and collected a whole bunch of additional information, including length, weight, but also sex, maturity stage, which was from visual inspection, and then we collected a patch of scales, as well as paired sagittal otoliths. Here we were able to do very extensive paired scale otolith comparison, and do an aging study on them.

I'll just briefly touch on the highlights of our results. The report I provided has all the details for you. But in the bottom left here you can see a plot of the fork length of the individuals that we sampled. The red bars are females and the blue are males, and where they overlap it is purple. You can see that these are much larger animals than we typically encounter in the port samples that make up the majority of the information that goes into the stock assessment.

Our average length of the fish that we encountered was about 270 millimeters, and the average in the reduction fishery is probably about 250 or so, so larger animals, you can see the red bars extend farther to the right. The females therefore tend to be larger than males, which is normal for a fish. But it was exciting to finally see that with menhaden.

On the right you'll see a plot of Beaufort Lab's estimates of the aging, based on scales. You can see there that most of the animals were between ages 3 and 5. We had VIMS and New Jersey DEP age them as well. There wasn't a great agreement among the three labs, but they all agreed that these were primarily ages 3 and 4 fish, which is very different than what we particularly encounter with most of the port samples for the stock assessment, that are mostly ages 1 and 2.

We were encountering large or older fish than we typically see in our sampling programs. A little over half of them were female, but the other big interesting piece of information we were able to gather was that most of these fish were mature, which isn't surprising given their age. But they were currently not spawning, at least most of them.

A small proportion were, but most of them were not spawning. One of the questions that had been raised, or concerns that the Technical Committee had raised earlier on was that, are you going to be

surveying and pestering spawning aggregations. We didn't think that was the case, because we don't in general think that menhaden have spawning aggregations.

The previous work that other folks, including myself has done, looking at ichthyoplankton data indicate that they seem to be spawning pretty continuously up and down the coast, that they don't form spawning aggregations. But this was at least one confirmation, a snapshot in time at least in one area that did not appear to be the case. That was promising.

Then our comparison of the trawl catches to the acoustic estimates of biomass for each school, turned out to be positive as well. Working with industry-grade sonar data is much more labor intensive. We had to do a lot of post processing, compared to scientific-grade sonar, but it's doable. If you look at the graph on the bottom left here, you can see the red bars are the trawl catch made out by Lund's at the dock.

The blue bars are our estimates of biomass for those same exact schools from the acoustic data. They are not exactly the same, you wouldn't expect them to be. But they are close enough that we felt that there is promise in using industry-grade acoustics potentially for future cooperative research. Then of course the big answer everyone wants to know is how many menhaden were out there when we were surveying. What we did was we took the biomass of menhaden encountered in each of those transects, and scaled them up to the entire survey area.

Our estimate ranged from a little less than 8,000 metric tons, which correlated to about 17 million in pounds of menhaden, on the low end, with up to as high as perhaps 11,000 metric tons, which equates to 24 million pounds. That's our estimate for 2022. Just a few notes on that. We think that low end estimate is pretty conservative, because it doesn't account for that effect of the warm core eddy that hit the survey.

Meaning that because we weren't able to actually get estimates of them and their behavior changed the detectability and the catchability, and the survey changed in the middle, and that was a challenge. But we didn't want to try and inflate that too much, so we're most confident in this low-end estimate.

The higher end estimate reflects the spatial modeling that we did to try and account for the effects of that warm core eddy, and the change in water temperature that ensued. It could be as high as that 11,000 metric ton estimate. That being said, that may be an underestimate as well, because we did assume 100 percent catchability in the trawl net, which is likely it's never 100 percent, and we also assume that the sonar was capturing the entire school.

The signal from the entire school, which probably isn't the case either. But we wanted to be conservative, and so these are our estimates, between a little less than 8,000 to 11,000 metric tons. To put that into perspective, the study area biomass that we estimated, is probably only about half of a percent of the Age 1 plus biomass that was estimated in 2022 from the stock assessment itself.

This is a tiny fraction of the coastwide stock. But if you are looking at local management, just for reference, the portion of New Jersey's quota that is allocated the winter trawl fishery is equivalent to about 6 to 9 percent of our estimated study area biomass for 2022. It's a small fraction of what is in New Jersey, but what's in New Jersey in winter is probably a small fraction of the total coastwide biomass.

Just to conclude, I'll wrap up with some of the high points, the takeaway messages from our study, and where we're going next with this. This study is, I think most impactful, in that we finally have fishery independent confirmation that Atlantic menhaden are partial migrants. Some of the stock is staying in the Mid-Atlantic and Southern New England region, based on what we see in the fishery as well.

While the majority may still be going down off of Hatteras, there is an overwintering population of menhaden, and so we are excited to have finally confirmed that with fishery independent data. Again, there is a small portion of the total population that is overwintering off of New Jersey. The estimated study area of biomass was a little less than 8,000 metric tons, and that is large through, compared to the current New Jersey winter trawl quota. But I think the take home message for future research for menhaden would be that we really need to think creatively, and use a nontraditional acoustic survey design, should we continue to do projects like this and surveys for menhaden, or other schooling pelagics like menhaden. If we had run a traditional acoustic design with the budget that we had, we would have said there was no menhaden out there, which we know is simply not true.

If we had used a traditional acoustic design and actually tried to do it at a frequency of number of transects at which we would actually encounter menhaden would be prohibitively expensive. Alternative designs that are simulation tested like ours may be really fruitful in the future, for the future of menhaden research.

Our next steps with this, we have our aging team on the project at Beaufort and VIMS and New Jersey DEP are working to develop best practices for aging these older menhaden that folks don't normally see in the port samples. They are going to try and come to some consensus on how best to handle these types of older fish, using both scales and otoliths for the future.

Then I'm happy to report that Dr. Amy Schueller, who is the lead assessment scientist on the stock assessment, and I, were recently funded, again by the Science Center for Marine Fisheries, to do a comprehensive study of all the available size-at-age information for Atlantic menhaden on the coast, to try and get a better estimate of time varying growth and both length at age and weight at age for potential future use in the stock assessment. With that, I would be happy to answer any questions you might have and the Chair is willing.

CHAIR McMANUS: Thank you, Genny, for a great presentation. I will look to see if the Board has any questions for Genny on her work. Yes.

MR. ROBERT LaFRANCE: There was a Figure 6, where you showed where there was red triangles and then black dots. Was that just a timing function? It seemed to me that the reds were all sort of in the same location. I was wondering if there was any rational basis for that.

DR. NESSLAGE: Absolutely, yes. The black dots were the schools that we encountered along the fishery independent survey, when it was actually the survey design, and we were following all of our protocols. We had a few extra sea days at the end, and that's where the VIMS crew went out with the fishermen while they were just fishing, and those are the red triangles.

You could see this is why we don't usually use fishery dependent data, but we go a lot of great bio samples from that, and we got several, basically echograms off of that, and that gave us a lot of good information on how to better move forward with analyzing those data. But they were not included in the biomass estimate.

MR. LaFRANCE: Thank you very much, that is really helpful.

CHAIR McMANUS: Any other questions? Yes, Allison.

MS. ALLISON COLDEN: Thank you so much for the presentation, Genny, really great work. Two quick questions for you. One, what was the size of the total area included in that polygon, if you know.

DR. NESSLAGE: Off the top of my head, I don't know, but I can get back to you. Sorry.

MS. HELPLER: Yes, that would be great, just to understand sort of the area that was being sampled. My second question you touched on a little bit at the end, but I was wondering if you could walk us through it and explain a little bit more. My question was going to be about whether or not the

transect overlapped, like the sonar coverage overlapped, and it's not how you chose the number of transects that you chose. I think you started to touch on it at the end, the approach that you took. Would you mind just sort of reiterating some points about how you decided that sample design?

DR. NESSLAGE: Sure, so in the 2020 work that we did, doing the simulation testing of alternative designs. That work indicated that based on, at least the data we had available, which were VTRs from the fishery, NEFOP locations of bycatch of menhaden, and the environmental data that is available in that region.

When we simulation tested alternative designs, it indicated that this was the amount of essentially mileage we would need to run the vessel, in order to encounter menhaden with that search area, that broadened search area. In fact, at the time, I can tell you that they had a less strong sonar, omnidirectional sonar on board, so when we did the simulation testing, actually the search area was shorter.

We've actually sampled a bit more than we had originally anticipated. Basically, the simulation study indicated that this would be adequate to get a decent estimate with I think the CD with maybe 25 percent with this number of kilometers of area surveyed. The locations were selected within a random start for the first transect, and then we tried to space them out evenly across the study area, so that they weren't overlapping.

This is the most basic design, and it's kind of the recommendation with initial pilot studies for acoustic surveys. Once you get an initial set of data, you can then do fancier designs, once you kind of know roughly what's out there. But this is kind of the first step in a new area you want to try and get that broad coverage, to figure out kind of what the variances of the school encounter rates are.

Then I think you asked if there was overlap. We don't expect, I can't remember off the top of my head. It was how many kilometers apart they were. But it should be enough that the menhaden school shouldn't be moving between them in the timeframe, when we're going from one transect to another. That being said, we did have to be off the water for two days, due to a storm, so who knows what happened during those two days. But in general, they should be adequately spaced.

CHAIR McMANUS: I'll next go to Lynn and then I'll come to the Senator here.

MS. LYNN FEGLEY: Thank you, Dr. Nesslage, this is really nice to see you and great work to you and the whole team. I just want to put a plug in. I'm a really big believer in the FK Mission, and I think this is such a really great example of how your industry and science is working together. This is really fascinating to me, and the two words that come to mind when I see this is cryptic biomass. I just wonder, and maybe you can't answer this, but I do wonder if you have any inclination that this may make impact the selectivity curves that are used in the stock assessment? It's just a thought, and I'm just curious.

DR. NESSLAGE: I don't think I can speak to whether this would impact the stock assessment. I don't think it would, per se, but my mind is traveling back to the pre, was it 2015 assessment, where we did change the selectivity curves, and we did that based on a very coarse assumption based on, I think it was the bycatch estimates of larger menhaden in the northern region of the stock assessment.

This really kind of was indicating at the end here. We finally have really good solid data that yes indeed there are bigger, older animals hanging out up in the northern part of the range. This won't actually impact the shape of a curve, per se, but at least it gives us some confirmation that we made the right decision, I think. Does that answer your question?

CHAIR McMANUS: Yes, Senator.

SENATOR: Is there data over time on any trendlines in the temperature, salinity or dissolved oxygen? I also wondered whether you had any data on pH for acidification.

DR. NESSLAGE: I'll answer the last pH first, no on pH. We only got temperature, DO and salinity. But you asked about time trends. We were only out there over about a month period, several weeks where we were collecting the hydrographic data. I have been scrambling to try and find people who have actual long time series or time series from that region offshore, and it is actually kind of difficult to find.

The Ecoman folks go into there every once in a while, but it is really not well monitored. Most of our understanding of what the ocean conditions are in that region are satellite driven, or from models. Does that get at your question? Yes, unfortunately, because I really wanted more information on that one core eddy coming in. I'm glad we took that information, otherwise we wouldn't have any idea what was going on when we were out there. But it was a snapshot in time, it's not a time series.

CHAIR McMANUS: Any other questions? Yes, Craig.

MR. CRAIG PUGH: I guess this is set to happen again? No, well that's a shame. I'm not impressed very easy, that is pretty impressive what you put up there today. That's good information. If you have a chance to do this, and you're looking for that upwelling again. As a fisherman, I would say cyclically within the moon phases of when your attention was paid.

If you repeat that again, you may find that upwelling again. With that you would begin to see a more consistent in what we find is in our catches. It can become more consistent, but that is really like a proprietary secret that most of those fishermen have. We don't offer up very much, but if you want your data collection to be accurate, you better be cyclically on the same deck. What I'm trying to say, if we took these surveys today on April 30th, that would not be the same as April 30th next year. But cyclically you can find that within the moon phase. You'll see that there is tidal influence will put those fish in a certain spot for you, and it will be much, much more consistent data. A lot of commercial fishermen are probably very sorry that I just said that. Thank you.

CHAIR McMANUS: Any other questions or comments for Genny from the Board? Thank you, Genny, very much for the presentation. I recommend public or Board if you have a follow up question for the doctor, say it now.

UPDATES FROM STATE MANAGEMENT PROGRAMS

CHAIR McMANUS: With that, that moves us on to our next agenda, which is Update from State Management Programs for Maryland and Virginia. I'll first look to Lynn Fegley.

MARYLAND

MS. FEGLEY: For this update, I don't have a whole lot to offer, other than what I offered at the last meeting, and that is to say that we are currently working on a communications tool around the balance of menhaden and striped bass in the Maryland portion of the Chesapeake Bay. It's a traffic light index analysis.

I think it's a really elegant piece of work that is not designed for management, but is designed to really present a synthesis of data that we've collected over the years, and will continue to collect, that just demonstrate how we are seeing the balance of these two animals, and our attention now is we are setting up to get it out for an independent desk review.

We want to make sure that we have independent scientists really ensuring that we are applying the data in a neutral, nonbiased way, and that our treatment of the data is fair. We're hoping that maybe we can launch this thing in the fall. I don't have a lot more to offer than that right now. I will say that the index includes information from striped bass, things like striped bass body condition, levels of relative F of menhaden.

One of the things that we've looked sort of high and low to find to include in this analysis, are data about osprey. We haven't really managed to find the right dataset to fit into that. I just bring that up now, because under other business I had a few more comments to make about that. That is really the only updates we have, Mr. Chair.

CHIR McMANUS: Thank you, Lynn, I'll look to Pat for an update from Virginia next.

VIRGINIA

MR. PAT GEER: In your supplemental materials there is a letter that I provided to the Commission, with information from this year. Last year, if you remember, at the May 1st meeting, I gave a pretty comprehensive presentation of what we've done in the past. But as far as last year, what we did was in December '22, we had a Commission meeting where we were going to put forth some spatial and temporal restrictions on the purse seine fleet. Our Board did not approve that, but they approved the development of a Memorandum of Understanding.

That was approved last April 20th, between Virginia Marine Resources Commission, the bait and the reduction fleets., to provide some protection with the one nautical mile buffer around some of the beaches, some of the areas that are publicly used in the summertime, and some temporal restrictions of not fishing in the Bay on weekends and on holidays. The purpose of that was to try to prevent spills by having them fish in slightly deeper waters. Then also, if there is a spill, having it a little bit further from shore. That seemed to work. Ocean harvesters were also going to, they worked with us to improve their spill response. Ocean harvesters have purchased a skimmer boat that in case there was a spill they can respond immediately to get out there and try to collect those fish before they do come to shore. I'm very happy to say in 2023, we did not have any spills at all. We did not have any reported spills to us, and that is the first time since we started keeping good records on spills since 2016. Part of the 2023 General Assembly, there was a Senate bill.

Senate Bill 1388, which requested VIMS to create a plan on how to study menhaden, so to come up with a plan, a budget to involve the ecology, the fisheries impacts, and the economic impacts on menhaden. As a result of that, Bob Latour and some of my staff worked on a workshop that was held August 8 and 9 at William and Mary. It was attended by 21 scientists, resource managers, recreational fishermen, different sectors of the fishery, and NGOs, to discuss the priority needs in the Chesapeake Bay in Virginia for menhaden.

The group came up with nine issues in three categories; ecology, fisheries impacts, and the economic importance. The total price tag for those nine projects was about 2.5 million dollars over three years. Moving forward to this General Assembly Session, we had a House Bill 19, which was put forth to fund those projects, at least fund some of them.

It went forward, it went into Committee. Unfortunately, the Rules Committee decided to table it until 2025. But at least now, if you look at the letter I wrote, there is a link to the research there. They did a really good job these nine priorities. We have a plan. We just have the chart one running forward.

There was another bill that was introduced, House Bill 928, which addressed interference with commercial fishermen. There were a number of alarming videos that surfaced of watercraft approaching commercial vessels, interfering with their nets, interfering with their vessels, and actually going over their nets.

You can hear the verbal attacks on the commercial fisheries, the vessels themselves, and the people onboard. This Bill raises the penalty for people found guilty of that to a Class 1 misdemeanor, which is a $2,500.00 fine or up to one year in jail, and also revocation of all their fishing and hunting privileges in the state for one year.

It was passed by the General Assembly unanimously, and the Governor signed off on that. We've had a couple of petitions. Some of the commenters mentioned these. This is a relatively new process for us, it's in the Code of Virginia that allows the public to request changes or repeals to existing regulations. Somebody can make a request to a specific agency, and then it goes to the Register, you only have 12 days to upload the petition onto what is called the Virginia Town Hall website.

It is up there for 21 days. People can read the petition; they can provide whatever comments they want for 21 days on that petition. Then afterwards, the Agency in question has 90 days to issue a written decision on whether to grant or deny that petition, so it's a yes or no. A simple yes or no, if they say yes, then that agency moves forward with regulatory process. We had one on June 27, which was a petition to regulate menhaden purse seines and ensure they are fished in a proper manner and an appropriate depth. The petitioner said the nets are too deep to be fishing in the Chesapeake Bay, and that they don't leave enough room for non-target species to escape, and they are affecting the bottom habitats. That went before our Board in October 26, and VMRC denied the petition with a 5 to 1 vote. In December '21, we received a second petition, which is much more detailed.

It had five issues, one to enact a moratorium on the reduction purse seine in the Bay. Two, require at least 40 percent of the Virginia reduction harvest come from federal waters. Three, codify the one-nautical mile buffer in regulations, which is now listed in MOU. Four, to fund the implement of the population studies proposed by VIMS, and five, establish a proper industry oversight, increase harvesting of bycatch monitoring.

The 21-day comment period ended on February 5, and the Commission heard it just last Tuesday on April 21. There was a lively discussion about it, and the petition was denied 5 to 3. We're also seeing quite a few more public interactions. We've had 11 FOIA requests for menhaden in the last year. We're spending a fair amount of time.

You know these petitions take a lot of our time when they come forward, because we have to deal with those. We're seeing a lot more folks showing up at our Commission meetings, speaking during public comments that are not on the agenda as well. That is all I have at this point. We're hoping that somewhere along the line we can get funding for some of those projects that the folks on the workshop provide.

CHAIR McMANUS: Thank you both, Lynn and Pat. Based on some of the discussions we'll have in our next agenda item, what I would like to do is move into that presentation now. Then the Board can have discussion or comments on both for Lynn and Pat as necessary, or as needed. Then as well for Katie.

PROGRESS UPDATE ON 2025 STOCK ASSESSMENTS

CHAIR McMANUS: With that, I'll look to Katie to give us a Progress Updates on the 2025 Stock Assessment.

DR. KATIE DREW: As mentioned, I'm going to be providing an update on the current stock assessment progress, as well as talk a little bit about kind of the next steps after that assessment, where we think we'll end up, in terms of any spatial reference points or more spatial information to inform the Board, as well as some information on next steps that management should consider. Our current timeline is up on the screen right now.

We most recently had a Data and Methods Workshop in October of 2023, which I'll go into some of the discussion and results of that workshop in my next slide. But we are currently right now in the process of gathering data to support the single-species assessment update, as well as the multi-species assessment that are going to support the ERP model.

At the end of this timeline, you will see we are anticipating presenting this to the Board at the annual meeting in 2025. Following the peer review, which will be through the SEDAR process in the summer, August of 2025. Our next big workshop is going to be the Methods Workshop Part II, in October of 2024, which is going to include one day for the SAS to discuss the assessment update, and then the rest of the time will be the ERP Workgroup on the ERP assessment.

ECOLOGICAL REFERENCE POINT BENCHMARK ASSESSMENT

DR. KATIE DREW: The next thing I wanted to talk about a little bit is basically, what did we talk about

tat the Data and Methods Workshop, to give you an idea of where we're going with the ERP benchmark assessment. We met in October to review potential new data sources and discuss high priority models of relevant tasks. A more detailed meeting summary is available online, but I'm just going to go through a few highlights of what was brought to us going forward.

As you know, we encouraged and in fact put out a call for data for external collaborators, or external researchers to bring data to these assessments, for all of our assessments, so that it is not just what did we use before in the past, what do we know that the state and the feds have. We have an opportunity to bring in other data sources. I'll go over some of the important ones that were presented from external researchers.

The Nesslage et al Survey was not considered for inclusion in the assessment, due to the short time period. This is basically just a snapshot of a pilot study. It really wasn't suitable for the assessment as a whole. But some of the weight-at-age information from that study showed some discrepancies with the weight used in the single species assessment.

The ERP Workgroup recommended that the SAS explore this particular issue in more depth, using additional data sources as part of the assessment update. The ERP Workgroup remanded that to the SAS for further consideration. The next data source that was brought to us was from Dr. Ault, and so his colleagues presenting a reanalysis of the tagging data used to develop estimates of menhaden natural mortality.

That resulted in a lower natural mortality than when he was using a different subset of the data and different methods. This is compared to what is currently used in the single-species assessment. The ERP Workgroup remanded this to the SAS as well, kind of recommending that some additional work be done to understand the differences between the datasets in question, and conduct a sensitivity run with a lower natural mortality for consideration in the ERP model.

The next dataset was some information presented by Dr. Watts on the relationship between menhaden and osprey in the Chesapeake Bay, and other nearshore types of piscivorous birds that he's worked on. As well as the ERP Workgroup reviewed some additional literature on marine mammal diet. Overall, the ERP Workgroup found that the marine mammal and bird diet data and abundance data are still extremely limited coastwide.

We have some good very localized studies of individual aspects of this relationship. But overall, the data are very limited. The ERP recommended doing a comprehensive review of the existing data for birds and marine mammals, to update the NWACS-Full model, that is the full EWE model, as a complement to the NWACS-MICE model. But at this point, not including birds or marine mammals in the NWACS-MICE model.

Instead, we'll look to that sort of full comprehensive NWACS-Full model to support or provide context for the results from the NWACS-MICE model. Similarly, the ERP Workgroup reviewed new diet information on bluefin tuna and blue catfish, as potential additional predators within these models, and recommended exploring the inclusion of bluefin tuna further, as the data were insufficient, but not blue catfish for this assessment. The more comprehensive diet data studies for blue catfish, indicated that menhaden was actually a relatively small component of their overall diet, and the geographical overlap with menhaden was limited, basically to freshwater, less saline parts of the Chesapeake Bay. At this point, there is not a lot to be gained from including blue catfish in the NWACS-MICE model. We may come back to this decision for future assessments as the spatial skills of blue catfish extends, or as the spatial extent of the NWACS-MICE model changes. But at this point we did not feel that that warranted inclusion. Those were the source of new data sources we examined, or at least the important high-profile ones.

In terms of high priority modeling tasks, the ERP Workgroup identified the following as things we want to make sure we accomplish for this benchmark. Number one, incorporating seasonal

dynamics into the NWACS-MICE model to better capture predator and prey temporal overlaps. Right now, we're just using an annual time step.

The intent would be to go down to a monthly or seasonal time step, to better capture some of that interactive, some of those overlaps, especially in some of the things like the Atlantic herring and striped bass overlap, which is a very intense relationship during certain times of the years, but has less overlap during other parts of the year.

In addition, we would like to incorporate bottom-up feedback into the VADER multispecies statistical catch at age model as a complement to NWACS-MICE model, and to further develop that modeling framework, as recommended by the Peer Review Panel, as well as continue development and testing of a model that was not considered last time, but might be useful this time around.

The Wilberg et al age structured predator prey simulation model would provide some interesting simulation capacity to support the NWACS-MICE and data model. Additional high priority modeling tasks include the incorporation of spatial dynamics into the NWACS-MICE model during this benchmark.

D. Chagaris et al have been funded through an S-K Grant to do this work for us, which will give us a lot more dedicated time from that group, in order to advance this model. In addition, the ERP Workgroup is going to work on gathering additional data, and reworking existing multispecies data, to support a finer seasonal and spatial scale for model development. That covers sort of where we are with the multispecies, the ERP, benchmark assessment.

ATLANTIC MENHADEN SINGLE-SPECIES ASSESSMENT UPDATE

DR. DREW: I'm going to give a quick update on the single-species assessment update. At this point fishery independent data through 2023 have been submitted. Fishery dependent data are due, essentially this month, and we are trying to have the base model runs completed in time for the October, 2024 Assessment or Methods Workshop. In terms of the tasks that the SAS got from the ERP Workgroup. The task requested all available weight and age data from the states, and ended up with a very limited data to evaluate the species for the 2025 update.

I think most of the work to resolve that question is probably going to have to come from the Nesslage and Schueller Project that was recently funded. In terms of natural mortality, the staff determined that changing M was not warranted at this time, as the current M is based on a peer reviewed study that also was reviewed and accepted by the Peer Review Panel at the last benchmark assessment. But number one, we'll conduct some alternate runs with a lower M estimate to support the ERP work, and we'll look further into the discrepancies between the data sources and other issues for the differences in the M estimates, to help resolve this issue going forward. I'm going to pivot a little bit now from sort of what has happened to what will happen, and what is going to happen going forward, to talk a little bit about the spatial ERP timeline.

This iteration of the NWACS-MICE model will incorporate more information on seasonal and spatial dynamics into the ERPs for this benchmark. However, the BAM single-species model will remain a coastwide model. There just is not time to develop a spatial model for the BAM. If you remember this timeline from the ERP Workgroup memo.

We presented this in April of 2021, I think when we were initially talking about this, that as we want to develop more spatial ERPs that can provide a quantitative estimate of what makes up what the Bay cap is, or more quantitative information on what's happening in the Bay. There is sort of different scales of approaches, ranging from sort of a more coarse spatial scale with minimal additional data requirements, down to a very fine spatial scale that will have significant additional data and modeling requirements.

The timeline for most of that was sort of between five years and ten years, ten plus years, depending on the options that we chose. The Board decision at the time was not to delay the 2025 assessment, in order to pursue any of those spatial options, but instead sort of go forward and stay to the 2025 timeline.

The option that we're sort of going forward with was not actually on that list, as you may have noticed. We're going with a more spatially explicit NWACS-MICE model to get more spatially informed CRPs, but we will still be using the coastwide BAM, or the coastwide single-species model. The ERPs will definitely be improved by this.

We'll have a more refined reference point that will better capture the spatial and seasonal dynamics of menhaden, and their key predators, and help us get to a reference point that is better scientifically. But it likely will not provide quantitative advice about the Bay cap. We'll still be working within sort of a coastwide reference point system. What we will get out at the end, sort of in a management framework, is going to at the 2025 annual meeting, you will receive.

I will give or my team will give a presentation of the ERP and the Single-Species Assessment. This will give the Board; the Board will actually have a chance to kind of reconsider the target and threshold reference point definition for ERPs at this meeting. This is a little different from many of our other single-species approaches, where we come to you and we say, here is your reference points, here is your F-40 percent and your SSB-40 percent, this is your target and your threshold.

That's it, it's been updated, it has new information, but sort of that definition is the same. If you recall, the tool that we provided through this process is really giving you ways to evaluate the tradeoffs between menhaden harvest and predator abundance, and the allowable predator fishing mortality rates. The current definition for our ERPs is that this is our target, the F rates that will allow striped bass to stay at their biomass target, when striped bass are fished at their F target, and all the other species in the model are fished as sort of the status quo in 2017. That is one possible definition. That is the definition we went forward with. I think at this point, you know when we come back to you, we will again present this tool, and the Board will have the option of considering potential other definitions, in terms of what should the F rates on striped bass be? What should the F rates on other species in the model be, when we are defining what our menhaden reference points should be?

The Board is not obligated to change in any way. I think the definition that we have right now is still a viable definition on the table. But the Board will have the opportunity to reconsider some of those management tradeoffs and management objectives within this ecosystem framework, at that 2025 annual meeting.

Changes to the reference points can be made through the Board actions or through adaptive management. You also have to do specifications at this meeting, which may make trying to change that definition a little more complicated. We'll try to make the options on the table as easy as possible for you guys. But I think we just wanted to highlight that this is a complex system with a lot of moving parts.

We won't have quantitative advice, probably on the Bay cap at that point. Although there are always other qualitative approaches that this Board can take, and we'll be presenting a tool that is maybe a little more complicated than the traditional SPR based reference points that we have for our single species assessment. There are a lot of moving parts that are going to come together at this meeting, and a lot of things for the Board to think about.

I'm not saying you have to start this conversation now. We do still have a year and a half to figure out a lot of these issues. But just to kind of prepare this in everyone's mind for kind of what's coming down the road; where we are now, where we're going, and where you guys are going to have to make some decisions, in terms of management objectives in about a year and a half. With that I am happy to take any questions.

CHAIR McMANUS: Thank you, Dr. Drew. With that, are there any comments or questions for the Board for Katie, Lynn or Pat? Yes.

BOARD MEMBER: Related to the final questions about striped bass. How do you think this model will help us to be able to evaluate that relationship when we get the report in 2025?

DR. DREW: You mean the relationship between striped bass and menhaden fishing mortality? I mean I think the goal is the tool that we have now, and the goal is to have a more refined version of that tool that basically looked at, as you increase fishing mortality on menhaden, what happens to striped bass? As you increase fishing mortality on striped bass, what happens to striped bass, so that you can sort of find that balance.

It is a tradeoff, right. You can put more fishing pressure on menhaden and you have to feed back off of the fishing pressure on striped bass, in order to keep them at sort of the same level. That is all interconnected. It is not just a matter of turning one knob, there are multiple knobs within this system to turn. I think the goal of our tools is to help everybody understand these relationships between, you can adjust the fishing mortality on one of them, but you're not doing that in a vacuum. Right now, a single-species model sort of assumes we are doing it in a vacuum. With the ERPs you can turn multiple knobs at a time, and figure out what is sort of a balance between fishing pressure on menhaden and fishing pressure on striped bass that gets to where you want to be for striped bass. I don't know if that helps or not.

BOARD MEMBER: Let me just follow up. You think there is enough synchronicity between the menhaden and the striped bass assessments to make that useful?

DR. DREW: Yes. Right now, we will have an assessment update, as you know this year for striped bass, which means we'll have data through 2023 that aligns with, we're aiming to have a 2023 terminal year for menhaden as well, and we will have that for most of the other species, either 2022 or 2023 terminal year for our other key species in the NWACS-MICE Model. But that is definitely something we try to keep an eye on, is to make sure that we're not waiting on data from any one species in order to manage.

CHAIR McMANUS: Any other questions or comments? Yes, Al.

MS. COLDEN: Thanks to all of you for your updates. Katie, I do have a couple of follow up questions related to the mortality estimates that you were talking about natural mortality estimates, that there was some uncertainty here, or inconsistencies here based on the analysis method. Just, I'm sure it is from a functional perspective. What would a lower natural mortality rate tend to lead to, in terms of the outcomes of the assessment?

DR. DREW: Perhaps unintuitively, if you use a lower natural mortality rate in these models, in the single-species model, you're going to get a lower estimate of biomass or abundance of menhaden coming out. Right now, that we're using the higher estimate. When we implemented that higher estimate of M, we saw an increase overall in the scale of the population. That effect, the scale of the population and our perception of that population for the single-species model, and then feeding into the multi-species model.

How many menhaden are out there for those other predators to be influenced by, or to have available to them to consume? Using a lower natural mortality is going to make the population smaller and have less menhaden over the full time series available to those other predators. It's hard to say exactly what the effect will be, in terms of for the multi-species model, generally speaking on the single-species model, when you use a lower M, you usually get higher estimates of fishing mortality as well. Follow up.

MS. COLDEN: Based on the existing natural mortality estimate that is being used, and the one that was proposed in the Data Workshop. Do you have any kind of scale of the differences between those two, kind of what is the relative magnitude of

the different season estimates that you're considering, either directly from those or in the sensitivity runs.

DR. DREW: I don't have the exact proportion, and the other issue is of course the estimates that are in these studies are just a single estimate of natural mortality. In the assessment scale that is more to match the Lorenzen so you have higher natural mortality on the in the assessment scale that is more to match the Lorenzen. You have higher natural mortality on the younger fish, and lower natural mortality on the older fish, which hasn't really been carried through for these other studies. But it is a significantly higher estimate of M. This was pretty extensively addressed during the last peer review, so there is some report in the benchmark document showing some of those comparisons to what has been used in the past, and the current estimate of M used now.

CHAIR McMANUS: Yes, John Clark.

MR. JOHN CLARK: I hope I'm remembering this correctly but the current TRP, the NWACS-MICE, it doesn't directly produce a multispecies reference point, right? It's like advice as how we can change our fishing mortality on the menhaden, based on the other species. Now the other models you were talking about, the VADER and what was the other one? Are those more set up to directly estimate reference points, based on the entire predation on the menhaden? If so, is that the goal is to eventually get to that, or is it still just to use the NWACS-MICE?

DR. DREW: I would think, the NWACS-MICE does give us a reference point, but it sort of has to be translated back into the currency of the single-species model. The NWACS-MICE model is very good at capturing those predator/prey dynamics, and helps you understand, you know, as I was saying, does the increase have on the menhaden?

What does that do to the other species in the model? If you increase half on striped bass how does that best influence striped bass and the data? How does that all tie together, so that you can sort of figure out in the long term, if you fish at a specific rate on menhaden and a specific rate on striped bass, where is that striped bass population going to stabilize?

You can adjust those knobs until in the long term the striped bass population will stabilize at its target. The issue is that the NWACS-MICE model, the EWE models are not good at capturing sort of really short-term dynamic changes in recruitment for or populations affect. They are better for long term.

Like all of our reference points models, they are better for sort of long-term stability and an end goal. We use the BAM, the single-species model that is really good at capturing sort of the short-term dynamics of menhaden, what's going on right now, what's going on in the next couple of years. What happened in the past based on that dynamic recruitment, and other things.

We use that to sort of, we take the information that we get out of the NWACS-MICE model about, you know what is our long-term F rate that we want to stay at, and use the BAM model to figure out what is the appropriate quota to keep you at that F rate. We're using sort of these two models in combination, because they give each other things that the other one is not good at. Predator/prey dynamics on the NWACS-MICE side, short-term recruitment is better dynamics of the scale on the BAM side.

The VADER model is a multispecies statistical catch at age model, and I think the long-term goal of that would be to develop a model that could do it all in one. The multi-species model is one potential approach that can do that. If it is capable of handling some of those short-term recruitment dynamics and things like that within its own framework. However, it right now is missing the bottom-up feedback that says, you know right now it is basically only looking at how much are these predators' affecting menhaden, and not looking at how menhaden is affecting the predators. That is a real hard challenge to build into that type of model, and so that is kind of I think the long-term goal

would be to try to get something where you could do it all in one comprehensive model.

Whether that is, can we get better recruitment dynamics in our EWE models or is it can we get predator/pretty dynamics in our multispecies statistical catch at age model? That is why we're continuing to develop both of them at the same time. I think it's kind of just a matter of, what will be done in time for management by the benchmark, in terms of what we actually bring to you as a final result.

CHAIR McMANUS: Yes, Rob LaFrance.

MR. LaFRANCE: Thank you, Katie, really interesting stuff that you are working on with these. One of the things you mentioned though is there will be some spatial data that is going to be created as a function of this. Is there any information we can glean from that? Even though I know it's recognized we're going to be looking at a coastwide, still a coastwide ecological reference point.

But is there any descriptive information we might be able to get, like looking at particular measures, in terms of maybe the south looks different than say the Mid-Atlantic versus the North Atlantic? Is there any information we might be coming out of that, and just ask those questions all at the same time? Have we looked at data or are we looking at any data coming in from offshore wind? Are they providing you any information on any of these species?

DR. DREW: I guess the short answer to the second one is an easy no. We don't have any information from that offshore wind development coming into these models. I think ideally, we would like to be able to look at maybe some of the dynamics of, yes spatially sort of in this with the reference point model in the long term of what is the effect of more intense fishing pressure in the Bay versus offshore more intense in the north versus in the south. If recruitment is increasing in the north and has been low in the Chesapeake Bay, can we pick up those dynamics?

I think the reference points will definitely be improved by incorporating some of these spatial dynamics, and our understanding of the system will be improved. But we may not have the ability to do that and to link that back to say, and therefore checked in the Bay, it may still end up being a coastwide quota, and we'll have to look to other methods if we want anything spatial on the Bay.

MR. LaFRANCE: Will we have any sort of sensitivity to that? Will there be some output from that or not really?

DR. DREW: I mean we can definitely look into that. I think there is also the question of we haven't done this full model development, and I think we also are a little bit unsure of sort of the quality of the data that will come in at that spatial scale. We can look into doing some of that sensitivity stuff. How informative it will be will depend on the quality of the data and the performance of the model. But hopefully we can improve our spatial understanding in some way.

MR. LaFRANCE: Great answer, thank you.

CHAIR McMANUS: Allison Colden.

MS. COLDEN: Thank you, Mr. Chair, I appreciate a second round here. I'm really excited about all of the work that has been presented here. I know that the spatial dynamics and the temporal dynamics have been a priority ever since we got the first round of the ERP model, so I'm happy to see that moving forward.

But coming from one of the Bay jurisdictions, Chesapeake Bay jurisdiction, I feel like I would be remiss if I didn't point out the number of times Katie, you had to specify that this will not get us any additional quantitative data on the Chesapeake Bay. I'm sort of searching here for a solution.

We have 5 to 7 years of work in front of us in order to get from core spatial data resolution, which we'll hopefully get coastwide in this model, to anything even close to coming in offshore and looking at specific nursery areas like the Chesapeake Bay and

other places. We also heard from Maryland and Virginia that the efforts that they are working on to try and either synthesize our understanding or provide guidance or get to the science are hitting bumps at every turn.

Virginia is on the study, Maryland has put together a great synthesis of data that we have, but it's not intended for management and is focused only on striped bass. We have significant concerns in the Bay region, particularly with species like osprey that are not included in the ERPs, and are not directly included in the NWACS-MICE model, and according to those updates won't be included in this next round of the NWACS-MICE model either.

I just want to flag that there are some of these significant concerns, including other datasets that we have found recently that have not been included in previous rounds of this. I want to just flag for the Board that I think that there is some serious consideration to be given for these ecosystem concerns in the Chesapeake Bay, and the fact that they won't be addressed through some of the assessment work that is going on now, and some of the work that the states are working on. I just want to keep that in front of mind for everyone.

CHAIR McMANUS: Thank you, Allison. Are there any other comments or questions from the Board? All right, seeing none.

ELECT VICE-CHAIR

CHAIR McMANUS: That moves us on to our next item for electing a Vice-Chair. Move to see from the Board if there are any nominations to put forth. Yes, Jeff Kaelin.

MR. JEFF KAELIN: I **move to nominate John Barnes as Vice-Chair for the Atlantic Menhaden Management Board.**

CHAIR McMANUS: Do I have a second? Move to nominate John Clark as Vice-Chair?

MR. KAELIN: **Did I say Barnes? I'm sorry**. That's an old, old name, an old menhaden name. **I'm sorry about that, John Clark**. Wow, I don't know where that came from, senior moment. Sorry about that senior moment, John Barnes is long gone.

CHAIR McMANUS: Thank you, do I have a second? Yes, thank you, Steve Train. **Any opposition to the motion? All right, I will consider that approved by consent**. Thank you, Jeff and Steve Train.

OTHER BUSINESS

CHAIR McMANUS: With that, that brings us to Other Business. Is there any other business to bring forth? Yes, Lynn Fegley.

USGS OSPREY DATA

MS. FEGLEY: I'm going to try to be quick about this so we can move on to horseshoe crabs. I mentioned in our update that we've been working on this data synthesis. We have been looking for osprey data in the Maryland portion of Chesapeake Bay. We have been looking hard at the osprey data coming out of Virginia that is showing nesting success issues. I did have a conversation with USGS, and they have scientists who are planning to do some follow on with osprey research further up in the Maryland portion of the Bay.

Upon talking with them, it appears that they do have some data, which may be of interest. I say that, because it does seem to me that if we really are having a problem with ospreys in our area, and if there is something about the way that we are managing menhaden, that could be impacting the bird resource. I think we really need to know about it.

I think it's incumbent upon us to get as much information as we can. I have a request for staff, and I'm happy to gather offline if I can help, and that is to reach out to USGS to the Eastern Ecologic Science Center, and request for August, if they could present to us the information that they have on osprey in the Bay region.

That would specifically be data around the spatial and temporal distribution of osprey, anything they know about dietary demands of osprey, the timing

of the osprey fledge, and anything they know about nesting success. That was my other question, Mr. Chair, and I'll leave it there. If I need to make a motion, I will.

CHAIR McMANUS: Thank you, Lynn. I'll look to Katie really quick to provide comment on that, and then I can look to the Board for further discussion as necessary.

DR. DREW: Yes, I think we can definitely reach out to USGS and arrange for a presentation to the Board, if that is of interest, as well as ensuring that the USGS science is looped into the ERP framework, as necessary or where appropriate. You know I think we are aware of some of their data, probably not all of their data. I think it would be good to close the loop on that as part of the assessment process. As long as I think the ask, to like have them do the work of presenting this to you. I think that's feasible, and would not impact the ERP timeline in any way.

CHAIR McMANUS: Thank you, Katie, Craig Pugh.

MR. PUGH: I don't mean to convolute this. I know it's anecdotal, but in our area the osprey seems to be in direct competition with the increased population of bald eagles. The osprey is a much, much better fisherman than the bald eagle is. The bald eagle either attempts or does take food away from the osprey. We've witnessed this daily, repetitively, over and over and over. There is another bird here that is involved, at a pretty high level. We experience this every day. We can witness this; we can watch it. The bald eagle population in our area is probably ten times over what the osprey, and it's increasing.

CHAIR McMANUS: Thank you, Craig. Are there any other additional comments on this topic? Yes.

MR. LOREN W. LUSTIG: I just wanted to thank Lynn and Allison specifically for bringing up issues regarding the osprey. I've been trying to monitor that personally. I did come across some data recently from areas near Long Island and New York, and apparently the breeding success is much higher there. It would be interesting to follow that up.

CHAIR McMANUS: Any other questions or comments from the Board? It sounds like there is a request to have staff be engaged in dialogue with USGS regarding osprey data, and it sounds like there is amenability to that on the Commission side. Anyone strongly opposed to doing such? I'm not seeing any hands, so I think we can consider that to move forward.

ADJOURNMENT

CHAIR McMANUS: Is there any other business beyond that topic that folks have? I'm not seeing any hands online or in person. Is there a motion to adjourn? Yes, John Clark and seconded by Cheri Patterson.

(Whereupon the meeting adjourned at 2:45 p.m. on Tuesday, April 30, 2024)

AMERICAN BIRD CONSERVANCY

Shaping the future for birds

Atlantic States Marine Fisheries Commission
Atlantic Menhaden Management Board
1050 N. Highland Street
Arlington, VA 22201

Dear Atlantic Menhaden Management Board,

American Bird Conservancy (ABC) is a 501(c)(3) nonprofit organization dedicated to the conservation of wild birds and their habitats. We are writing to urge the Atlantic Menhaden Management Board to take action on behalf of Ospreys that would improve the Chesapeake Bay habitat and Atlantic menhaden fishery.

Ospreys have faced threats in the past, notably from DDT. When the insecticide was banned, populations started improving. However, Ospreys face a new threat—limited food availability. In the lower Chesapeake Bay, researchers identified a link between Osprey reproductive rates and Atlantic menhaden abundance. Specifically, when the Atlantic menhaden stock declined, so did Osprey productivity. This connection cannot be ignored and requires further management action.

"Fish Hawks" as Ospreys are colloquially called is an apt description for this raptor species. Ospreys are distinct from other hawks because of their reliance on fish, large size, long wings and legs, and distinctive M-shaped flight profile. Ospreys are found on every continent except Antarctica. The Chesapeake Bay is the geographic region with the largest Osprey population in the world.

Ospreys reach sexual maturity and begin breeding, usually with the same mate for life, between the ages of three to seven. In some regions with dense Osprey populations, such as the Chesapeake Bay, young birds breed toward the older side of the breeding age range.

Nesting sites are selected by the male. Both males and females collect the sticks which create the nest. When females lay their eggs, up to three at a time, both parents help with incubation. When the chicks hatch males are responsible for hunting and delivering food to the females who feed the chicks. In times of food scarcity, the stronger and more dominant chick will receive all the food while the weaker chicks are left to starve.

Fish are the foundation of an Osprey's diet. In the Chesapeake Bay, Atlantic menhaden are the preferred food source for Ospreys. From as high as 30 to 130 feet in the air an Osprey can detect fish underwater thanks to specialized eyesight. Plunging feet first into the water, Ospreys are able to catch and hold on to slippery fish using their reversible outer toes, long talons, and barbed pads under their toes. Other adaptations that help Osprey catch fish are closable nostrils

for diving and dense, oily plumage that helps keep their feathers dry. Ospreys can dive to depths of around three feet, preferring to hunt in shallow waters.

A declining reproductive rate like researchers are documenting now could lead to another collapse in the Osprey population. This is why management action is needed. Additional spatial and temporal closures of the Atlantic menhaden fishery are among the management possibilities that could improve Atlantic menhaden availability for Osprey, as well as other species like Striped Bass.

Atlantic menhaden are incredibly nutrient-dense, providing essential fats that help Ospreys and their chicks survive. While Ospreys can eat other fish, research in the lower Chesapeake Bay shows it is their primary food source. Atlantic menhaden are a keystone species for the Chesapeake Bay, supporting Osprey, Striped Bass, and other species. Possible management actions that further Osprey conservation by addressing the Atlantic menhaden fishery will likely have corresponding benefits for other Atlantic menhaden-dependent species.

ABC thanks the Atlantic Menhaden Management Board for considering our comments. We appreciate your engagement on this issue and urge you to take management action.

Sincerely,

Annie Chester
Policy Director
American Bird Conservancy
achester@abcbirds.org

From: Beth Cardwell
To: Comments
Subject: [External] The Menhaden Board management meeting AUG 6, 2024
Date: Tuesday, July 30, 2024 7:49:19 AM

To whom this may concern:
I am writing to ask you to ban reduction fishing of menhaden in Virginia waters. In particular, the Chesapeake Bay needs protection of this very important forage fish. I first heard of menhaden while fishing in Mathews, Virginia. I have seen the bay change, with fewer schools of bait fish, poorer rockfishing and this year a lack of young osprey in nests. The Virginia legislature and VMRC have failed to properly regulate or even study this issue. There is indirect evidence menhaden are no longer plentiful in the Bay. This year Omega protein has struggled to find large schools of fish in the Bay. They now travel to the Atlantic ocean off the Eastern shore and New Jersey to find large schools of menhaden.
This affects rockfish, ospreys, whales, etc. Tourism, recreational and sport fishing are all suffering as a result.
Please act now to protect this important resource.
Sincerely,
Beth Cardwell

From: Beth Cardwell
To: Comments
Subject: [External] The Menhaden Board management meeting AUG 6, 2024
Date: Tuesday, July 30, 2024 7:54:59 AM

I'm sure you have all seen this 30 minute video about menhaden circulating on social media.
https://vimeo.com/969405454?fbclid=IwZXh0bgNhZW0CMTEAAR0uVdFSrT-cvO0ZcizuCEBwHoQMrcQMNytSkNHyI9eHR3jfs6ATlUtfT5k_aem_0huX5uCXRnOUDf2y8e0uIg

Thank you for your attention,
Beth Cardwell

From: Jeff Odell
To: Comments
Subject: [External] Menhaden August 6th Management meeting - public comment
Date: Saturday, July 27, 2024 2:04:39 PM

Dear Commissioners: I have fished for rockfish in the Chesapeake Bay every year for the past 15 or so years. Years ago, we could easily catch 2 per person with the older slot of 18+ inches. Recently, it is very hard to locate them above the 20 inch mark.

Please consider a moratorium on menhaden fishing until that important rockfish food source can recover.

I also believe overfishing menhaden is the cause of the decline in ospreys I've seen over the past few years. I live on the Piankatank River in Mathews County, Virginia.

Respectfully,
Jeff Odell
Cobbs Creek, VA

From: Suzanne Seekins
To: Comments
Subject: [External] Menhaden fishing
Date: Monday, July 29, 2024 11:32:25 AM

Hi,

As a resident and admirer of our beloved Chesapeake Bay region, I respectfully submit my request that a moratorium on Chesapeake Bay menhaden reduction fishing be established for various economic and environmental reasons.

Living on a tributary of Mobjack Bay, I have seen the dire consequences of overfishing to the nesting Osprey along our creek. For three years in a row now, the nesting pairs of Mobjack Bay have failed to produce viable offspring at five nests we visually monitor for success. We were told by the scientist at William and Mary that this is due to the loss of menhaden as a food source for the birds of Mobjack Bay. When I expressed my surprise at watching an Osprey prey upon a rodent in our yard along the creek, the scientist was dismayed. He stated, “They must be starving for them to be hunting rodents.”

It is time that this situation is taken seriously and restrictive laws put in place to preserve the sensitive ecosystem of the Chesapeake Bay.

Respectfully submitted,

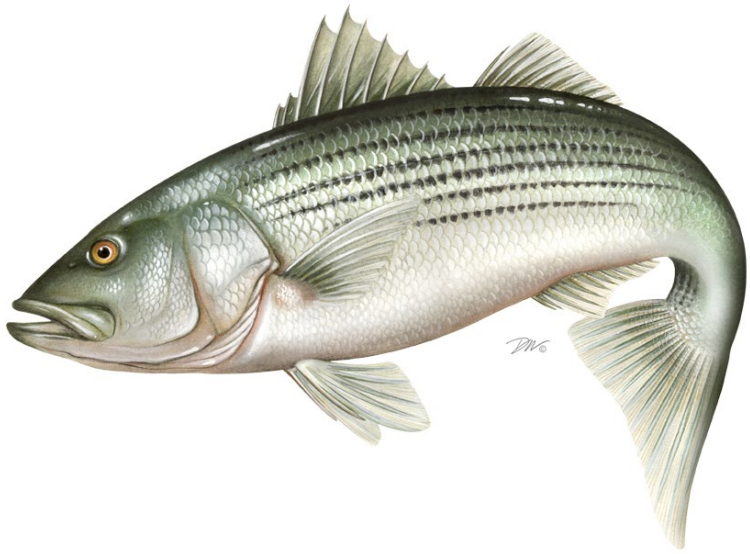
Dr. Suzanne Seekins

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR ATLANTIC STRIPED BASS
(Morone saxatilis)

2023 FISHING YEAR



Prepared by the Striped Bass Plan Review Team

For Board Review

July 2024

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

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, Addendum VI -2019 Amendment 7 – 2022; Addendum I – 2023
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

Original FMP and Amendments 1-5

The Atlantic States Marine Fisheries Commission (Commission) developed a Fisheries Management Plan (FMP) for Atlantic Striped Bass in 1981 in response to poor juvenile recruitment and declining 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. The Striped Bass Act[1] 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 – the first modest size cohort since the

[1] The 1997 reauthorization of the Striped Bass Act also required the Secretaries of Commerce and Interior provide a biennial report to Congress highlighting the progress and findings of studies of migratory and estuarine Striped Bass. The ninth such report was recently provided to Congress (Shepherd et al. 2017).

previous decade. The objective was to increase size limits to allow at least 95% of the females in the 1982 year class 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 relax regulations 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 operate under an alternative management program.

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 (coastal versus producer areas), 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 (catch and release fishing), harvest, and retention of Atlantic striped bass in the Exclusive Economic Zone (EEZ), with the exception of a defined transit zone within Block Island Sound. Atlantic striped bass may be 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, and that the fish were legally caught in adjoining state waters.

In 1995, the Atlantic striped bass migratory stock was 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}. Target F was allowed to increase again to 0.40 after two years of implementation. Regulations were developed to achieve the target F (which included measures to restore commercial harvest to 70% of the average landings during the 1972-1979 historical period) and states were allowed to submit proposals to implement alternative regulations that were deemed conservationally equivalent to the Amendment 5 measures. From 1997-2000, a series of five addenda were implemented to respond to the latest stock status information and adjust the regulatory program to achieve each change in target F.

Amendment 6

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. Accordingly, Amendment 6 completely replaced the existing FMP for Atlantic striped bass.[2]

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:

1. 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.
2. Manage fishing mortality to maintain an age structure that provides adequate spawning potential to sustain long-term abundance of striped bass populations.
3. 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.
4. Foster quality and economically viable recreational, for-hire, and commercial fisheries.
5. Maximize cost effectiveness of current information gathering and prioritize state obligations in order to minimize costs of monitoring and management.
6. Adopt a long-term management regime that minimizes or eliminates the need to make annual changes or modifications to management measures.
7. 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 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[3]. 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, North Carolina fisheries that operate in the A-R, 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 states/jurisdictions (hereafter states) to implement separate seasons, harvest caps, and size and bag limits as long as they remain under that F target. No minimum

[2] While NOAA Fisheries continues to implement a complete ban on the fishing and harvest of striped bass in the EEZ, Amendment 6 includes a recommendation to consider reopening the EEZ to striped bass fisheries. In September 2006, NOAA Fisheries concluded that it would be imprudent to open the EEZ to striped bass fishing because it could not be certain that opening the EEZ would not lead to increased effort and an overfishing scenario.

[3] The decision to hold Delaware's commercial quota at the 2002 level is based on tagging information that indicated F on the Delaware River/Bay stock is too high, and uncertainty regarding the status of the spawning stock for the Delaware River/Bay.

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 regulations by submitting conservation equivalency proposals to the Plan Review Team (PRT). All proposals are subject to technical review and approval by the Atlantic Striped Bass Management (Board). It is the responsibility of the state to demonstrate through quantitative analysis that the proposed management program is equivalent to the standards in the FMP, or will not contribute to the overfishing of the resource.

Five addenda to Amendment 6 have been implemented. Addendum I, approved in 2007, established a bycatch monitoring and research program to increase the accuracy of data on striped bass discards and recommended 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. Addendum II was approved in 2010 and established a new definition of recruitment failure such that each index would have a fixed threshold rather than a threshold that changes annually with the addition of each year's data. Addendum III was approved in 2012 and requires all states with a commercial fishery for striped bass 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.

Addendum IV was triggered 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, and changed commercial and recreational measures to reduce F to a level at or below the new target. Chesapeake Bay fisheries were required to implement lower reductions than coastal states (20.5% compared to 25%) since their fisheries were reduced by 14% in 2013 based on their management program. The addendum maintained the flexibility to implement alternative regulations through the conservation equivalency process. This practice has resulted in a variety of regulations among states. All states promulgated regulations prior to the start of their 2015 seasons.

Addendum VI was initiated in response to the 2018 benchmark assessment which indicated the stock is overfished and experiencing overfishing[4]. Approved in October 2019, the Addendum aimed to reduce total removals by 18% relative to 2017 levels in order to achieve F target in 2020. Specifically, the Addendum reduced all state commercial quotas by 18%, and implemented a 1 fish bag limit and a 28"to less than 35" slot limit for ocean fisheries and a 1 fish bag limit and an 18" minimum size limit in Chesapeake Bay to reduce total recreational removals by 18% in both regions. The Addendum's

[4] In February 2017, the Board initiated development of Draft Addendum V to consider liberalizing coastwide commercial and recreational regulations. The Board's action responded to concerns raised by Chesapeake Bay jurisdictions regarding continued economic hardship endured by its stakeholders since the implementation of Addendum IV and information from the 2016 stock assessment update indicating that F was below target in 2015, and that total removals could increase by 10% to achieve the target F. However, the Board chose to not advance the draft addendum for public comment largely due to harvest estimates having increased in 2016 without changing regulations. Instead, the Board decided to wait until it reviews the results of the 2018 benchmark stock assessment before considering making changes to the management program.

measures were designed to apply the needed reductions proportionally to both the commercial and recreational sectors, although states were permitted to submit alternative regulations through conservation equivalency that achieve an 18% reduction in total removals statewide. The Board reviewed and approved management options for 2020 on a state-by-state basis in February, and all states promulgated regulations by April 1.

Addendum VI also required the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States are encouraged to promote the use of circle hooks through various public outreach and education platforms to garner support and compliance with this important conservation measure. In October 2020, the Board approved state implementation plans for circle hook requirements, with the caveat that no exemptions to Addendum VI mandatory circle hook requirements will be permitted. Circle hook regulations were required to be implemented no later than January 1, 2021. In March 2021, the Board approved a clarification on the definition of bait and methods of fishing[5] that require circle hooks, which must be implemented by states as part of Addendum VI compliance. Per Commission standards, states could implement more restrictive measures. The Board also approved guidance on how to address incidental catch of striped bass when targeting other species with non-circle hooks with bait attached. This guidance was not a compliance criterion since incidental catch was not originally part of Addendum VI.

Amendment 7

Amendment 7 was approved in May 2022, and consolidates Amendment 6 and its associated addenda into a single document. The purpose of Amendment 7 is to update the management program to align with current fishery needs and priorities given the status and understanding of the resource and fishery has changed considerably since implementation of Amendment 6 in 2003. Amendment 7 builds upon the Addendum VI to Amendment 6 action to address overfishing and initiate rebuilding in response to the overfished finding from the 2018 stock assessment, requiring the Board to rebuild the stock by 2029. Amendment 7 established new requirements for the following components of the FMP: management triggers, conservation equivalency, additional measures to address recreational release mortality, and the stock rebuilding plan.

For management triggers, Amendment 7 established an updated recruitment management trigger that is more sensitive to low recruitment than the previous trigger, and it required a specific management response to low year class strength. The response requires re-evaluation of the fishing mortality management triggers to account for low recruitment. If one of those triggers trips after reevaluation, the Board is required to take action to reduce fishing mortality. Amendment 7 also updated the spawning stock biomass triggers by establishing a deadline for implementing a rebuilding plan. The Board must implement a rebuilding plan within two years of when a spawning stock biomass trigger is tripped.

[5] Definition of Bait and Methods of Fishing: Circle hooks are required when fishing for striped bass with bait, which is defined as any marine or aquatic organism live or dead, whole or parts thereof. This shall not apply to any artificial lure with bait attached.

For conservation equivalency (CE), Amendment 7 does not allow CE to be used for most recreational striped bass fisheries when the stock is overfished. Amendment 7 also provided constraints around the use of Marine Recreational Information Program data for CE proposals and defines the overall percent reduction/liberalization a proposal must achieve, including required uncertainty buffers. These restrictions are intended to minimize the risks due to uncertainty when CE is used for non-quota managed striped bass fisheries.

For recreational release mortality, Amendment 7 established a new gear restriction which prohibits gaffing striped bass when fishing recreationally. This is in addition to the existing circle hook requirement when fishing recreationally with bait. Additionally, Amendment 7 required striped bass caught on any unapproved method of take (e.g., caught on a J-hook with bait) must be returned to the water immediately without unnecessary injury. This provision, which is related to incidental catch, was previously a recommendation in Addendum VI to Amendment 6.

For stock rebuilding, Amendment 7 addressed the 2022 stock assessment and how it would inform efforts to meet the 2029 stock rebuilding deadline. Given concerns about recent low recruitment and the possibility of continued low recruitment, Amendment 7 required the 2022 stock assessment's rebuilding projections to use a low recruitment assumption to conservatively account for that future possibility. Amendment 7 also established a mechanism for the Board to respond more quickly to the 2022 assessment results if action was needed to achieve stock rebuilding by 2029.

All provisions of Amendment 7 were effective May 5, 2022 except for gear restrictions. States had to implement new gear restrictions by January 1, 2023. Amendment 7 also maintained the same recreational and commercial measures specified in Addendum VI to Amendment 6, which were implemented in 2020. As such, all approved Addendum VI conservation equivalency programs and state implementation plans are maintained until such measures are changed in the future.

Addendum I to Amendment 7

Addendum I to Amendment 7 was approved in May 2023 to allow for voluntary ocean commercial quota transfers contingent on stock status. The addendum was developed to provide some, more immediate relief to states seeking a change to their commercial quota after the Board decided that changes to the commercial quota system would not be considered in the then ongoing development of Draft Amendment 7. When the stock is overfished, no quota transfers will be allowed. When the stock is not overfished, the Board can decide every one to two years whether it will allow voluntary transfers of ocean commercial quota. The Board can also set criteria for allowable transfers, including a limit on how much and when quota can be transferred in a given year, and the eligibility of a state to request a transfer based on its landings.

2023 Emergency Action

In May 2023, the Board approved an emergency action to change the recreational size limit, effective initially for 180 days from May 2, 2023 through October 28, 2023. This action responds to the extreme magnitude of 2022 recreational harvest, which was nearly double that of 2021, and new stock rebuilding projections, which estimate the probability of the spawning stock rebuilding to its biomass

target by 2029 drops from 97% under the lower 2021 fishing mortality rate to less than 15% if the higher 2022 fishing mortality rate continues each year.

The Board implemented the emergency 31-inch maximum size limit to reduce harvest of the strong 2015-year class. The 31-inch maximum size limit applies to all existing recreational fishery regulations where a higher (or no) maximum size applies, excluding the May Chesapeake Bay trophy fisheries which already prohibit harvest of fish less than 35 inches. All bag limits, seasons, and gear restrictions will remain the same. As of July 2, 2023, all jurisdictions implemented regulations consistent with the required 31-inch maximum size limit.

In August 2023, the Board extended the emergency action through October 28, 2024 or until the implementation of Addendum II to Amendment 7 of the Interstate Fishery Management Plan, whichever comes first. The extension of the emergency action provided the Board time to develop and finalize Addendum II, which was approved in January 2024 with an implementation date of May 1, 2024. Therefore, Addendum II replaced the emergency action upon its implementation by the states by May 1, 2024.

Addendum II to Amendment 7

Addendum II to Amendment 7 was approved in January 2024 to reduce fishing mortality in 2024 and support stock rebuilding. For the ocean recreational fishery, the Addendum implements a 28” to 31” slot limit, 1-fish bag limit, and maintains 2022 season dates for all fishery participants; this maintains the same ocean recreational measures adopted under the 2023 emergency action. For the Chesapeake Bay recreational fishery, the Addendum implements a 19” to 24” slot limit, 1-fish bag limit, and maintains 2022 season dates for all fishery participants. For the commercial fishery, the Addendum reduces commercial quotas by 7% in both the ocean and Chesapeake Bay.

To address concerns about recreational filleting allowances and compliance with recreational size limits, the Addendum establishes two requirements for states that authorize filleting of striped bass: racks must be retained and possession limited to no more than two fillets per legal fish. Finally, to enable an expedited response process to upcoming stock assessments, the Addendum establishes a mechanism allowing the Board to respond to a stock assessment via Board action if the stock is not projected to rebuild by 2029 with a probability greater than or equal to 50%. All Addendum II measures were required to be implemented by the states no later than May 1, 2024.

II. Status of the Stocks

The biological reference points (BRPs) currently used for management are based on the 1995 estimate of female spawning stock biomass (SSB). The 1995 estimate of female SSB is used as the SSB threshold because many stock characteristics (such as an expanded age structure) were reached by this year and the stock was declared recovered. The SSB target is equal to 125% of SSB threshold.

The accepted model is a forward projecting statistical catch-at-age (SCA) model which uses catch-at-age data and fishery-dependent and -independent survey indices to estimate annual population size and fishing mortality (NEFSC 2019). Indices of abundance track relative changes in the population over

time while catch data provide information on the scale of the population size. Age structure data (numbers of fish by age) provide additional information on recruitment (number of age-1 fish entering the population) and trends in mortality.

The most recent assessment for striped bass was an update completed in 2022 with data through 2021 (ASMFC 2022a). Prior to this, the 2018 Benchmark Stock Assessment had determined that striped bass were overfished and experiencing overfishing in the terminal year (2017) (NEFSC 2019). Following the implementation of new management measures in 2020, the 2022 Stock Assessment Update found that the stock was no longer experiencing overfishing in 2021 (F = 0.14, below the threshold of 0.20 and the target of 0.17) but remained overfished (Female SSB = 143 million pounds, below both the target of 235 million pounds and the threshold of 188 million pounds) (Figures 1 and 2). These reference points were calculated using the "low recruitment assumption" (per Amendment 7's requirement under a tripped recruitment trigger), which resulted in a lower, more conservative F target and threshold compared to the 2018 benchmark assessment. Although below the threshold and considered overfished, female SSB in 2021 was still estimated to be more than three-times of that during the early 1980s, when the stock was considered collapsed (Figure 1).

The 2022 assessment also indicated a period of strong recruitment (numbers of age-1 fish entering the population) from 1994–2004, followed by a period of low recruitment from 2005–2011 (although not as low as the period of stock collapse in the early 1980s) (Figure 1). This period of low recruitment contributed to the decline in SSB that the stock has experienced since 2010. Recruitment of age-1 fish was high in 2012, 2015, 2016, and 2019 (corresponding to strong 2011, 2014, 2015, and 2018 year classes, respectively); however, estimates of age-1 striped bass were below the long-term average in 2018, 2020, and 2021. Recruitment in 2021 was estimated at 116 million age-1 fish, which is below the time series average of 136 million fish.

The 2022 assessment also included short-term projections to determine the probability of SSB being at or above the SSB target by 2029. These projections used the "low recruitment assumption", which restricts the estimates of age-1 recruitment to those occurring during 2008–2021, rather than the longer time series of 1993–2021. These projections indicated that under the 2021 fishing mortality rate, there was a 97% probability the stock will be rebuilt by 2029.

However, concerns over high recreational removals in 2022 compared to 2021, the terminal year of the most recent assessment update, prompted the Board to request updated stock projections using 2022 preliminary removals. These estimates of preliminary 2022 removals and updated stock projections were presented to the Board in May 2023. These 2022 removals were used to estimate F in 2022. Since striped bass catch and F rates vary from year-to-year (even under the same regulations), the average F from 2019-2022 (excluding 2020 due to uncertainty associated with COVID-19 impacts) was applied to 2023-2029 in the new projections. Under this F rate, the new projections estimate the probability of rebuilding SSB to its target by 2029 drops from 97% to 15%.

It should be noted that these projections are not the same as a full stock assessment update where the model would be re-run to include the 2022 catch-at-age and index data. Accordingly, the status of the stock remains overfished but no longer experiencing overfishing as per the 2022 stock assessment

update. The next stock assessment for striped bass is currently scheduled for 2024 (an update with data through 2023).

III. Status of the Fishery in the Ocean and Chesapeake Bay

Total Removals

In 2023, total Atlantic striped bass removals (including commercial harvest, commercial dead discards, recreational harvest, and recreational release mortality) were estimated at 5.6 million fish, which is a 18% decrease from 2022 total removals (Table 3; Figure 5). This 2023 decrease was primarily driven by a decrease in recreational removals, with commercial removals at a similar level as 2022. In 2023, the commercial sector accounted for about 11% of total removals in numbers of fish (11% harvest and <1% dead discards), and the recreational sector accounted for 89% of removals in numbers of fish (47% harvest and 42% release mortality) (Table 4).

Commercial Fishery

The commercial fishery (ocean and Chesapeake Bay) harvested an estimated 4,217,756 million pounds (600,673 fish) in 2023, which is about the same level of harvest as 2022 (2% decrease by weight and 3% decrease in number of fish) (Tables 5-6).

The ocean region regularly underutilizes its cumulative quota due to lack of striped bass availability in some state waters (particularly North Carolina, which holds 13% of the ocean quota, yet has had zero ocean harvest since 2013) coupled with prohibitions on commercial striped bass fishing in Maine, New Hampshire, Connecticut, and New Jersey (which collectively share about 10% of the ocean commercial quota). The ocean commercial quota utilization was 74.5% in 2023, which was only a slight decrease from 77% quota utilization in 2022. In the ocean, each state that allows commercial harvest utilized 94-98% of their ocean quota in 2023, with the exception of North Carolina which had zero ocean harvest. Ocean quota utilization in 2022 and 2023 was still well above the low quota utilization in 2020 at 55%.

In the Chesapeake Bay, quota utilization was about the same in 2023 as it was in 2022 at about 84%. In the past five years, 2018-2019 were the highest quota utilization years at about 91-92% utilized, while 2020 was the lowest recent quota utilization at 76%.

Quota utilization is important to consider when calculating reductions in commercial removals. The projections for Addendum II assumed the same quota utilization rate as 2022 (i.e., a 7% quota reduction in 2024 would result in a 7% reduction in harvest). As quota utilization changes from year to year, the realized reduction in commercial removals will change.

The PRT notes there are several factors that contribute to changes in commercial harvest levels under the same quota levels from 2020-2023. Year class availability could be a factor, particularly in the ocean, with the relatively strong 2015-year class becoming more available to ocean fisheries in 2022 and 2023. If stock abundance is increasing overall, that could also contribute to more fish being available. Availability also depends on when and how long striped bass stay within state waters (vs. offshore in the EEZ) during the season. Another factor is the impacts of COVID-19 during 2020-2021,

but those impacts likely varied among states, varied between 2020 and 2021, and varied depending on timing within the season.

Commercial harvest from Chesapeake Bay accounted for 59% of the 2023 total commercial harvest by weight. Of total commercial harvest (combined ocean and Chesapeake Bay) by weight, Maryland landed 33%, Virginia landed 22%, Massachusetts landed 16%, and New York landed 15% (Table 6; Figure 6). Additional harvest came from the Potomac River (9%), Delaware (3%), and Rhode Island (confidential). The proportion of commercial harvest coming from Chesapeake Bay is much higher in numbers of fish; roughly 83% in 2023 (Table 7). This is because fish harvested in Chesapeake Bay have a lower average weight than fish harvested in ocean fisheries. In 2023, coastwide commercial dead discards were estimated at 16,965[6] fish, which accounts for less than 1% of total removals in 2023 (Table 3).

From 2004-2014, coastwide commercial landings averaged 6.8 million pounds per year. From 2015-2019, commercial landings decreased to an average of 4.7 million pounds due to implementation of reduced quotas through Addendum IV. From 2020-2023, coastwide commercial landings decreased again to an average 4.1 million pounds due to further reduced quotas through Addendum VI to Amendment 6 and Amendment 7.

Recreational Fishery

Total recreational removals (harvest and release mortality) coastwide was estimated at 4.9 million fish in 2023, which is a 19% decrease from recreational removals in 2022 (Table 3). This coastwide decrease of total recreational removals was a combination of a decrease in both harvest and live releases. By mode, combined private vessel/shore modes of the recreational striped bass fishery accounted for 94% of recreational removals in 2023, while for-hire components (charter and head boats) accounted for about 6%.

The vast majority of recreational striped bass catch (over 90%) is released alive either due to angler preference or regulation (i.e., closed season, undersized, or already caught the bag limit) (Figure 7). The stock assessment assumes, based on previous studies, that 9% of fish that are released alive die as a result of being caught. In 2023, recreational anglers caught and released an estimated 26.0 million fish, of which 2.3 million are assumed to have died (Table 8). This represents a 12% decrease in live releases coastwide from 2022.

Recreational harvest in 2023 decreased to 2.6 million fish (23.9 million pounds) from the 2022 level of 3.5 million fish (35.8 million pounds), which is a 24% decrease by number (Tables 9-10). The emergency action implemented in mid-2023, which established a maximum recreational size limit intended to reduce harvest of the 2015-year class, likely contributed to that decrease. However, it is important to note that change in effort and changes in fish availability can also impact harvest.

[6] The entire time series for commercial dead discards was re-estimated as part of the 2024 stock assessment using a generalized additive model (GAM).

Table 11 outlines recreational harvest by wave for 2022 and 2023. In the ocean region, harvest decreased in 2023 in Waves 3, 4, 5, and 6 with very large reductions in Wave 4 (59%) and Wave 5 (68%). This aligns with the fact that all states had implemented the emergency action by the start of Wave 4. In the Chesapeake Bay, harvest decreased in Waves 4 and 5 with a very large reduction in Wave 5 (74%). While Chesapeake Bay harvest increased by 81% in Wave 6, there was still an overall reduction in Chesapeake Bay harvest for the entire year.

New Jersey landed the largest proportion of recreational harvest in number of fish[7] (37%), followed by Maryland (19%), New York (19%), and Massachusetts (13%) (Table 10). The proportion of coastwide recreational harvest in numbers from Chesapeake Bay was estimated at 22% in 2023, which was similar to 2022 but lower than the prior ten year average (2012-2021) of 39% per year from the Chesapeake Bay. This decrease in the proportion of recreational harvest from the Chesapeake Bay, and therefore increased proportion of ocean recreational harvest, aligns with the availability of the strong 2015-year class in the ocean fishery in 2022 and 2023.

By region, both the ocean and Chesapeake Bay regions saw a decrease in recreational harvest in 2023 relative to 2022, with the ocean seeing a larger reduction of 26% and Bay seeing a 16% reduction in harvest (Table 10). For recreational live releases, the ocean saw a 14% reduction in 2023 and the Chesapeake Bay saw a slight increase of 2% (Table 8). The larger reduction in recreational harvest in the ocean could be attributed, at least partly, to the impact of the emergency action. The 31-inch maximum size limit implemented by the emergency action likely had more impact on ocean harvest by reducing the slot size range from seven inches to three inches. On the other hand, slot sizes in the Chesapeake Bay were still relatively large after implementing the maximum size of 31 inches, with slot sizes ranging from eleven inches to thirteen inches, as compared to the three-inch slot size in the ocean region. Additionally, most striped bass available in the Chesapeake Bay after the spring spawning run are smaller than 31 inches. However, it is important to note that changes in effort and fish availability can also impact harvest, in addition to management actions.

The number of trips directed at striped bass (primary and secondary target) also shows a larger reduction in the ocean as compared to the Bay (Table 14). In 2023, the number of striped bass directed trips in the ocean region decreased by about 13% relative to 2022, while the number of striped bass directed trips in the Chesapeake Bay stayed about the same in 2023 as in 2022 (<1% change). Overall, the total number of coastwide striped bass directed trips in 2023 decreased by 12% from 2022, but is still higher than the number of directed trips in 2020-2021.

When considering recreational harvest and directed trips by mode, the magnitude of change from 2022 to 2023 can differ between the for-hire modes and the private-shore modes by region. While private-shore harvest in 2023 decreased by about 25% in both the ocean and Chesapeake Bay (Table 13), for-hire harvest in the ocean decreased by 50% compared to for-hire harvest in the Chesapeake increasing by 19%. For directed trips, private-shore directed trips in 2023 decreased by about 13% in the ocean while staying about the same in the Chesapeake Bay (Table 15). For-hire directed trips in the

[7] By weight, New Jersey had the largest proportion of recreational harvest (45%), followed by New York (22%), Massachusetts (13%), and Maryland (9%).

ocean in 2023 decreased by about 27%, while for-hire directed trips in the Chesapeake Bay increased by about 8%. Again, these data indicate larger reductions in recreational harvest and directed trips in the ocean in 2023, as well as larger reductions in for-hire harvest and directed trips in the ocean in 2023.

Overall, the PRT notes there are several factors that contribute to trends in recreational catch and effort, including management measures, year class availability, overall stock abundance, nearshore availability of bait and striped bass, and angler behavior. The relatively strong 2015-year class moving into the ocean and becoming available to the ocean slot (i.e., those 2015-year class fish surpassing 28-inches), is likely the primary driver of increased ocean recreational catch in 2022. The following emergency action in 2023 intended to reduce harvest of the 2015-year class likely contributed to the harvest reduction observed in 2023. Angler effort and behavior are also important to consider. When more fish are available in the fishery, effort can often increase in response. When narrower size limits are in place, anglers may change their behavior and level of effort.

IV. Albemarle Sound and Roanoke River Management Area

While striped bass in North Carolina's ocean waters are managed under the Interstate FMP, the Interstate FMP formally defers management of the Albemarle Sound-Roanoke River (A-R) stock to the state of North Carolina using A-R stock-specific BRPs approved by the Board (NCDMF 2013, 2014). North Carolina is required to inform the Commission of changes to striped bass management in the A-R System.

Status of the Albemarle Sound-Roanoke River Striped Bass Stock

The most recent A-R stock assessment, the 2022 Stock Assessment Update, uses a forward-projecting fully-integrated, age-structured statistical model estimating population parameters and reference points for the A-R striped bass stock for 1991-2021 (Lee et al. 2022). The 2022 stock assessment is an update of the 2020 Benchmark Stock Assessment (Lee et al. 2020). The 2020 benchmark stock assessment model was peer reviewed by an outside panel of experts and approved for management use by the Board in May 2021. The 2022 assessment update was also peer reviewed in January 2023.

The A-R stock is managed using reference points for female spawning stock biomass (SSB) and fishing mortality (*F*) with threshold values based on 35% spawning potential ratio and target values based on 45% spawning potential ratio. The 2022 assessment estimated female SSB in 2021 (terminal year) was 16.1 metric tons, which is below the SSB threshold of 125 metric tons. The assessment estimated *F* in 2021 was 0.77, which is above the *F* threshold of 0.22. These results indicate the stock is overfished and overfishing is occurring (Figures 3-4). Abundance indices indicate continued stock decline, and juvenile recruitment, in particular, has been very low for several consecutive years.

	Target	***Threshold***	***Terminal Year (2021) Estimate***
Female SSB	164 metric tons	125 metric tons	16 metric tons
Fishing Mortality (F)	0.14	0.20	0.77

NC Estuarine Striped Bass Fishery Management Plan

Estuarine striped bass in North Carolina are currently managed under Amendment 2 to the North Carolina Estuarine Striped Bass Fishery Management Plan (FMP) and its subsequent revision and recent supplement (NCDMF 2022, 2024). The plan is jointly developed between the North Carolina Marine Fisheries Commission (NCMFC) and the North Carolina Wildlife Resources Commission (NCWRC). Amendment 2, adopted in 2022, lays out separate management strategies for the 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 2 for the A-R stock utilize annual total allowable landings (TAL), daily possession limits, open and closed harvest seasons, gill net mesh size and yardage restrictions, seasonal small mesh gill net attendance requirements, single barbless hook requirements in some areas, minimum size limits, and a no-harvest slot limit in the Roanoke River to maintain a sustainable harvest and reduce regulatory discard mortality in all sectors.

Amendment 2 to the North Carolina Estuarine Striped Bass FMP was adopted in November 2022 and maintains for the A-R stock the use of a TAL to manage harvest as informed by stock assessments, and requires pound for pound payback for any overages. The Roanoke River Management Area continues to have a 18-22" harvest slot limit, and the Albemarle Sound Management Area has a new 18-25" harvest slot limit to protect larger striped bass. Single barbless hooks are still required in the Roanoke River from April-June, and a new requirement to use non-offset barbless circle hooks when fishing with bait in the inland Roanoke River waters is in place from May-June. Adaptive management continues to allow for adjustments to the TAL, bag limits, seasons, and gear.

Based on the results of the 2022 stock assessment, the resulting total allowable landings (TAL) level needed to reduce fishing mortality to its target is effectively too low to manage. For this reason and due to continued concern about stock decline and low recruitment, North Carolina implemented a harvest moratorium in the Albemarle Sound and Roanoke River Management Areas (ASMA and RRMA) effective January 2024 via the adaptive management framework under Amendment 2 of the NC Estuarine Striped Bass FMP (NCDMF 2024). In addition, the 2023 fall recreational and commercial seasons in the Albemarle Sound did not open because there is little quota remaining and because of stock status concerns.

Albemarle Sound and Roanoke River Atlantic Striped Bass Fisheries

In 2023, commercial harvest in the ASMA was 20,181 pounds (4,322 fish). There is no commercial harvest in the RRMA. Recreational harvest in the ASMA was 10,249 pounds (2,101 fish), and recreational harvest in the RRMA was 9,477 pounds (2,778 fish). Note the 2023 fall recreational and commercial seasons in the ASMA did not open.

V. Status of Research and Monitoring

Amendment 7 (approved May 2022) set the regulatory and monitoring measures for the coastwide striped bass fishery for 2023. Amendment 7 requires certain states to implement fishery-dependent monitoring programs for striped bass. All states with commercial fisheries or substantial recreational

fisheries are required to define the catch and effort composition of these fisheries. Additionally, all states with a commercial fishery must implement a commercial harvest tagging program.

Amendment 7 also require certain states to monitor the striped bass population independent of the fisheries. Juvenile abundance surveys 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), Maryland (Upper Chesapeake Bay and Potomac River), Virginia (Rappahannock River and James River), and North Carolina (Albemarle Sound-Roanoke River). NOAA Fisheries, USFWS, Massachusetts, New York, New Jersey, Maryland, Virginia, and North Carolina are also required to continue their tagging programs, which provide data used to determine survivorship and migration patterns.

VI. Status of Management Measures and Issues

Ocean Commercial Quota

In 2023, the ocean commercial quota was 2.3 million pounds and was not exceeded. Two states (Massachusetts and Rhode Island) decreased their quotas in 2023 to account for overages in 2022. Table 16 outlines 2023 quotas and harvest.

Chesapeake Bay Commercial Quota

In 2023, the Chesapeake Bay-wide quota was 3.0 million pounds and was allocated to Maryland, the PRFC, and Virginia based on historical harvest per their mutual agreement. In 2023, the Bay-wide quota was not exceeded. Table 16 outlines 2023 quotas and harvest.

Chesapeake Bay Spring Harvest of Migrant Striped Bass

Historically, recreational fishermen in 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. Through 2023, the Spring Trophy Fishery was managed via bag limits and minimum sizes and Maryland and the Potomac River. The Commonwealth of Virginia closed the spring trophy season beginning in 2019, and Maryland and the Potomac River Fisheries Commission closed the spring trophy season beginning in 2024.

The 2023 estimate of migrant fish harvested during the Maryland trophy season from May 1-May 15 was 577 fish (150 by charter vessels; 427 fish by private vessels).

For the entire time period of May 1 through June 15, 2023 when migrant fish were available to the Chesapeake Bay fisheries, a total of 972 migrant fish were harvested in Maryland (253 fish by charter vessels; 719 fish by private vessels), which is a 65% decrease compared to 2022 and well below the 2006-2023 average of 31,292 fish.

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 2018b). 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). Virginia harvest in wave-1 is estimated for stock assessment via the ratio of landings and tag returns in wave-6 and regression analysis (refer to the methods described in NEFSC 2018a for more detail).

However, based on fishery-independent data collected by NCDMF, ASMFC and USFWS, 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) affecting both Virginia's and North Carolina's striped bass winter ocean fisheries in recent years. Furthermore, North Carolina has reported zero recreational striped bass harvest during wave-1 and wave-6 in the ocean for 2012-2023, and Virginia has reported zero recreational ocean harvest for nine of the last ten years. Similarly, North Carolina's commercial fishery has reported zero striped bass landings from the ocean since 2013.

Amendment 7 Commercial Fish Tagging Program

Section 3.1.1 of Amendment 7 includes compliance requirements for monitoring commercial fishery harvest tagging programs, which have been required through the FMP since 2013. In 2023, all states implemented commercial tagging programs consistent with the tagging program requirements. Table 17 describes commercial tagging programs by state.

The PRT emphasizes the importance of tag accounting to account for unused tags at the end of each fishing year in all states. Due to the early deadlines for commercial tagging reports (60 days before the commercial fishery opens), tag accounting for the previous year is often preliminary or not yet available at that time. To address this, the PRT reiterates the importance of states reporting all tag accounting results in their annual state compliance reports (i.e., tags issued, tags used, tags returned, tags missing/broken/not accounted for). The PRT recommends that Commission staff work with the Law Enforcement Committee and the PRT to regularly follow-up with all states on tag accounting and other questions about state commercial tagging programs as needed. Additionally, the PRT recommends the Board task the PRT with a specific review of the commercial tagging program in the near-term to review the program components, such as the biological metrics used to allocate tags, since it has been ten years since the tagging program was implemented.

Amendment 7 Recreational Gear Requirements

All states have implemented the required circle hook regulations first required through Addendum VI to Amendment 6. The PRT notes differences among the definitions of bait implemented by the states (see FMP Review for 2021 Fishing Year) with some definitions being more restrictive than the Board-approved definition. A few states have not defined bait, which could be considered more restrictive (per Commission standards, states can implement more restrictive measures). Additionally, some state regulations are more restrictive by not specifying any exemptions, as compared to the Board-approved exemption for bait on artificial lures.

Amendment 7 includes two additional recreational gear requirements required to be implemented by January 1, 2023 regarding gaffing and incidental catch:

- It shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time when fishing recreationally.
- Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.

As discussed in last year's 2023 FMP Review, the PRT notes that all states have prohibited gaffing, except for the District of Columbia (DC) which does not specifically prohibit gaffing, but notes that gaffing is not listed as a legal gear in DC. For the incidental catch requirement, many states have implemented the provision as written (or nearly as written) in Amendment 7, but some states have referred to alternative regulatory language to meet the requirement (Table 19). Most alternative language notes that anglers can only take or catch striped bass via methods/gear that are legally allowed in that state's regulations.

2023 Emergency Action

All states implemented the 31-inch maximum size limit for recreational fisheries (excluding the Chesapeake Bay trophy fisheries) required under the 2023 Emergency Action by the implementation deadline of July 2, 2023. The effective dates for the emergency action size limit are listed in Table 12. Most states implemented the emergency action in mid-late May, which is the middle of MRIP Wave 3 (May/June). Three states implemented the emergency action near the end of Wave 3 or beginning of Wave 4 (New York June 20; Virginia July 1; New Jersey July 2).

Juvenile Abundance Index Analysis

The following states are required 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 and the Striped Bass Technical Committee (TC) annually review the JAIs per the recruitment trigger specified in the FMP. As of May 2022, the new Amendment 7 recruitment trigger is effective and reads as follows:

> If any of the four JAIs used in the stock assessment model to estimate recruitment (NY, NJ, MD, VA) shows an index value that is below 75% of all values (i.e., below the 25th percentile) in the respective JAI from 1992-2006* (which represents a period of high recruitment) for three consecutive years, then an interim F target and interim F threshold calculated using the low recruitment assumption will be implemented, and the F-based management triggers will be reevaluated using those interim reference points. If an F-based trigger is tripped upon reevaluation, the striped bass management program must be adjusted to reduce F to the interim F target within one year.

The 2024 review of JAIs evaluates the 2021, 2022, and 2023 JAI values per the Amendment 7 recruitment trigger. Three states (New Jersey, Maryland, and Virginia) met the criteria of the Amendment 7 recruitment trigger (Figure 8). Maryland's JAI values for 2021 (1.65), 2022 (1.78), and

2023 (0.57) were below the Maryland JAI trigger level of 4.16. New Jersey's (Delaware River) JAI values for 2021 (0.67), 2022 (0.77), and 2023 (0.26) were below its trigger level of 1.07. Virginia's JAI values in 2021 (6.3), 2022 (7.95), and 2023 (4.26) were below its trigger level of 8.22. These states trip the recruitment trigger in 2024, requiring *F* reference points using the low recruitment assumption to be calculated, which will occur during the 2024 stock assessment update. The reference points from the 2022 stock assessment update also used the low recruitment assumption.

While New York's JAI (Hudson River) was above its trigger level of 11.70 in 2021 and 2022, the JAI dropped to 4.04 in 2023, which is the lowest value in the time series since 1985.

Maine's JAI (Kennebec River) and North Carolina's JAI (Albemarle-Roanoke) are not part of the recruitment trigger, but are still required monitoring for those states (Figure 9). Maine's JAI has been below its recruitment failure since 2019, and North Carolina's JAI has been below its recruitment failure level since 2018.

Law Enforcement Reporting

States are asked to report any law enforcement issues that occurred the previous season in annual compliance reports. The most common violations noted in state compliance reports were over the daily bag limit and undersize fish. Two states noted enforcement challenges with the mid-season slot size change.

VII. Plan Review Team Comments and Recommendations

A summary of 2023 fishery regulations by state is provided in Table 1 and Table 2. Each state's commercial tag monitoring program is described in Table 17 and state compliance with fishery-independent and fishery-dependent monitoring requirements are summarized in Table 18.

Based on annual state compliance reports (ASMFC 2024), the PRT determined that all states in 2023 implemented a management and monitoring program consistent with the provisions of Amendment 7 and the 2023 Emergency Action.

The PRT had previously noted differences in regulatory language for the Amendment 7 gear restrictions. All states have prohibited gaffing, except for the District of Columbia (DC) which does not specifically prohibit gaffing, but notes that gaffing is not listed as a legal gear in DC. For the incidental catch requirement, many states have implemented the provision as written (or nearly as written) in Amendment 7, but some states have referred to alternative regulatory language to meet the requirement (Table 19). Most alternative language notes that anglers can only take or catch striped bass via methods/gear that are legally allowed in that state's regulations. The Board did not express any concern with alternative language during discussion of last year's 2023 FMP Review.

The PRT developed the following **recommendations**:

- The PRT reiterates the importance of states reporting all tag accounting results in their annual state compliance reports (i.e., tags issued, tags used, tags returned, tags missing/broken/not accounted for). The PRT recommends that Commission staff work with the Law Enforcement

Committee and the PRT to regularly follow-up with all states on tag accounting and other questions about state commercial tagging programs as needed.

- The PRT recommends the Board task the PRT with a specific review of the commercial tagging program in the near-term to review the program components, such as the biological metrics used to allocate tags, since it has been over ten years since the tagging program was implemented. This review is not necessarily intended to change the program requirements through the FMP, but instead intended to review how the programs are operating and identify issues that states have experienced and how those issues were resolved. This review could include input from the Law Enforcement Committee, including how to streamline state reporting on the tagging program. Some information in the current state tagging reports (e.g., tag color) is intended to inform law enforcement, while other information (e.g., tag accounting) would be more appropriate for the PRT to review during the annual compliance review.

The PRT notes the following **additional comments**:

- While the New York spawning stock monitoring program in the Hudson River does meet the FMP's fishery-independent monitoring requirements, it does not provide an index of relative abundance to characterize the Hudson River stock which was identified as a high priority research recommendation at SAW 66.

VIII. Research Recommendations

Research recommendations were developed by the 2018 Benchmark Stock Assessment Subcommittee and the 66th SARC and are listed in the final stock assessment report starting on report page 569 (NEFSC 2019).

IX. References

ASMFC. 2021. Review of the Interstate Fishery Management Plan for Atlantic Striped Bass (*Morone saxatilis*): 2020 Fishing Year.

ASMFC. 2022a. Atlantic Striped Bass Stock Assessment Update, Atlantic States Marine Fisheries Commission, Arlington, VA. 191p.

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Northeast Fisheries Science Center (NEFSC). 2019b. 66th Northeast Regional Stock Assessment Workshop (66th SAW) Assessment Summary Report. US Dept Commer. Northeast Fish Sci Cent Ref Doc. 19-01; 45 p.

Shepherd, G.R., R.W. Laney, M. Appelman, D. Honabarger and C.L. Wright. 2017. Biennial Report to Congress on the Progress and Findings of Studies of Striped Bass Populations --2017. National Marine Fisheries Service, Silver Spring, MD. 11 p.

X. Tables

Table 1. Summary of Atlantic striped bass commercial regulations in 2023. Source: 2024 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 (TL) and TRIP LIMITS	SEASONAL QUOTA	OPEN SEASON
ME	Commercial fishing prohibited		
NH	Commercial fishing prohibited		
MA	≥35" minimum size; no gaffing undersized fish. 15 fish/day with commercial boat permit; 2 fish/day with rod and reel permit.	700,379 lbs. (adjusted quota for 2022 overage). Hook & Line only.	6.16-11.15 (or when quota reached); open fishing days of Monday, Tuesday and Wednesday, with Thursday and Friday added on October 1 (if quota remains). Closed 7.7, 7.4, Labor Day. Cape Cod Canal closed to commercial striped bass fishing.
RI	Floating fish trap: 26" minimum size unlimited possession limit until 70% of quota reached, then 500 lbs. per licensee per day	GC: 81,671 (adjusted quota for 2022 overage); FFT: Conf adjusted quota for 2022 overage	4.1 – 12.31
	General category (mostly rod & reel): 34" min. 5 fish/vessel/day limit.		5.29-7.5; 7.6-12.31, or until quota reached. Closed Thursdays, Fridays, Saturdays, and Sundays during 7.6-12.31
CT	Commercial fishing prohibited; bonus program in CT suspended indefinitely in 2020.		
NY	26"-38" size; (Hudson River closed to commercial harvest)	640,718 lbs. Pound Nets, Gill Nets (6-8"stretched mesh), Hook & Line.	5.15 – 12.15, or until quota reached. Limited entry permit only.
NJ*	Commercial fishing prohibited; bonus program: 1 fish/permit at 24" to <28"	215,912 lbs.	5.15 – 12.31 (permit required)
PA	Commercial fishing prohibited		
DE	Gill Net: 20" min in DE Bay/River during spring season. 28" in all other waters/seasons.	Gillnet: 135,350 lbs. No fixed nets in DE River.	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 trip limit.
	Hook and Line: 28" min	Hook and line: 7,124 lbs.	Hook and Line: 4.1–12.31, 200 lbs./day trip limit

(Table 1 continued – Summary of commercial regulations in 2023).

STATE	SIZE LIMITS (TL) and TRIP LIMITS	SEASONAL QUOTA	OPEN SEASON
MD	Chesapeake Bay and Rivers: 18–36” Common pool trip limits: Hook and Line - 250 lbs./license/week Gill Net - 300 lbs./license/week	1,445,394 lbs. (part of Bay-wide quota)	Bay Pound Net: 6.1-12.31 Bay Haul Seine: 1.1-2.28; 6.1-12.31 Bay Hook & Line: 6.1-12.31, select days only Bay Drift Gill Net: 1.1-2.28, 12.1-12.31; select days only
	Ocean: 24” minimum	Ocean: 89,094 lbs.	1.1-5.31, 10.1-12.31
PRFC	18” min all year; 36” max 2.15–3.25	572,861 lbs. (split between gear types; part of Bay-wide quota)	Hook & Line: 1.1-3.25, 6.1-12.31 Pound Net & Other: 2.15-3.25, 6.1-12.15 Gill Net: 11.7.2022-3.25.2023 Misc. Gear: 2.15-3.25, 6.1-12.15
VA	Chesapeake Bay and Rivers: 18” min; 28” max size limit 3.15–6.15	983,393 lbs. (part of Bay-wide quota)	1.16-12.31
	Ocean: 28” min	125,034 lbs.	
NC	Ocean: 28” min	295,495 lbs. (split between gear types)	Seine fishery was not opened Gill net fishery was not opened Trawl fishery was not opened

Table 2. Summary of Atlantic striped bass recreational regulations in 2023. Source: 2024 State Compliance Reports. Minimum sizes and slot size limits are in total length (TL).

STATE	SIZE LIMITS (TL)/REGION	BAG LIMIT	GEAR/FISHING RESTRICTIONS	OPEN SEASON
ME	28” to <35”; Effective 5.18: 28” to 31”	1 fish/day	Hook and line only and no gaffing of striped bass. Regulations define bait as it pertains to the required use of circle hooks; immediate release w/o unnecessary injury if incidentally caught on unapproved hook type; maintains the circle hook exemption for rubber and latex tube rigs.	All year, except spawning areas are closed 12.1-4.30 and C&R only 5.1-6.30
NH	28” to <35”; Effective 5.26: 28” to <31"	1 fish/day	Gaffing and culling prohibited; Use of corrodible non-offset circle hooks required if angling with bait. If taken contrary to restrictions, return fish to water immediately w/o unnecessary injury.	All year
MA	28” to <35”; Effective 5.26: 28” to <31"	1 fish/day	Hook & line only; no high-grading; gaffs and other injurious removal devices prohibited. Inline circle hook requirement when fishing with bait, except with artificial lures; mandatory release of catch on any unapproved method of take. No filleting at-sea except aboard for-hire vessels provided skin remains and ratio of 2 filets/fish.	All year
RI	28” to <35”; Effective 5.27: 28” to <31"	1 fish/day	Circle required while fishing recreationally with bait for striped bass (except for artificial lures with bait attached); must release if caught on unapproved method of take	All year
CT	28” to <35”; Effective 5.26: 28” to <31"	1 fish/day	Inline circle hooks only when using whole, cut or live natural bait. Exemption of artificial lures/ release of incidental noncircle hook provision. Spearing and gaffing prohibited. If taken contrary to the provisions, shall, without avoidable injury, be returned immediately to the waters.	All year
NY	Ocean and DE River: 28”- 35”, Effective 6.20: 28”- 31”	1 fish/day	Angling only. Spearing permitted in ocean waters. C&R only during closed season, except no targeting in Hudson River during closed season. Circle hook requirements. No gaffing. Mandatory release of catch on any unapproved method of take.	Ocean: 4.15-12.15 Delaware River: All year
	HR: 18 - 28”	1 fish/day		Hudson River: 4.1-11.30

(Table 2 continued – Summary of recreational regulations in 2023).

STATE	SIZE LIMITS/REGION	BAG LIMIT	GEAR/FISHING RESTRICTIONS	OPEN SEASON
NJ	28” to <38”; Effective 7.2: 28” to 31”	1 fish/day	Circle hooks required when fishing with bait; must release if caught on unapproved method of take. Gaffing prohibited.	Closed 1.1 – Feb 28 in all waters except in the Atlantic Ocean, and closed 4.1-5.31 in the lower DE River and tribs
PA	Upstream from Calhoun St Bridge: 1 fish/day at 28” to <35”; Effective 6.3: size limit 28” to <31”		Unlawful to take or attempt to take fish unless the method is specifically authorized. Circle hooks required when fishing with bait downstream from Calhoun St. Bridge.	All year
	Downstream from Calhoun St Bridge: 1 fish/day at 28” to <35” (except 4.1-5.31); Effective 6.3: size limit 28” to <31”			All year. 2 fish/day at 21”- <24”slot from 4.1 – 5.31
DE	28” to <35” Effective 5.21: 28” to 31”	1 fish/day	Hook & line, spear (for divers) only. Inline circle hooks required when fishing for striped bass using cut or whole natural baits	All year. C&R only 4.1-5.31 in spawning grounds. 20”-25”slot 7.1-8.31 in DE River, Bay/tribs
MD	Ocean: 28” to <35” Effective 5.16: 28” to 31”	1 fish/day	Circle hooks if chumming, live-lining, or bait fishing and targeting striped bass; no gaffing	All year
	Chesapeake Bay and tribs^	C&R only	Circle hook requirement with bait; no eels; no stinger hooks; barbless hooks when trolling; max 6 lines when trolling; no gaffing	1.1-2.28, 3.1-3.31, 12.11-12.31
	Chesapeake Bay: 35" min	1 fish/day	Geographic restrictions apply; Circle hook requirement with bait; no eels bait; no gaffs	5.1-5.15
	Chesapeake Bay: 1 fish/day, 19” to 31”; 2/fish/day for charter with only 1 fish >28"		Geographic restrictions apply; circle hooks if chumming, livelining, or bait fishing and targeting striped bass; no gaffing	5.16-5.31
	Chesapeake Bay and tribs: 1 fish/day, 19” to 31”; 2/fish/day for charter with only 1 fish >28"		All Bay and tribs open; circle hooks if chumming, livelining, or bait fishing and targeting striped bass; no gaffing	6.1-7.15, 8.1-12.10

^ Susquehanna Flats: C&R only Jan 1 – March 31 (circle hooks when bait fishing); 1 fish at 19”-26” slot May 16 – May 31 (circle hooks if chumming, livelining, or bait fishing and targeting striped bass).

(Table 2 continued – Summary of recreational regulations in 2023).

STATE	SIZE LIMITS/REGION	BAG LIMIT	GEAR/FISHING RESTRICTIONS	OPEN SEASON
PRFC	Spring Trophy: 35” minimum size	1 fish/day	No more than two hooks or sets of hooks for each rod or line; no live eel; no high-grading; non-offset Circle Hooks are required when fishing for striped bass using cut or whole natural bait; no spearing or gaffing	5.1-5.15
	Summer & Fall: 20” to 31”	2 fish/day	No more than two hooks or sets of hooks for each rod or line; non-offset Circle Hooks are required when fishing for striped bass using cut or whole natural bait; no spearing or gaffing; any fish caught other than lawful fishing activities immediately released	5.16-7.6 and 8.21-12.31; closed 7.7-8.20 (No Direct Targeting)
DC	18” to <31”	1 fish/day	Hook and line only; unlawful to take fish except as specified	5.16-12.31
VA	Ocean: 28” to 36” Effective 7.1: 28” to 31”	1 fish/day	Hook & line, rod & reel, hand line, spearing only. No gaffing. Circle hooks required if/when using live bait. Unlawful to take/attempt take by any other gear/method	1.1-3.31, 5.16-12.31
	Ocean Spring Trophy: NO SPRING TROPHY SEASON			
	Chesapeake Bay Spring Trophy: NO SPRING TROPHY SEASON			
	Bay Spring/Summer: 20” to 28”	1 fish/day	Hook & line, rod & reel, hand line, spearing only. No gaffing. Circle hooks required if/when using live bait. Unlawful to take/attempt take by any other gear/method	5.16-6.15
	Bay Fall: 20” to 31”	1 fish/day		10.4-12.31
NC	28” to <35”; Effective 6.1: 28” to <31”	1 fish/day	No gaffing allowed. Circle hooks required when fishing with natural bait	All year

Table 3. Total removals (harvest plus discards/release mortality) of Atlantic striped bass by sector in numbers of fish, 1997-2023 calendar years. Note: Harvest is from state compliance reports/MRIP (June 2024), discards/release mortality is from ASMFC. Estimates exclude inshore harvest from NC.

Year	Commercial		Recreational		Total Removals
	Harvest	Dead Discards*	Harvest	Release Mortality	
1997	1,076,561	333,142	2,774,981	2,969,781	7,154,466
1998	1,215,219	359,876	2,915,390	3,259,133	7,749,618
1999	1,223,572	348,807	3,123,496	3,140,905	7,836,779
2000	1,216,812	213,504	3,802,477	3,044,203	8,276,995
2001	931,412	182,703	4,052,474	2,449,599	7,616,188
2002	928,085	198,124	4,005,084	2,792,200	7,923,493
2003	854,326	129,223	4,781,402	2,848,445	8,613,396
2004	879,768	154,995	4,553,027	3,665,234	9,253,023
2005	970,403	147,004	4,480,802	3,441,928	9,040,137
2006	1,047,648	159,914	4,883,961	4,812,332	10,903,855
2007	1,015,114	158,718	3,944,679	2,944,253	8,062,765
2008	1,027,824	105,275	4,381,186	2,391,200	7,905,484
2009	1,050,055	131,583	4,700,222	1,942,061	7,823,921
2010	1,031,448	133,375	5,388,440	1,760,759	8,314,022
2011	944,777	82,175	5,006,358	1,482,029	7,515,339
2012	870,684	199,927	4,046,299	1,847,880	6,964,790
2013	784,379	116,919	5,157,760	2,393,425	8,452,483
2014	750,263	114,049	4,033,746	2,172,342	7,070,400
2015	621,952	84,840	3,085,725	2,307,133	6,099,651
2016	609,028	92,260	3,500,434	2,981,430	7,183,151
2017	592,670	100,349	2,937,911	3,421,110	7,052,041
2018	615,649	100,491	2,244,765	2,826,667	5,787,571
2019	652,777	84,827	2,150,936	2,589,045	5,477,585
2020	581,249	60,363	1,709,973	2,760,231	5,111,816
2021	644,204	89,484	1,841,902	2,583,788	5,159,378
2022	622,335	44,624	3,454,021	2,667,846	6,788,826
2023	600,673	16,965	2,624,429	2,343,556	5,585,623

*The entire time series for commercial dead discards was re-estimated as part of the 2024 stock assessment using a generalized additive model (GAM).

Table 4. Proportion of total removals (harvest plus discards/release mortality) of Atlantic striped bass by sector in numbers of fish, 1997-2023. Note: Harvest is from state compliance reports/MRIP (June 2024), discards/release mortality is from ASMFC. Estimates exclude inshore harvest from NC.

Year	Commercial		Recreational	
	Harvest	Dead Discards*	Harvest	Release Mortality
1997	15%	5%	39%	42%
1998	16%	5%	38%	42%
1999	16%	4%	40%	40%
2000	15%	3%	46%	37%
2001	12%	2%	53%	32%
2002	12%	3%	51%	35%
2003	10%	2%	56%	33%
2004	10%	2%	49%	40%
2005	11%	2%	50%	38%
2006	10%	1%	45%	44%
2007	13%	2%	49%	37%
2008	13%	1%	55%	30%
2009	13%	2%	60%	25%
2010	12%	2%	65%	21%
2011	13%	1%	67%	20%
2012	13%	3%	58%	27%
2013	9%	1%	61%	28%
2014	11%	2%	57%	31%
2015	10%	1%	51%	38%
2016	8%	1%	49%	42%
2017	8%	1%	42%	49%
2018	11%	2%	39%	49%
2019	12%	2%	39%	47%
2020	11%	1%	33%	54%
2021	12%	2%	36%	50%
2022	9%	1%	51%	39%
2023	11%	0.3%	47%	42%

* The entire time series for commercial dead discards was re-estimated as part of the 2024 stock assessment using a generalized additive model (GAM).Note: Percent may not sum to 100 due to rounding.

Table 5. Total harvest of Atlantic striped bass by sector, 1997-2023 calendar years. Note: Harvest is from state compliance reports/MRIP (Query June 2024). Estimates exclude inshore harvest from North Carolina.

Year	Numbers of Fish			Pounds		
	Commercial	Recreational	Total	Commercial	Recreational	Total
1997	1,076,561	2,774,981	3,851,542	6,078,566	30,616,093	36,694,659
1998	1,215,219	2,915,390	4,130,609	6,551,623	29,603,199	36,154,822
1999	1,223,572	3,123,496	4,347,068	6,485,079	33,564,988	40,050,067
2000	1,216,812	3,802,477	5,019,289	6,715,044	34,050,817	40,765,861
2001	931,412	4,052,474	4,983,886	6,266,953	39,263,154	45,530,107
2002	928,085	4,005,084	4,933,169	6,152,583	41,840,025	47,992,608
2003	854,326	4,781,402	5,635,728	6,750,799	54,091,836	60,842,635
2004	879,768	4,553,027	5,432,795	7,340,822	53,031,074	60,371,896
2005	970,403	4,480,802	5,451,205	7,120,647	57,421,174	64,541,821
2006	1,047,648	4,883,961	5,931,609	6,780,541	50,674,431	57,454,972
2007	1,015,114	3,944,679	4,959,793	7,047,179	42,823,614	49,870,793
2008	1,027,824	4,381,186	5,409,010	7,190,800	56,665,318	63,856,118
2009	1,050,055	4,700,222	5,750,277	7,217,484	54,411,389	61,628,873
2010	1,031,448	5,388,440	6,419,888	6,996,713	61,431,360	68,428,073
2011	944,777	5,006,358	5,951,135	6,789,792	59,592,092	66,381,884
2012	870,684	4,046,299	4,916,983	6,516,761	53,256,619	59,773,380
2013	784,379	5,157,760	5,942,139	5,819,678	65,057,289	70,876,967
2014	750,263	4,033,746	4,784,009	5,937,949	47,948,610	53,886,559
2015	621,952	3,085,725	3,707,677	4,829,997	39,898,799	44,728,796
2016	609,028	3,500,434	4,109,462	4,848,772	43,671,532	48,520,304
2017	592,670	2,937,911	3,530,581	4,816,395	37,952,581	42,768,976
2018	615,649	2,244,765	2,860,414	4,795,679	23,069,028	27,864,707
2019	652,777	2,150,936	2,803,713	4,253,196	23,556,287	27,809,483
2020	581,249	1,709,973	2,291,222	3,607,681	14,858,984	18,466,665
2021	644,204	1,841,902	2,486,106	4,306,781	15,781,510	20,088,291
2022	622,335	3,454,021	4,076,356	4,317,814	35,805,246	40,123,060
2023	600,673	2,624,429	3,225,102	4,217,756	23,937,530	28,155,286

Table 6. Commercial harvest by region in pounds (x1000), 1997-2023 calendar years. Source: State compliance reports.
^Estimates exclude inshore harvest.

Year	Ocean								Chesapeake Bay				Grand Total
	MA	RI	NY	DE	MD	VA	NC^	Total	MD	PRFC	VA	Total	
1997	784.9	96.5	460.8	166.0	94.0	179.1	463.1	2,244.4	2,119.2	731.9	983.0	3,834.2	6,078.6
1998	810.1	94.7	485.9	163.2	84.6	375.0	273.0	2,286.6	2,426.7	726.2	1,112.2	4,265.1	6,551.6
1999	766.2	119.7	491.8	187.1	62.6	614.8	391.5	2,633.7	2,274.8	653.3	923.4	3,851.4	6,485.1
2000	796.2	111.8	542.7	140.6	149.7	932.7	162.4	2,836.0	2,261.8	666.0	951.2	3,879.0	6,715.0
2001	815.4	129.7	633.1	198.8	113.9	782.4	381.1	3,054.3	1,660.9	658.7	893.1	3,212.6	6,267.0
2002	924.9	129.2	518.6	160.6	93.2	710.2	441.0	2,977.6	1,759.4	521.0	894.4	3,174.9	6,152.6
2003	1,055.5	190.2	753.3	191.5	103.9	166.4	201.2	2,662.1	1,721.8	676.6	1,690.4	4,088.7	6,750.8
2004	1,214.2	232.3	741.7	182.2	134.2	161.3	605.4	3,271.2	1,790.3	772.3	1,507.0	4,069.6	7,340.8
2005	1,102.2	215.6	689.8	173.1	46.9	185.2	604.5	3,017.4	2,008.7	533.6	1,561.0	4,103.3	7,120.6
2006	1,322.3	221.4	688.4	179.5	91.1	195.0	74.2	2,771.8	2,116.3	673.5	1,219.0	4,008.7	6,780.5
2007	1,039.3	240.6	731.5	188.7	96.3	162.3	379.5	2,838.1	2,240.6	599.3	1,369.2	4,209.1	7,047.2
2008	1,160.3	245.9	653.1	188.8	118.0	163.1	288.4	2,817.7	2,208.0	613.8	1,551.3	4,373.1	7,190.8
2009	1,134.3	234.8	789.9	192.4	127.3	140.4	190.0	2,809.1	2,267.3	727.8	1,413.3	4,408.4	7,217.5
2010	1,224.5	248.9	786.8	185.4	44.8	127.8	276.4	2,894.7	2,105.8	683.2	1,313.0	4,102.0	6,996.7
2011	1,163.9	228.2	855.3	188.6	21.4	158.8	246.4	2,862.5	1,955.1	694.2	1,278.1	3,927.3	6,789.8
2012	1,218.5	239.9	683.8	194.3	77.6	170.8	7.3	2,592.0	1,851.4	733.7	1,339.6	3,924.7	6,516.8
2013	1,004.5	231.3	823.8	191.4	93.5	182.4	0.0	2,526.9	1,662.2	623.8	1,006.8	3,292.8	5,819.7
2014	1,138.5	216.9	531.5	167.9	120.9	183.7	0.0	2,359.4	1,805.7	603.4	1,169.4	3,578.5	5,937.9
2015	866.0	188.3	516.3	144.1	34.6	138.1	0.0	1,887.5	1,436.9	538.0	967.6	2,942.5	4,830.0
2016	938.7	174.7	575.0	136.5	19.7	139.2	0.0	1,983.9	1,425.5	537.1	902.3	2,864.9	4,848.8
2017	823.4	175.3	701.2	141.8	80.5	133.9	0.0	2,056.1	1,439.8	492.7	827.8	2,760.3	4,816.4
2018	753.7	116.8*	731.4	155.0	79.8	134.2	0.0	1,970.9	1,424.3	449.4	951.0	2,824.7	4,795.7
2019	584.7	144.2	327.3	132.6	82.8	138.0	0.0	1,409.6	1,475.2	417.3	951.1	2,843.6	4,253.2
2020	386.9	115.9	518.2	138.0	83.6	77.2	0.0	1,319.8	1,273.8	400.3	613.8	2,287.9	3,607.7
2021	732.1	130.3	600.9	140.3	88.7	119.9	0.0	1,812.1	1,351.5	411.3	731.9	2,494.7	4,306.8
2022	770.1	100.0*	582.9	139.2	88.9	121.7	0.0	1,802.9	1,363.7	428.5	722.8	2,515.0	4,317.8
2023	677.0	80.6*	615.2	140.0	84.6	122.8	0.0	1,720.2	1,319.0	363.6	815.0	2,497.5	4,217.8

*Rhode Island general category harvest (mostly rod and reel) shown only; floating fish trap landings confidential in 2018, 2022, and 2023.

Table 7. Commercial harvest and discards by region in numbers of fish (x1000), 1997-2023 calendar years. Source: harvest is from state compliance reports, discards is from ASMFC. ^Estimates exclude inshore harvest.

Year	Ocean								Chesapeake Bay				Discards**			Grand Total Removals
	MA	RI	NY	DE	MD	VA	NC^	Total	MD	PRFC	VA	Total	Ocean	Bay	Total	
1997	44.0	7.1	37.6	33.2	8.4	17.3	25.8	173.4	620.3	87.7	195.2	903.2	258.0	75.1	333.1	1,409.7
1998	44.3	8.8	45.1	31.4	10.3	41.1	14.2	195.2	729.6	93.3	197.1	1,020.1	326.7	33.2	359.9	1,575.1
1999	40.9	11.6	49.9	34.8	10.2	48.7	21.1	217.2	776.0	90.6	139.8	1,006.3	316.3	32.5	348.8	1,572.4
2000	42.1	9.4	54.9	25.2	13.3	54.5	6.5	205.8	787.6	91.5	132.0	1,011.0	180.7	32.8	213.5	1,430.3
2001	45.8	10.9	58.3	34.4	11.1	42.3	25.0	227.7	538.8	87.8	77.1	703.7	139.7	43.0	182.7	1,114.1
2002	49.8	11.7	47.1	30.4	10.2	38.8	23.2	211.3	571.7	80.3	64.7	716.8	146.7	51.4	198.1	1,126.2
2003	56.4	15.5	68.4	31.5	11.6	10.5	5.8	199.6	427.9	83.1	143.7	654.7	95.6	33.6	129.2	983.5
2004	63.6	16.0	70.4	28.4	14.1	10.4	31.0	233.9	447.0	92.6	106.3	645.9	108.4	46.6	155.0	1,034.8
2005	60.5	14.9	70.6	26.3	6.1	11.3	27.3	217.1	563.9	80.6	108.9	753.3	84.6	62.4	147.0	1,117.4
2006	70.5	15.4	73.6	30.2	10.9	11.5	2.7	214.9	645.1	92.3	95.4	832.7	96.2	63.7	159.9	1,207.6
2007	54.2	13.9	78.5	31.1	11.6	10.6	16.8	216.7	587.6	86.5	124.3	798.4	93.3	65.4	158.7	1,173.8
2008	61.1	16.6	73.3	31.9	14.0	10.8	13.4	221.0	580.7	82.0	144.1	806.8	62.7	42.6	105.3	1,133.1
2009	59.4	16.8	82.6	21.8	12.5	8.9	9.0	211.1	605.6	89.6	143.8	839.0	58.8	72.8	131.6	1,181.6
2010	60.4	15.7	82.4	19.8	5.4	9.4	13.7	206.8	579.2	90.6	154.9	824.7	39.6	93.7	133.4	1,164.8
2011	58.7	14.3	87.4	20.5	2.1	12.2	10.9	206.0	488.9	96.1	153.7	738.7	34.8	47.4	82.2	1,027.0
2012	61.5	15.0	67.1	15.7	6.9	10.8	0.3	177.3	465.6	90.7	137.0	693.4	26.9	173.0	199.9	1,070.6
2013	58.6	13.8	76.2	17.7	7.6	10.0	0.0	183.8	391.5	78.0	131.0	600.5	37.3	79.6	116.9	901.3
2014	58.0	10.5	52.9	14.9	8.5	10.0	0.0	154.8	362.2	81.5	151.8	595.5	50.4	63.7	114.0	864.3
2015	42.3	11.3	45.6	11.0	2.6	7.7	0.0	120.4	298.3	71.0	132.2	501.5	34.9	49.9	84.8	706.8
2016	48.0	11.7	51.0	8.8	1.2	7.6	0.0	128.3	284.9	73.7	122.2	480.8	42.4	49.9	92.3	701.3
2017	41.2	10.1	61.6	9.5	3.5	7.6	0.0	133.5	263.6	67.5	128.0	459.2	78.1	22.3	100.3	693.0
2018	37.8	4.6*	52.2	11.4	3.5	6.9	0.0	116.4	286.4	64.4	148.4	499.3	56.6	43.9	100.5	716.1
2019	29.6	7.3	28.5	8.2	3.3	6.9	0.0	83.9	356.7	62.6	149.6	568.9	15.9	68.9	84.8	737.6
2020	19.6	5.0	47.5	8.4	3.4	4.42	0.0	88.4	299.9	66.6	126.4	492.9	19.2	41.2	60.4	641.6
2021	36.9	4.6	58.8	9.2	3.6	6.6	0.0	119.6	310.4	68.0	146.2	524.6	11.6	77.8	89.5	733.7
2022	33.0	3.9*	53.9	8.2	3.4	6.3	0.0	108.6	295.3	71.7	146.7	513.7	3.1	41.5	44.6	667.0
2023	29.9	2.6*	55.5	7.4	3.6	5.9	0.0	104.9	284.3	60.7	150.7	495.7	3.7	13.3	17.0	617.6

** The entire time series for commercial dead discards was re-estimated as part of the 2024 stock assessment using a generalized additive model (GAM).*RI general category harvest only; floating fish trap confidential for 2018, 2022, and 2023.

Table 8. Total recreational catch, releases, and release mortality in numbers of fish by region (x1000), 1997-2023. Source: MRIP (Query June 2024). Estimates exclude inshore harvest from North Carolina.

Year	Harvest (A+B1)			Releases (B2)			Total Catch (A+B1+B2)			Release Mortality (9% of B2)		
	Ocean	Bay	Total	Ocean	Bay	Total	Ocean	Bay	Total	Ocean	Bay	Total
1997	1,514	1,261	2,775	22,819	10,178	32,998	24,333	11,439	35,773	2,054	916	2,970
1998	1,647	1,268	2,915	29,294	6,918	36,213	30,941	8,187	39,128	2,637	623	3,259
1999	1,758	1,366	3,123	26,139	8,760	34,899	27,897	10,125	38,022	2,353	788	3,141
2000	2,198	1,604	3,802	25,090	8,734	33,824	27,289	10,338	37,627	2,258	786	3,044
2001	2,758	1,294	4,052	21,073	6,145	27,218	23,831	7,440	31,270	1,897	553	2,450
2002	2,756	1,249	4,005	23,653	7,371	31,024	26,409	8,620	35,030	2,129	663	2,792
2003	3,124	1,658	4,781	20,678	10,971	31,649	23,802	12,628	36,431	1,861	987	2,848
2004	3,078	1,475	4,553	27,868	12,857	40,725	30,946	14,332	45,278	2,508	1,157	3,665
2005	3,182	1,299	4,481	28,663	9,580	38,244	31,845	10,879	42,724	2,580	862	3,442
2006	2,789	2,095	4,884	41,239	12,232	53,470	44,028	14,327	58,354	3,711	1,101	4,812
2007	2,327	1,618	3,945	25,135	7,579	32,714	27,462	9,196	36,659	2,262	682	2,944
2008	3,025	1,356	4,381	21,878	4,691	26,569	24,904	6,046	30,950	1,969	422	2,391
2009	2,898	1,803	4,700	16,740	4,838	21,578	19,638	6,641	26,279	1,507	435	1,942
2010	3,906	1,483	5,388	13,606	5,957	19,564	17,512	7,440	24,952	1,225	536	1,761
2011	3,617	1,389	5,006	12,644	3,823	16,467	16,261	5,212	21,473	1,138	344	1,482
2012	3,071	975	4,046	11,242	9,290	20,532	14,314	10,265	24,578	1,012	836	1,848
2013	3,723	1,435	5,158	19,463	7,131	26,594	23,186	8,565	31,751	1,752	642	2,393
2014	2,276	1,758	4,034	15,107	9,031	24,137	17,382	10,789	28,171	1,360	813	2,172
2015	1,770	1,316	3,086	15,419	10,216	25,635	17,189	11,532	28,721	1,388	919	2,307
2016	1,817	1,683	3,500	17,794	15,333	33,127	19,611	17,016	36,627	1,601	1,380	2,981
2017	1,738	1,200	2,938	28,963	9,050	38,012	30,701	10,249	40,950	2,607	814	3,421
2018	1,195	1,050	2,245	22,739	8,669	31,407	23,933	9,719	33,652	2,046	780	2,827
2019	1,342	809	2,151	21,131	7,636	28,767	22,473	8,445	30,918	1,902	687	2,589
2020	923	787	1,710	22,710	7,959	30,669	23,633	8,746	32,379	2,044	716	2,760
2021	1,189	653	1,842	24,281	4,427	28,709	25,470	5,081	30,551	2,185	398	2,584
2022	2,756	697	3,454	26,031	3,611	29,643	28,788	4,309	33,097	2,343	325	2,668
2023	2,036	588	2,624	22,363	3,676	26,040	24,400	4,264	28,664	2,013	331	2,344

Table 9. Recreational harvest by region in pounds (x1000), 1997-2023. Source: MRIP (Query June 2024). ^Estimates exclude NC inshore harvest.

Year	Ocean												Chesapeake Bay			Grand Total
	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC^	Total	MD	VA	Total	
1997	223	538	5,133	1,997	2,263	8,543	2,179	374	0.0	1,096	865	23,211	3,203	4,203	7,405	30,616
1998	305	262	7,359	1,544	1,807	4,889	4,182	645	579	545	636	22,754	3,023	3,826	6,849	29,603
1999	196	181	4,995	1,904	1,327	7,414	9,473	312	3.8	110	339	26,256	2,323	4,986	7,309	33,565
2000	347	109	4,863	2,008	890	7,053	9,768	925	0.0	416	277	26,656	3,503	3,892	7,395	34,051
2001	446	334	7,188	2,044	1,101	5,058	12,314	695	314	382	1,082	30,959	2,928	5,376	8,304	39,263
2002	775	322	10,261	2,708	1,251	5,975	9,621	589	0.0	1,135	998	33,634	2,643	5,563	8,206	41,840
2003	458	466	10,252	4,052	2,666	10,788	12,066	763	14	392	966	42,882	5,246	5,964	11,210	54,092
2004	554	268	9,329	2,460	2,229	6,437	13,303	870	57	1,067	6,656	43,230	4,860	4,941	9,801	53,031
2005	546	384	7,541	3,155	3,133	11,637	14,289	680	7.7	487	3,947	45,808	7,753	3,860	11,614	57,421
2006	610	244	6,787	1,569	2,854	9,845	12,716	586	2.8	921	2,975	39,109	6,494	5,071	11,565	50,674
2007	422	93	7,010	2,077	2,786	10,081	8,390	207	0.0	516	1,965	33,547	5,249	4,027	9,277	42,824
2008	607	182	8,424	970	2,273	18,000	12,407	847	0.0	1,690	750	46,150	5,639	4,877	10,515	56,665
2009	781	222	9,410	2,185	1,458	7,991	17,040	940	138	48	187	40,399	8,672	5,340	14,012	54,411
2010	218	238	9,959	2,102	2,323	18,190	17,454	895	107	206	1,198	52,891	6,482	2,059	8,541	61,431
2011	245	659	11,953	3,066	981	13,151	15,715	605	8.6	308	4,467	51,157	6,220	2,214	8,435	59,592
2012	152	432	14,941	2,096	1,835	13,096	11,551	644	21	1.7	0.0	44,768	3,819	4,670	8,488	53,257
2013	331	831	9,025	4,428	4,236	16,819	19,451	1,073	1,051	67	0.0	57,313	5,137	2,607	7,744	65,057
2014	423	203	7,965	3,402	2,665	13,998	8,886	381	159	0.0	0.0	38,083	8,877	989	9,866	47,949
2015	132	202	7,799	1,394	2,585	8,695	9,982	340	28	0.0	0.0	31,156	7,786	957	8,743	39,899
2016	189	191	3,731	1,776	912	12,053	12,790	86	7.2	0.0	0.0	31,735	10,912	1,024	11,936	43,672
2017	318	394	5,664	1,655	1,560	8,885	10,886	666	0.0	1.8	0.0	30,030	7,309	613	7,922	37,953
2018	142	130	4,925	1,121	1,165	3,453	7,012	33	0.0	0.0	0.0	17,982	4,683	404	5,087	23,069
2019	415	291	2,698	2,300	685	7,072	6,674	44	7.3	0.0	0.0	20,187	3,145	224	3,370	23,556
2020	180	29	776	483	830	2,202	6,584	16	0.0	0.0	0.0	11,100	3,480	280	3,759	14,859
2021	89	36	1,826	597	201	1,492	8,313	132	0	0	0	12,686	2,682	414	3,095	15,782
2022	590	240	5,288	779	1,294	10,695	13,508	39	0	0	0	32,434	3,083	288	3,371	35,805
2023	510	287	3,212	575	769	5,171	10,730	0	31	0	0	21,285	2,195	458	2,653	23,938

Table 10. Recreational harvest by region in numbers of fish (x1000), 1997-2023. Source: MRIP (Query June 2024). ^Estimates exclude NC inshore harvest.

Year	Ocean												Chesapeake Bay			Grand Total
	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC^	Total	MD	VA	Total	
1997	43.0	29.9	365.6	124.7	149.0	450.5	171.2	29.1	0.0	91.1	60.1	1,514.1	552.4	708.4	1,260.8	2,775.0
1998	65.3	14.8	500.9	91.1	114.1	383.8	289.2	51.0	24.3	71.3	41.2	1,647.0	596.2	672.2	1,268.4	2,915.4
1999	37.5	9.9	327.1	116.6	88.2	450.9	657.1	28.3	1.6	14.1	26.4	1,757.8	530.9	834.8	1,365.7	3,123.5
2000	77.3	6.0	306.2	156.8	84.0	494.6	939.8	88.3	0.0	27.2	18.1	2,198.3	810.9	793.3	1,604.2	3,802.5
2001	91.9	23.5	551.0	149.8	78.2	364.2	1,267.5	70.6	64.1	36.7	60.7	2,758.1	513.3	781.1	1,294.4	4,052.5
2002	135.2	28.1	723.5	181.5	92.5	439.3	957.6	65.7	0.0	76.4	56.3	2,756.1	464.4	784.6	1,249.0	4,005.1
2003	99.7	41.3	797.2	226.4	181.7	678.4	942.8	75.7	0.9	29.3	50.4	3,123.8	816.0	841.6	1,657.6	4,781.4
2004	118.3	22.1	666.7	159.6	134.5	458.1	1,042.1	66.6	11.0	75.9	323.2	3,078.1	657.5	817.4	1,474.9	4,553.0
2005	118.3	35.5	536.1	195.6	202.6	854.6	958.1	48.8	3.6	34.2	194.9	3,182.2	815.5	483.1	1,298.6	4,480.8
2006	140.9	20.9	483.2	129.3	168.3	614.8	972.2	44.5	0.4	80.6	134.2	2,789.0	1,342.0	753.0	2,094.9	4,884.0
2007	95.5	8.1	471.9	135.8	163.9	602.8	722.2	17.2	0.0	28.0	81.8	2,327.1	1,127.3	490.3	1,617.6	3,944.7
2008	133.4	11.9	514.1	73.4	132.8	1,169.9	791.0	67.7	0.0	94.4	36.9	3,025.4	779.7	576.1	1,355.8	4,381.2
2009	146.5	17.3	695.0	138.4	100.3	574.2	1,141.5	64.8	10.2	3.0	6.5	2,897.7	1,094.4	708.1	1,802.5	4,700.2
2010	37.3	21.4	808.2	162.0	170.2	1,449.0	1,091.4	61.4	12.5	25.3	67.1	3,905.9	1,139.3	343.2	1,482.6	5,388.4
2011	48.5	54.2	873.5	202.2	91.1	1,005.3	1,038.9	43.7	0.8	51.2	207.6	3,617.1	1,112.1	277.2	1,389.3	5,006.4
2012	31.4	37.3	1,010.6	130.7	137.1	927.5	742.4	51.3	2.9	0.3	0.0	3,071.5	716.7	258.1	974.8	4,046.3
2013	73.3	63.2	658.7	308.3	269.6	902.5	1,324.2	70.6	48.4	4.4	0.0	3,723.2	1,136.7	297.9	1,434.5	5,157.8
2014	86.4	16.5	523.5	172.0	131.8	804.5	501.9	26.2	12.6	0.0	0.0	2,275.5	1,627.0	131.2	1,758.2	4,033.7
2015	14.4	10.0	485.3	67.0	140.8	406.8	600.3	41.9	3.5	0.0	0.0	1,770.1	1,108.0	207.7	1,315.7	3,085.7
2016	14.2	17.6	230.1	128.4	63.3	697.7	659.6	5.9	0.5	0.0	0.0	1,817.2	1,545.1	138.1	1,683.2	3,500.4
2017	22.0	37.7	392.3	59.8	94.9	477.3	626.4	27.8	0.0	0.1	0.0	1,738.3	1,091.6	108.0	1,199.6	2,937.9
2018	16.0	13.4	389.5	39.2	85.5	181.7	465.3	4.2	0.0	0.0	0.0	1,194.6	993.3	56.8	1,050.1	2,244.8
2019	38.0	14.7	195.6	104.1	67.1	498.0	412.9	10.9	1.0	0.0	0.0	1,342.2	764.1	44.6	808.7	2,150.9
2020	19.0	3.2	67.2	36.9	71.2	203.7	520.1	1.6	0.0	0.0	0.0	922.9	734.8	52.2	787.0	1,710.0
2021	12.7	4.4	179.1	57.7	21.2	137.8	766.2	9.496	0.0	0.0	0.0	1,189	583.7	69.6	653.3	1,842.9
2022	57.6	23.4	479.9	66.4	116.2	882.9	1,126.5	4.0	0.0	0.0	0.0	2,757	642.2	55.0	697.2	3,454.0
2023	62.8	36.1	343.8	51.9	78.9	500.4	959.3	0	3.081	0	0	2,036	502.3	86.0	588.3	2,624.4

Table 11. Recreational harvest by wave for 2022 and 2023 for the ocean and Chesapeake Bay regions.

		Ocean Rec. Harvest	Ocean 2023 relative to 2022	Chesapeake Bay Rec. Harvest	Chesapeake Bay 2023 relative to 2022
2022	Wave 2	503,467		0	
2023	Wave 2	545,313	+8%	0	-
2022	Wave 3	515,812		166,832	
2023	Wave 3	430,324	-17%	170,386	+2%
2022	Wave 4	532,784		151,059	
2023	Wave 4	216,147	-59%	129,309	-14%
2022	Wave 5	452,936		256,964	
2023	Wave 5	145,039	-68%	66,684	-74%
2022	Wave 6	751,855		122,317	
2023	Wave 6	699,316	-7%	221,913	+81%

Table 12. State implementation dates for the 31-inch maximum size limit for recreational fisheries required under the 2023 Emergency Action by the implementation deadline of July 2, 2023.

State	2023 Effective Date	Wave
ME	May 18	Mid Wave 3
NH	May 26	Mid Wave 3
MA	May 26	Mid Wave 3
RI	May 27	Mid Wave 3
CT	May 26	Mid Wave 3
NY	June 20	Late Wave 3
NJ	July 2	Early Wave 4
PA	June 3	Mid Wave 3
DE	May 21	Mid Wave 3
MD	May 16	Mid Wave 3
PRFC	May 16	Mid Wave 3
DC	May 16	Mid Wave 3
VA	July 1	Early Wave 4
NC	June 1	Mid Wave 3

Table 13. Recreational harvest and recreational release mortality by mode for 2022-2023. Source: MRIP (Query July 2024).

Year	Private-Shore Harvest	For-Hire Harvest	Private-Shore Release Mortality	For-Hire Release Mortality
OCEAN				
2022	2,619,253	137,595	2,305,198	37,608
2023	1,967,001	69,135	1,984,532	28,172
CHESAPEAKE BAY				
2022	553,480	143,694	310,919	14,121
2023	416,900	171,393	319,434	11,417
COASTWIDE				
2022	3,172,733	281,289	2,616,117	51,729
2023	2,383,901	240,528	2,303,966	39,589

Table 14. Number of directed trips for Atlantic striped bass (primary and secondary target) from Maine through North Carolina (excluding inshore NC) for 2019-2023. Source: MRIP (Query July 2024).

Year	Ocean	Chesapeake Bay	Coastwide Total
2019	16,189,653	1,967,387	**18,157,040**
2020	15,859,277	2,678,922	**18,538,199**
2021	16,017,420	2,183,568	**18,200,988**
2022	21,044,439	2,132,346	**23,176,785**
2023	18,358,961	2,133,807	**20,492,768**

Table 15. Number of directed trips for Atlantic striped bass (primary and secondary target) by mode from Maine through North Carolina (excluding inshore NC) for 2022-2023. Source: MRIP (Query July 2024).

Year	Private-Shore Directed Trips	For-Hire Directed Trips
OCEAN		
2022	20,814,563	229,876
2023	18,191,509	167,453
CHESAPEAKE BAY		
2022	2,023,852	108,494
2023	2,016,729	117,078

Table 16. Results of 2023 commercial quota accounting in pounds. Source: 2024 state compliance reports. 2023 quota was based on Amendment 7 and previously approved Addendum VI to Amendment 6 conservation equivalency programs.

State	2023 Quota^	2023 Harvest	2023 Overage
Ocean			
Maine*	154	-	-
New Hampshire*	3,537	-	-
Massachusetts	700,379 (adjusted for 2022 overage)	676,955	0
Rhode Island General Category	81,671 (adjusted for 2022 overage)	80,603	0
Rhode Island Floating Fish Trap	Confidential (adjusted for 2022 overage)	Confidential	0
Connecticut*	14,607	-	-
New York	640,718	615,198	0
New Jersey**	215,912	-	-
Delaware	142,474	140,048	0
Maryland	89,094	84,633+	0
Virginia	125,034	122,778+	0
North Carolina	295,495	0	0
Ocean Total	**2,309,075**	**1,720,215**	**0**
Chesapeake Bay			
Maryland	1,445,394	1,318,970+	0
Virginia	983,393	814,986+	0
PRFC	572,861	378,115	0
Bay Total	**3,001,648**	**2,512,071**	**0**

Note: North Carolina's fishing year is December-November; PRFC's fishing year for gill nets is November-March.

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

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

^ Quota changed from Amendment 7 standard through conservation equivalency for MA, NY, NJ, DE, MD, PRFC, and VA.

+ Maryland and Virginia commercial landings for 2023 are considered preliminary.

Table 17. Status of Commercial Tagging Programs by state for 2023.

State	Total Participants	Tags Issued	Tags Used	Tags Returned /Broken	Tags Not Accounted For[1]	Point of Tag (sale/ harvest)	Biological Metric[2] (Y/N)	Year, State and Unique ID on Tag (Y/N)	Size Limit on Tag (Y/N)	Tag Colors	Annual Tag Color Change (Y/N)
MA	128	54,560	29,900	24,086	574	Sale	Y	Y	Y	one tag color	Y
RI GC only[3]	18	4,710	2,595	796	1,319	Sale	Y	Y	N	two tag colors by gear	Y
NY	381	61,851	55,506	5,867	478	Harvest	Y	Y	N	one tag color	Y
DE*	243	17,310	7,420	9,890	0	Both	Y	Y	N	Harvest: two tag colors by gear Sale: one color	Y
MD±	647	442,850	287,907	tbd	tbd	Harvest	Y	Y	N	three tag colors by fishery and area	Y
PRFC	258	79,500	62,505	16,685	310	Harvest	Y	Y	N	five tag colors by gear	N
VA	364	198,550	156,644	tbd	tbd	Harvest	Y	Y	Y	two tag colors by area	Y
NC^	22	7,940	4,322	3,595	23	Sale	Y	Y	Y	three tag colors by area	N

[1] Tags not accounted for refers to unused tags that are not returned/not reported as lost or missing.

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

[3] Rhode Island tag information only listed for the general category (GC) fishery, which is mostly rod/reel. Floating fish trap harvest for 2023 are confidential.

*The number of tags noted in the table for Delaware are the tags issued to and used by harvesters. Tags are also issued to weigh stations where a second tag is attached to each striped bass, such that each fish has two tags.

± Maryland's audit of unused tags has been delayed by staffing issues.

^ All commercial tags noted in the table for North Carolina were used in the Albemarle Sound management area.

Note: North Carolina's fishing year is December-November; PRFC's fishing year for gill nets is November-March.

Table 18. Status of compliance with monitoring and reporting requirements in 2023. 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 Status
	Requirement(s)	Status	Requirement(s)	Status	
ME	JAI	Y	-	NA	Y
NH	-	NA	-	NA	Y
MA	TAG	Y	composition, catch & effort (C&R), tag program	Y	Y
RI	-	NA	composition (C&R), catch & effort (R), tag program	Y	Y
CT	-	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	-	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	composition, catch & effort (C&R), tag program	Y	Y
DC	-	NA	-	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

Table 19. State implementation of new Amendment 7 recreational gear provisions.

- *It shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time when fishing recreationally.*
- *Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.*

State	Gaffing Prohibition	Referred Language for Incidental Catch Provision
Maine	Yes	Striped bass incidentally caught on any unapproved hook type must be returned to the water immediately without unnecessary injury.
New Hampshire	Yes	Fish shall be taken only by angling unless otherwise specifically permitted. If a fish is unintentionally taken contrary to the prohibitions or restrictions contained in a provision of this title, such fish shall be immediately liberated and returned to the water without unnecessary injury.
Massachusetts	Yes	Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.
Rhode Island	Yes	Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.
Connecticut	Yes	Striped bass shall not be taken except by angling and the use of a gaff in the taking of striped bass is prohibited. Any striped bass taken contrary to the provisions of this section shall, without avoidable injury, be returned immediately to the waters from which taken.
New York	Yes	Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.
New Jersey	Yes	Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.
Pennsylvania	Yes	Any fish caught that is not to be counted in the creel limit shall be immediately released unharmed into the water from which taken. Except as otherwise provided in § 53.24 or § 63.40 (relating to tournament and fishing derby permits; and fishing tournaments and fishing derbies), a fish placed on a stringer, or confined by any type of container, structure or device, or not returned immediately to the water, will be considered as part of the daily creel or possession limits. Fish returned to the water shall be handled carefully and be returned unharmed to the water from which take. It is unlawful to use a method for taking fish or attempting to take fish from the waters of this Commonwealth, including boundary lakes and rivers, unless the use of the method is specifically authorized by law or this part.

State	Gaffing Prohibition	Referred Language for Incidental Catch Provision
Delaware	Yes	It is unlawful for any recreational fisherman to take or attempt to take any striped bass from the tidal waters of this State with any fishing equipment other than a hook and line or a spear while said recreational fisherman using the spear is underwater… … Any striped bass taken from the tidal waters of this State that is not immediately returned, without unnecessary injury, to the same waters from which it was taken, is deemed taken and reduced to possession for purposes of this subsection.
Maryland	Yes	An individual may only use the gear specified in this regulation to catch fish for recreational purposes from tidal waters. An individual using gear in accordance with this chapter shall comply with all seasons, creel limits, size limits, and other species-specific rules as specified under this subtitle…
District of Columbia	No, but does not specify gaffs as legal gear	Except as otherwise permitted by these rules, a person shall fish only with rod, hook, and line, not to exceed three (3) lines in number and not having more than two (2) hooks to each line. Artificial lures or plugs with multiple or gang hooks are considered one unit. It is unlawful to: Take fish except as specified in this chapter
PRFC	Yes	Any fish, whose size is prohibited or whose season is closed by these regulations, which may be caught or entrapped as an incident to other lawful fishing activities, shall be immediately released and returned to the waters where found…
Virginia	Yes	It shall be unlawful for any person fishing recreationally to take, catch, or attempt to take or catch any striped bass by any gear or method other than hook-and-line, rod and reel, hand line, or spearing.
North Carolina	Yes	Striped bass taken on any unapproved method must be returned to the water immediately without unnecessary injury.

XI. Figures

Figure 1. Atlantic striped bass female spawning stock biomass and recruitment, 1982-2021. Source: 2022 Stock Assessment Update.

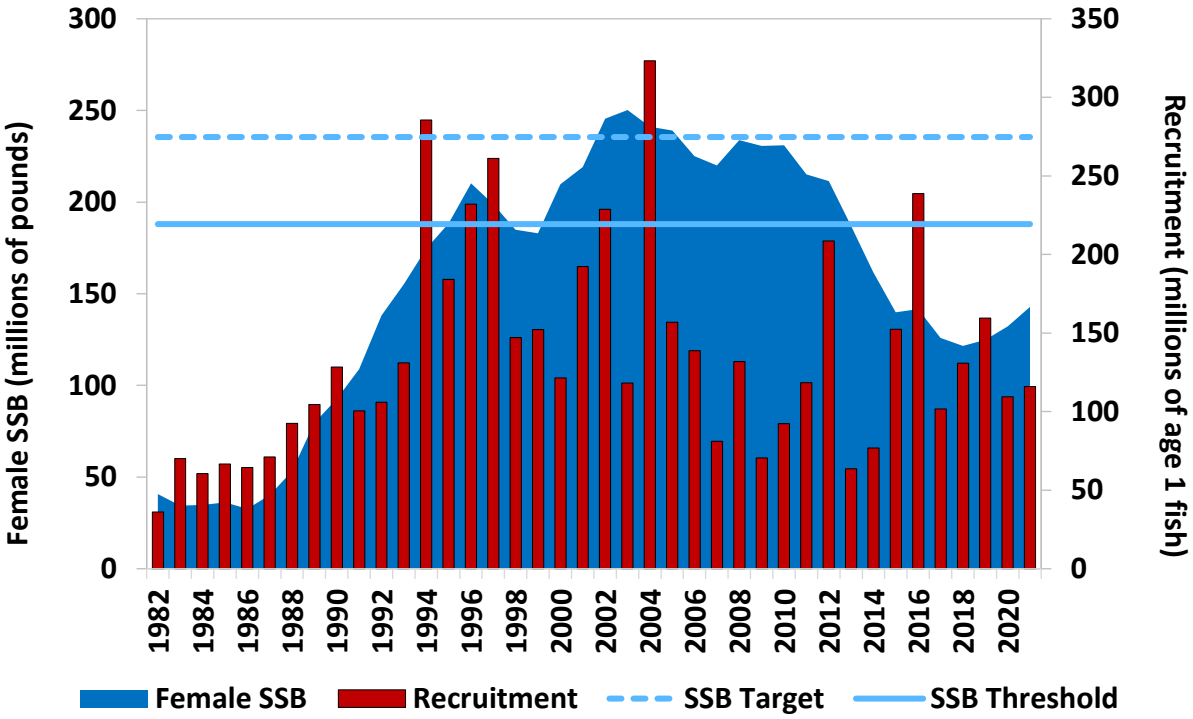


Figure 2. Atlantic striped bass fishing mortality, 1982-2021. Source: 2022 Stock Assessment Update.

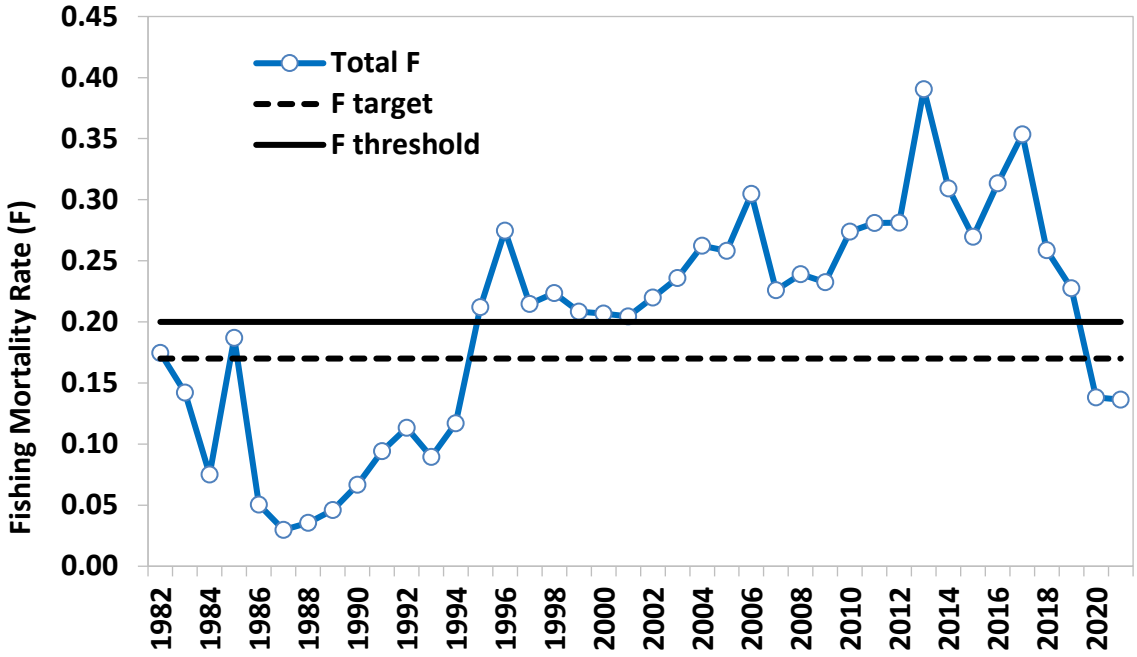


Figure 3. Albemarle Sound-Roanoke River striped bass female spawning stock biomass and recruitment (abundance of age-1), and biological reference points, 1991-2021. Source: 2022 A-R Stock Assessment (Lee et al. 2022).

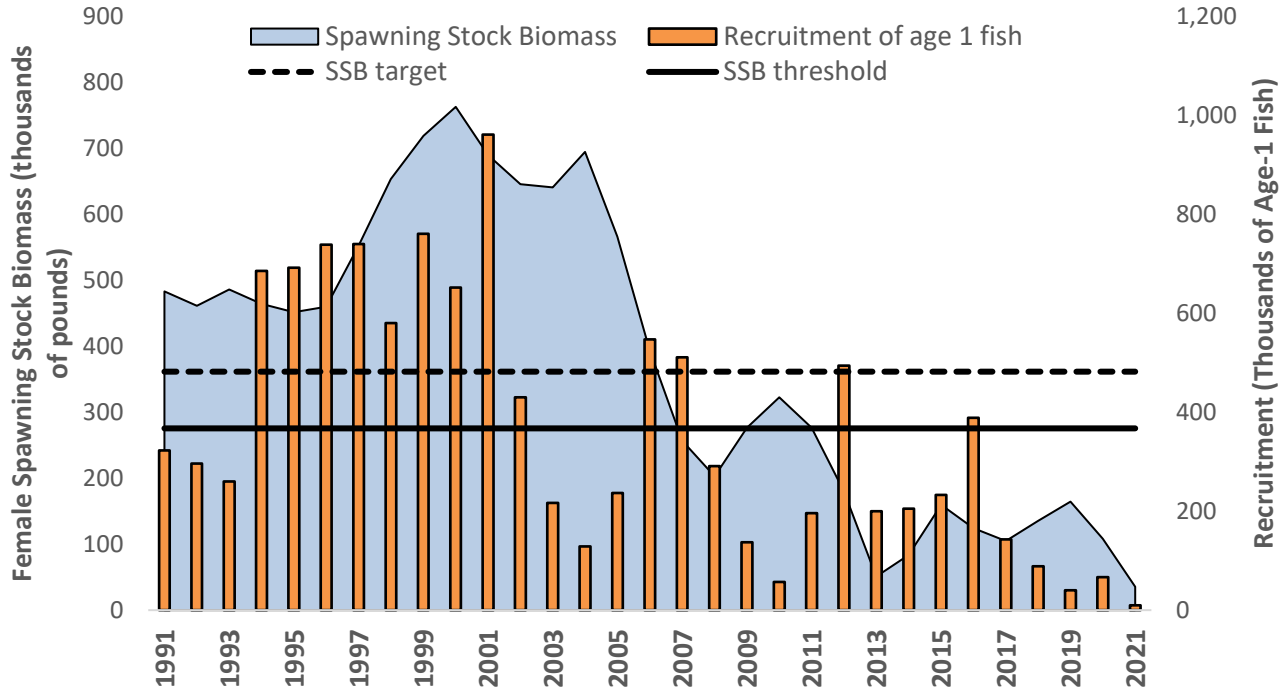


Figure 4. Albemarle Sounds-Roanoke River striped bass fishing mortality (F) estimates, and biological reference points, 1991-2021. Source: 2022 A-R Stock Assessment (Lee et al. 2022).

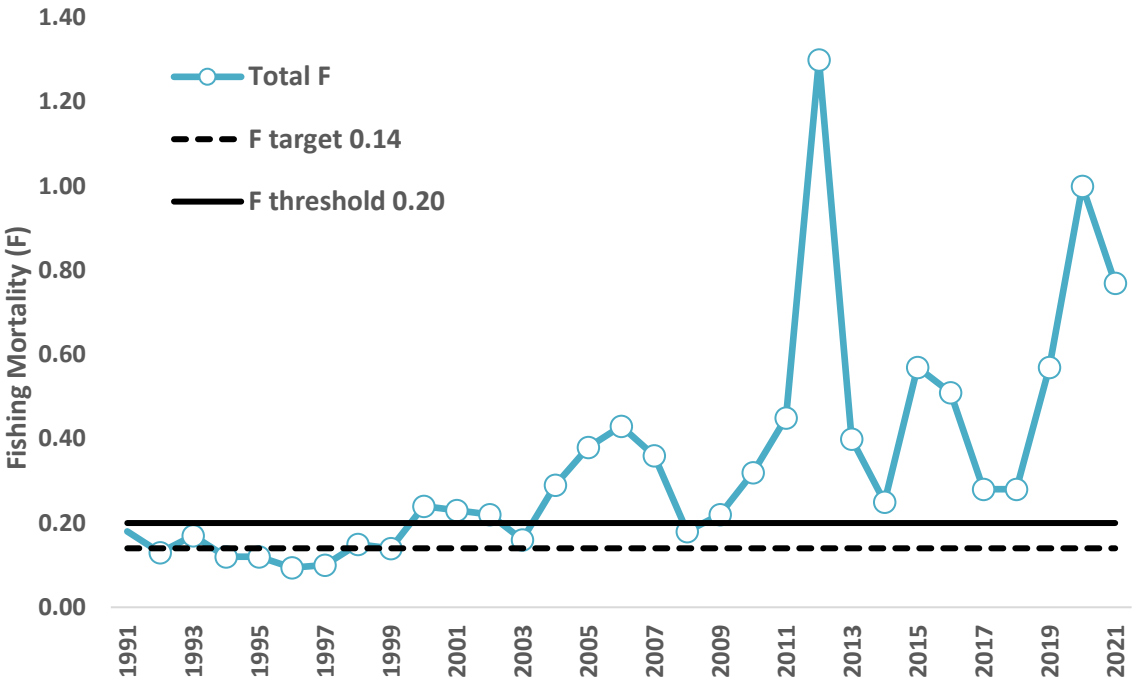


Figure 5. Total Atlantic striped bass removals by sector in numbers of fish, 1982-2023. Note: Harvest is from state compliance reports/MRIP, discards/release mortality is from ASMFC. Estimates exclude inshore harvest from A-R.

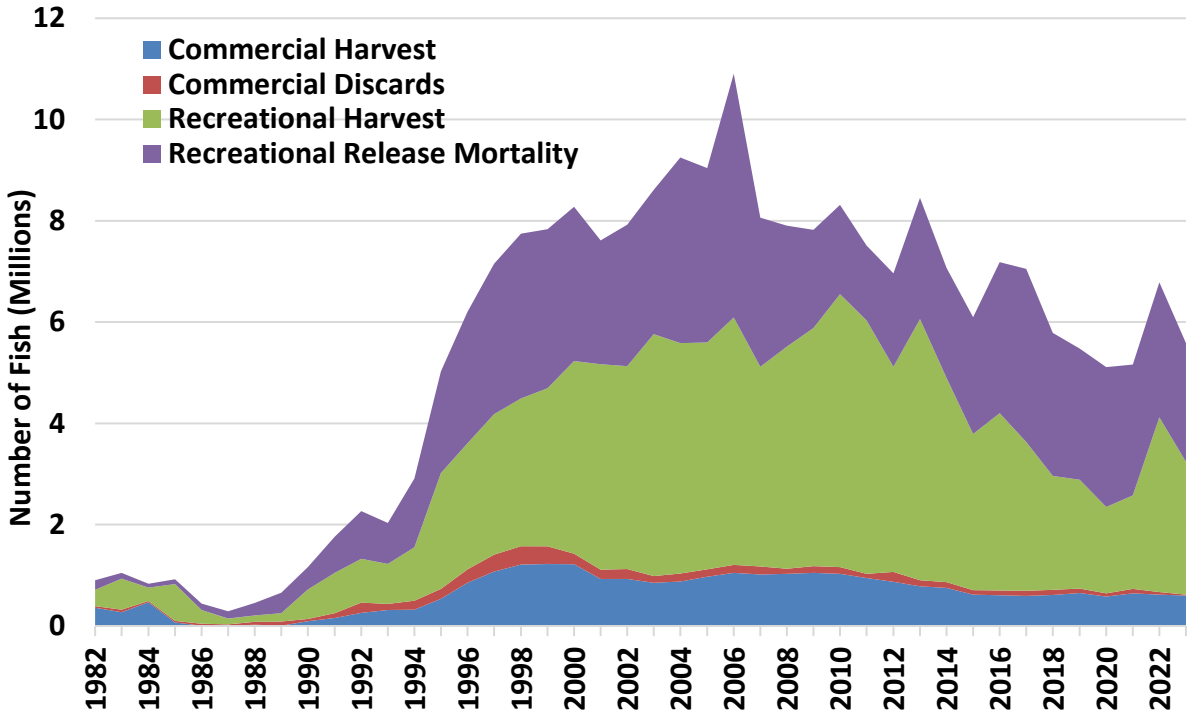


Figure 6. Commercial Atlantic striped bass landings by state in pounds, 1982-2023. Source: State compliance reports. Commercial harvest and sale prohibited in ME, NH, CT, and NJ. NC is ocean only.

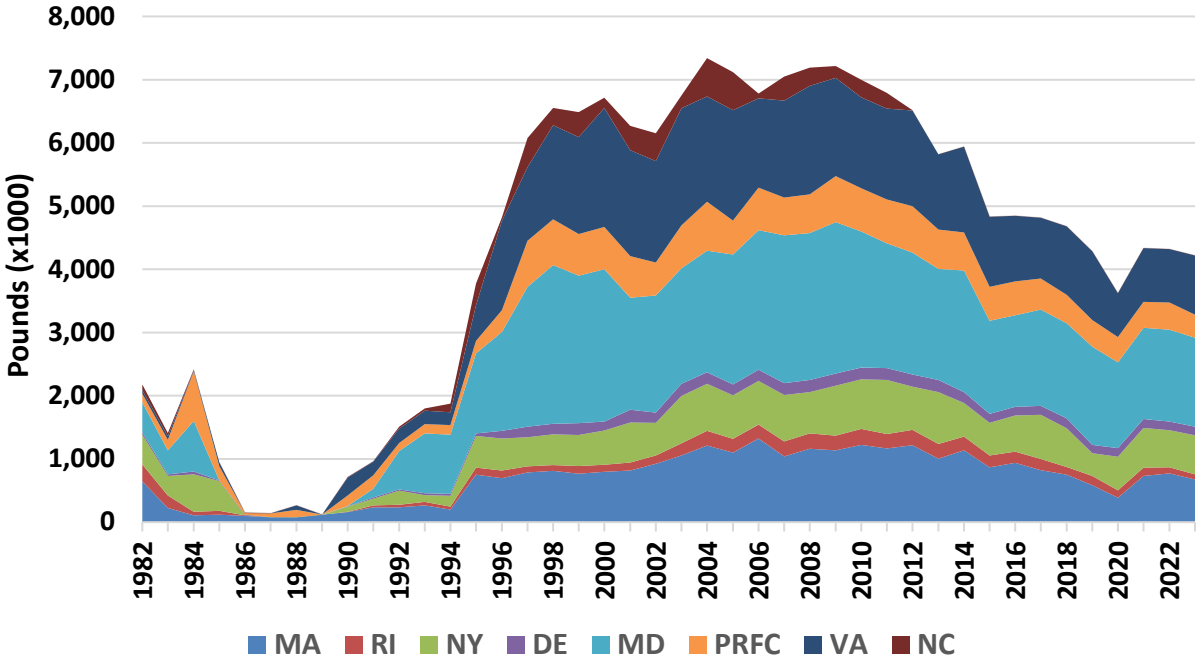


Figure 7. Total recreational catch and the proportion of fish released alive, 1982-2023. Source: MRIP/ASMFC. Estimates exclude inshore harvest from A-R.

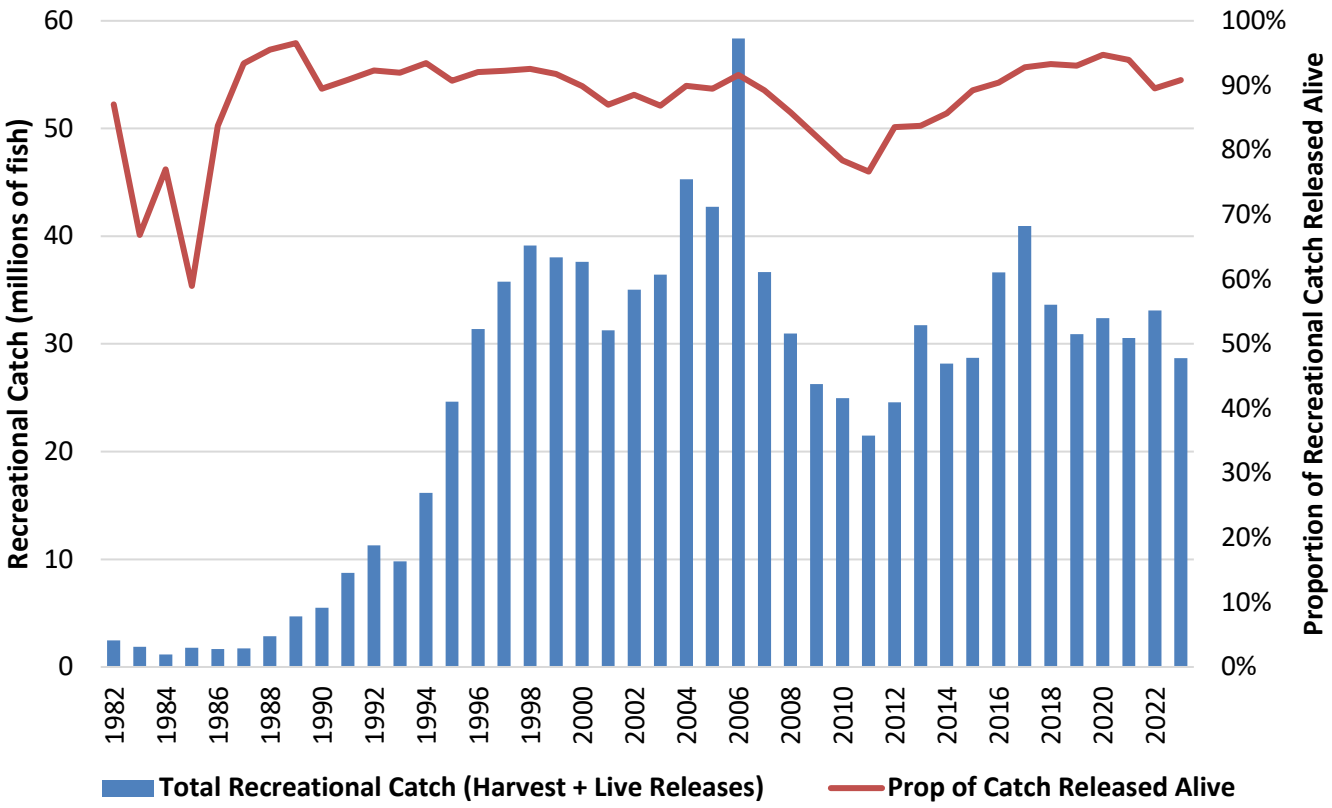


Figure 8. Juvenile abundance indices for New York, New Jersey, Maryland, and Virginia for 1982-2023 with recruitment trigger analysis for recent years. An open circle in the last three years indicates a value below the recruitment trigger level. The recruitment trigger is tripped if a JAI is below the trigger level for three consecutive years. Source: 2024 State Compliance Reports.

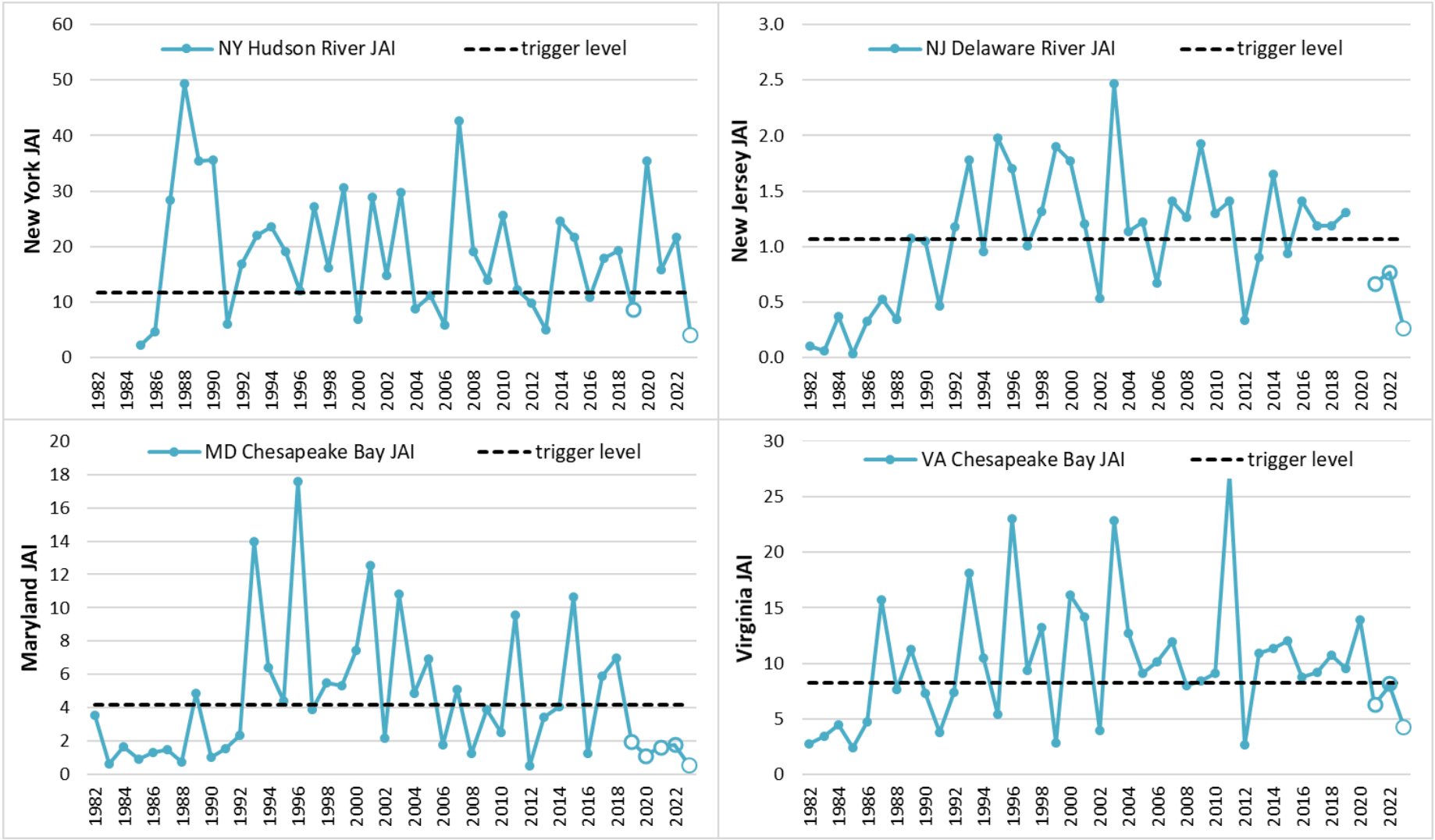
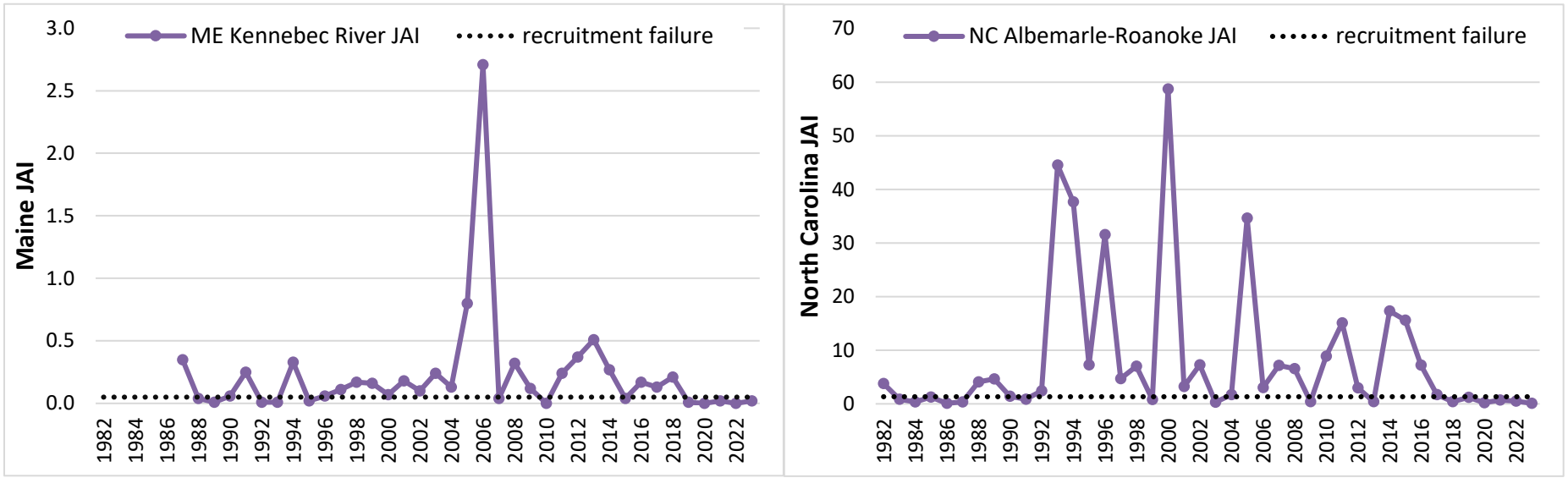


Figure 9. Juvenile abundance indices for Maine and North Carolina from 1982-2022 noting the level of recruitment failure. Source: 2023 State Compliance Reports.



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **Atlantic Striped Bass Management Board**

FROM: **Board Work Group on Recreational Release Mortality**

DATE: **July 30, 2024**

SUBJECT: **Work Group Recommendations on Stock Assessment and Public Scoping Tasks**

In May 2024, the Atlantic Striped Bass Management Board established a Board Work Group (WG) to discuss recreational release mortality (RRM) and approved the following WG tasks:

1. Review existing no-targeting closures in state and federal waters, including any information on impacts to striped bass catch and effort as well as their enforceability. Identify potential angler responses/behavior change to those closures.
2. Review the MA DMF discard mortality study and other relevant reports to evaluate the efficacy of potential gear modifications.
3. Identify assessment sensitivity runs which may inform Board discussion around release mortality (e.g., how low would you have to reduce the release mortality rate in order to see a viable reduction in removals with the same level of effort?). Consider the tradeoff of reducing the release mortality rate vs. reducing the number of releases overall.
4. Consider public scoping on measures to address release mortality (e.g., online public survey ahead of the October Board meeting).

The WG met via webinar on June 24 and July 17, 2024 to primarily discuss Task #3 regarding the stock assessment and Task #4 regarding public scoping. This memorandum outlines the WG's initial recommendations regarding Tasks #3 and #4 for Board consideration at the 2024 Summer Meeting. The WG meeting summaries are enclosed.

The WG will provide a full report for the Board's consideration at the 2024 Annual Meeting with a summary of all WG tasks and associated WG recommendations on addressing RRM.

Task #3: Stock Assessment Work To Inform RRM Discussions

The WG first acknowledged and reviewed past work by the Technical Committee (TC) in late 2020 to explore the sensitivity of the stock assessment model to different recreational release mortality rates (TC Memo M21-04). Overall, changing the release mortality rate assumption for the entire time series of the stock assessment changed the scale of the estimates of female spawning stock biomass (SSB), fishing mortality (*F*), and recruitment but did not change the overall trend, or change stock status in 2017. The TC concluded that the model is somewhat sensitive to major misspecification of release mortality rate, but less sensitive to smaller scale misspecifications.

The WG noted this past TC work was valuable to understand how different constant RRM rates impact the historical time series. Notably though, none of the scenarios simulated a midstream shift in the RRM during the historical time series, such as might result from hypothetical management changes. **Given the Board's current interest in understanding how actions to reduce RRM would impact the stock moving forward, the WG recommends tasking the TC as follows.**

These tasks are intended to help the Board understand the tradeoff between reducing the release mortality rate vs. reducing the number of releases overall. The WG recommends the TC address these tasks as part of the ongoing 2024 Stock Assessment.

1. If a reduction is needed to achieve rebuilding, determine how low the release mortality rate would need to be to achieve that entire reduction through the release mortality rate alone. In other words, if the number of live releases is constant, what would the release mortality rate need to be to achieve the reduction?

2. If a reduction is needed to achieve rebuilding, determine the percent reduction in number of live releases needed to achieve the entire reduction through live releases alone. In other words, using the current 9% release mortality rate, how many fewer live releases would there need to be to achieve the reduction?

Tasks 1 and 2 represent the two extremes of reducing RRM. Task 1 focuses entirely on reducing the RRM rate to achieve a reduction (i.e., decreasing mortality from the fishing interaction), while Task 2 focuses entirely on reducing the number of live releases (i.e., controlling effort). These are hypothetical scenarios, which are not necessarily realistic for management implementation but would help characterize the tradeoff between the two management approaches to reduce RRM. Recreational harvest would be assumed constant for these scenarios in order to isolate the reduction to RRM. Considering commercial harvest in the overall calculation for the reduction, the WG recommends two iterations for each scenario: one with constant commercial harvest and one with an equal reduction for commercial harvest.

3. If a reduction is needed to achieve rebuilding, determine the percent reduction in number of live releases needed under the current 9% mortality rate, assuming there is an associated reduction in recreational harvest due to no-targeting closures.

Task 3 assumes the implementation of no-targeting closures would result in a reduction in both harvest and live releases. The TC would need to determine how to best quantify the reduction in live releases from no-targeting closures, which depends on several assumptions including how many striped bass are still caught and released as incidental catch when targeting other species. The WG again recommends two iterations for each scenario to account for commercial harvest in the calculations: one with constant commercial harvest and one with an equal reduction for commercial harvest. The WG

recommends the TC also comment on how potential reductions from no-targeting closures could vary depending on season, as catch varies throughout the year and by region.

4. Identify the tradeoffs of implementing no-targeting closures at different times of the year with different assumed release mortality rates to help inform when and where implementing no-targeting closures would result in the highest reduction. Factors could include water temperature and salinity, with the assumption that the release mortality rate is higher when the water temperature is high and the salinity is low.

The WG acknowledges that a reduction associated with specific no-targeting closures depends on several factors including assumed release mortality rate, length of closure, current level of harvest and releases, angler behavior, etc. Any guidance from the TC on the best use of no-targeting closures to achieve reductions would be helpful.

Task #4: Public Scoping on Measures to Address RRM

This task to consider public scoping on RRM measures emerged from the possible scenario of the Board considering management action via Board vote (i.e., no addendum process) in October 2024, or shortly after, if the 2024 Stock Assessment Update indicates a reduction to achieve rebuilding is necessary. If that were to occur, completing public scoping prior to the October Board meeting could be very beneficial. Public scoping would need to be conducted from about mid-August to mid-September in order to gather and process the information prior to the October Board meeting.

The WG discussed the utility of an online survey to gather public input on RRM, and scoped what that survey could look like and what questions could be asked of the public. The WG developed an initial set of survey questions for WG discussion that included questions on no-targeting closures, gear restrictions, and fish handling practices. Specifically, the questions seek to elucidate public opinion on topics including angler response to closures, voluntary vs. mandatory gear restrictions, equity, enforceability, ability to quantify impacts, and general level of support for these types of measures. The survey questions also asked for information about respondents such as where they fish, what type of recreational stakeholder they identify as, how frequently they target striped bass, and why they release striped bass (preference vs. regulation).

The WG is supportive of this initial progress on survey development, and supportive of the survey approach in general, to gather input from the public on the complex issues around addressing RRM. However, the WG is concerned that conducting the survey prior to October is not enough time to ensure the survey is well-developed and to capitalize on this opportunity. The WG noted this survey could inform management beyond just the next stock assessment, and this survey effort is critically important for future striped bass management. Taking additional time to develop the most optimal survey tool would be beneficial to make the most of this opportunity to gather public input on RRM. WG members also stressed that they are not trained in developing survey questions, and consulting with other committees would be

beneficial, including the Commission's Committee on Economics and Social Sciences (CESS), the Striped Bass Advisory Panel (AP), and potentially consulting external experts on survey design if time and resources allow.

The WG recommends the Board extend the timeline for conducting a public survey on RRM to at least after the 2024 Annual Meeting. The Board could plan to conduct a survey shortly after the 2024 Annual Meeting, which still leaves some possibility for the survey to inform Board action, if a reduction is needed, if the Board takes action later in 2024 (e.g., special Board meeting in November or December) instead of at the 2024 Annual Meeting. Or, the Board could plan to conduct a survey in 2025 to inform future management more broadly. And the WG does not believe that the lack of survey results would prevent the Board from considering management action via Board vote (i.e., no addendum process) in October 2024, or shortly after, if the 2024 Stock Assessment Update indicated a reduction to achieve rebuilding was necessary. States can also conduct outreach to their striped bass stakeholders prior to the October Board meeting.

The WG emphasized the importance of getting input from survey experts to ensure that the survey provides the public feedback the Board needs in an unbiased format. The WG also identified the need for an outreach strategy for disseminating the survey to stakeholders. Although the WG and Board have the ability to develop and conduct the survey and analyze the results, additional input from CESS members, the AP, and other experts would be useful and would require extra time.

Enclosed: June 24 and July 17 WG Meeting Summaries

Atlantic States Marine Fisheries Commission

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Striped Bass Board Work Group on Recreational Release Mortality Meeting Summary

Webinar
June 24, 2024

Work Group Members: Chris Batsavage (NC, WG Chair), Nichola Meserve (MA), Marty Gary (NY), Adam Nowalsky (NJ), Mike Luisi (MD), David Sikorski (MD), Max Appelman (NOAA)

ASMFC Staff: Emilie Franke, Kurt Blanchard

Public: Allison Colden, Andy Danylchuk, Armando Guerrero, Caitlin Craig, Chris Scott, Corrin Flora, Jeff Mercer, Jessica Best, Justin Pellegrino, Lucas Griffin, Olivia Dinkelacker, Sascha Clark Danylchuk, Will Poston

The Striped Bass Board Work Group (WG) on recreational release mortality (RRM) met for the first time on June 24 via webinar. The WG Chair reviewed the four WG tasks approved by the Board and reviewed the WG timeline. The WG has two meetings scheduled for the summer and will provide a progress update and initial recommendations to the Board at the 2024 Summer Meeting in August. The WG will meet a few more times in August and September to continue working on the WG tasks and develop final WG recommendations. The WG will provide a report to the Board at the 2024 Annual Meeting in October with a summary of all tasks and any recommendations on how the Board should address recreational release mortality based on the findings of those tasks.

<u>WG Tasks Approved by the Board</u>

1. Review existing no-targeting closures in state and federal waters, including any information on impacts to striped bass catch and effort as well as their enforceability. Identify potential angler responses/behavior change to those closures.
2. Review the MA DMF discard mortality study and other relevant reports to evaluate the efficacy of potential gear modifications.
3. Identify assessment sensitivity runs which may inform Board discussion around release mortality (e.g., how low would you have to reduce the release mortality rate in order to see a viable reduction in removals with the same level of effort?). Consider the tradeoff of reducing the release mortality rate vs. reducing the number of releases overall.
4. Consider public scoping on measures to address release mortality (e.g., online public survey ahead of the October Board meeting).

Tasks #3 on the stock assessment and task #4 on public scoping are time-sensitive and require Board input at the 2024 Summer Meeting, so the WG's progress report at the Summer Meeting will cover those two tasks.

Task #4: Public Survey

The WG first discussed Task #4 on public scoping, which emerged from the possible scenario of the Board considering management action via Board vote (i.e., no addendum process) in October 2024, or shortly after, if the 2024 Stock Assessment Update indicated a reduction to achieve rebuilding was necessary. If that were to occur, public scoping completed prior to October could provide the Board with public input on measures to address RRM as the Board considered that action. A survey would need to be conducted from about mid-August to mid-September in order to gather and process the information prior to the October Board meeting.

ASMFC staff provided a summary of previous public comments gathered through the Amendment 7 process in 2022 on measures to address recreational release mortality. Draft Amendment 7 included options for gear restrictions and options for no-targeting closures for which the public provided comments. Ultimately, the Board implemented some gear restrictions in Amendment 7 but did not implement any no-targeting closures.

The WG noted support for conducting a survey to gather input on release mortality measures and that it would be informative to the Board. The WG discussed what topics potential survey questions could cover and discussed how the survey could be conducted. The WG suggested numerous topics for potential inclusion in a survey, which are listed below. ASMFC staff categorized all the WG suggestions following the call.

<u>Suggested Survey Topics and WG Rationale</u>

Current Measures/Socioeconomic

- What have the impacts been with the narrow slot limit? How has this slot limit affected trips? What are anglers/captains seeing on the water as far as how release rates are going up?
    - Gather socioeconomic data on impacts on the effect of the narrow slot limit on trips. This is new ground for the Board and is the Commission's role to dig into this.
    - The greatest interest about narrow slot is getting information from people and hearing the potential change of perspective. Before the recent narrow slow limit, there were public comments opposing no-targeting closures. Now with the narrow slot, there could be a potential change of perspective about measures to address release mortality.
    - Management measures (i.e., narrow slot) have changed in the past couple of years, and therefore angler perspective may have also changed. Do we want to be more specific about no-targeting closures? Changing perception among anglers?

    - Some WG members were unsure about addressing the current slot limit in the survey, and noted the focus should be on the future rather than asking about the current measures.
    - Wave-specific data was used for Maryland closures, and it is important to look at the effects across time of year. For example, during the no target closure a tackle shop lost significant business. Need to look at what fish we are saving vs. the impacts on communities.

- What is causing people's catch and release (preference versus regulations)? This could help inform socioeconomic considerations.

Big-Picture

- When we talk about doing things that are more difficult to enforce or quantify, there seems to be a reaction from the Board with some hesitancy to implement unquantifiable measures. Does the public need us to quantify the result and are we accountable as a Board? For release mortality measures, is it as important to meet a percent reduction or just to reduce overall effort? Is the public comfortable reducing effort without being able to pinpoint reduction?
    - We are at a point in management where we need to stretch to see a reaction from the stock. How willing would the public be with going forward to reduce effort without an estimated reduction in removals?

- From a policy perspective, what level of release mortality is too much for this fishery? Release mortality has been high for decades and is only recently getting a lot of attention. Is the high attention due to poor stock status? How much is too much? Is stock status connected to the perception that release mortality is too high?

- Question to catch-and-release fishery participants: how can you be part of the solution? How can this segment of the fishery participate in reducing release mortality?

Seasonal Closures

- How would the public respond to a no-targeting closure; 1-week, 2-week, 3-week, etc.? Not go fishing, target other species, go to another state?
    - This information would be very informative to no-targeting closures
    - Data is missing on how anglers would respond to seasonal closures; great first step; not sure how the Striped Bass Technical Committee (TC) would analyze seasonal closures. TC could weigh in on how to collect this data to fold into those calculations.

- Do we want more feedback on focused no-targeting closures? Closures when water/air temperatures are warm? Certain months and location? Certain parts of a waterbody, e.g. estuaries instead of ocean?
    - Easier to implement and enforce closures in a specific area/time of year. Anglers still have the opportunity to fish elsewhere.

- Have opinions on seasonal closures changed since Amendment 7? What is the goal of the closures that people would support? What times of year would reduce effort the most? Or are closures based on environmental conditions? Should we be balancing this? If people support temperature-based closure, how do you balance that up north in areas like New England where the temperatures are not as high?
    - No-targeting closures were implemented in Maryland and the Potomac River Fisheries Commission (PRFC) to both meet the reduction and due to environmental conditions. Recreational management and environmental conditions continue to change and we need to understand behavior along the coast.

- If we consider no-targeting closures, there has to be information gathered about the impacts on different sectors. There is one group of the fishery that won't be impacted by a no-harvest closure, while everyone would share the burden with a no-targeting closure. Have to discuss fairness issues.

- Between ME and NC there are major differences in fishing practices. If environmental conditions are such that it makes sense to reduce targeting during time periods when fishing mortality can be extreme (i.e., actions in the Chesapeake Bay to expand no-targeting closures), in order to be fair/equitable, what in addition to action in the Bay could happen on the coast in areas when the environmental conditions aren't as poor? How can we balance the recreational impact by not focusing on one particular area? If environmental conditions aren't a concern of New England fishermen, what would the stakeholders be willing to do to reduce mortality while other states have no-targeting?
    - Not sure we can apply a broad brush. Trying to think outside of conventional approaches.

Gear Restrictions

- Could be open-ended question to collect input on what individuals do or see on the water to reduce release mortality.
    - There are a lot of different ideas, views, and perspectives about tackle. Close to receiving information from Massachusetts Division of Marine Fisheries (MADMF) (e.g. two treble hooks are the worst). First DMF report may be available later in 2024. MADMF study doesn't look at everything (e.g., doesn't look at barbless hooks).

- How comfortable is the public going to be with measures that we don't have data for, but it is perceived to have a reduction factor?

- What do you do with a fish boatside?
    - Akin to tarpon regulations in Florida. Exposure to air and temperature components affect survivability. For example, un-hook the fish in the water. States have general language, release without undue harm; handling is a big part of it.

- Should state agencies be regulating fishing gear, or should changing gear be part of education/outreach/best management practices? Would best management practices as outreach be enough vs. regulation?
- Support a question about wire line (discussed during Draft Amendment 7 process), but specifically in the vein of how do you believe it will impact mortality? This is probably the fastest way to get the fish to the boat which may be beneficial, but people may be opposed to it because it's not the most "sporty" way to catch striped bass.
- In general, could ask why you support a gear restriction and why it would decrease release mortality.

The WG generally discussed other points about the survey. The WG noted the survey should be focused and keep the questions to a point that is reasonable. The survey should focus on questions about future actions, which may not be conventional management measures. Non-conventional measures (no-targeting, expansion of current gear restrictions) are not things managers often address. A WG member noted gear restrictions don't necessarily benefit all species. The NC Marine Fisheries Commission asked about requiring circle hooks for all species. While it would benefit some species, it would impact other species that are hard to catch with a circle hook or won't have the expected benefit for some species. Another WG member noted educating the public about release mortality is challenging, and there are better ways to communicate how the 9% rate works.

Regarding the survey format, the WG noted the survey would likely be conducted via an online survey link. There was some concern about participation in an online-only survey and the value of proactive outreach like port meetings or webinars to collect information. There was also concern about not getting enough feedback via a survey. There should be background information provided with link to the survey with the same information presented to everyone that fills out the survey. And the WG should carefully consider how folks are identified/grouped in different sectors. Given the time constraints of conducting the survey in the next few months, an online survey makes sense to cover the diversity of stakeholders and how they fish for striped bass.

The WG acknowledged there would not be sufficient time to consult experts on survey design. Logistically, ASMFC could host the survey on an online survey platform and compile/analyze the results. The Board members would be responsible for distributing the survey to ensure stakeholders have the opportunity to participate. Regarding timeline, if the Board approved the survey effort in August, the survey could be live for about a month from mid-August to mid-September. ASMFC staff would then process the responses for WG review prior to the October Board meeting.

Next Step: Three WG members (N. Meserve, D. Sikorski, M. Gary) will draft an initial set of survey questions based on WG input today, and will provide the draft for discussion at the next WG meeting.

Task #2: Gear Restrictions

The WG then discussed task #2 on gear restrictions and the need to identify any other studies, in addition to the MADMF study, that should be considered in the discussion of gear restrictions.

As background, ASMFC staff reviewed the Board's past consideration of gear restrictions in the FMP (Addendum VI and Amendment 7).

The WG noted the MADMF study seems to indicate the conservation benefit may not be as clear for circle hooks as expected. In the late 1990s, early 2000s, Maryland conducted release mortality studies showing benefits of circle hooks based on incidence of deep hooking. Hooks are very complicated, and the style of circle hooks is different than what was used in earlier studies. Bait types and terminal tackle are also different along the coast. WG members will send ASMFC staff the past Maryland studies for reference.

From the MADMF study, treble hooks seem to have the highest mortality rate. A single treble hook on a lure had a lower mortality rate, but double treble hook lures had the highest mortality rate. One question to consider is are there states that have rules on the maximum number of hooks on a lure (maybe just during the spawning season)? There was also worse survival at water temperatures above 75 degrees Fahrenheit. Bait fishing also had a higher mortality rate. The WG noted there is a wide range of predicted mortality from the different lures. The challenge is what is available for anglers to purchase. Barbless hooks are easier on the fish and the angler.

The WG also noted that release mortality also depends on environmental conditions, not just hook type. Even if the hook was set in the lip, there still could be a high mortality rate if water and air temperatures are high.

WG members will identify additional studies on gear restrictions and send to ASMFC staff. The WG will return to the gear restrictions discussion at a later WG meeting.

Task #1: No Targeting Closures

The WG briefly discussed no targeting closures and the potential type of information available from enforcement agencies. M. Appelman will be talking with NOAA Office of Law Enforcement (OLE). The WG suggested reaching out to Caleb Gilbert from OLE who provides reports to the Mid-Atlantic Council and has referred to no-targeting violations. The WG also asked whether contacting the US Coast Guard was needed.

The WG is interested in how many tickets are written for targeting striped bass. However, based on initial information, it seems like enforcement interactions regarding no-targeting violations alone are verbal and not necessarily written citations.

Next Step: WG will request information from MDDNR, PRFC/VMRC, NOAA on no-targeting closures to be discussed at a later WG meeting.

Public Comments

- Will Poston (ASGA) – There is a fine line between asking the recreational community too much on the survey. Focus on the key questions. Focus on the tradeoffs associated with no-targeting vs. no-harvest and public opinions on gear restrictions. Be as specific as possible for the survey.
- Jeff Mercer (RIDEM, Law Enforcement Committee rep for Striped Bass Board) – Coast Guard violations go through NOAA OLE. State enforcement also works in EEZ, and there are a lot of violations for possession and often verbal warnings. The Law Enforcement Committee recently ranked management measures on how enforceable they are, and no-targeting closures were last on that list (i.e., least enforceable). Not sure if any cases have been made in the Northeast on the targeting prohibition. There are challenges with prosecuting this and proving intent.
- Andy Danylchuk – Conducting a UMass lab study on how striped bass respond to capture and handling. This is the second year of data collection, and data should be available on capture-handling. There was also an angler survey distributed from Carolinas to Canada related to perceived threats to striped bass fishery.

Atlantic States Marine Fisheries Commission

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Striped Bass Board Work Group on Recreational Release Mortality Meeting Summary

Webinar
July 17, 2024

Work Group Members: Chris Batsavage (NC, WG Chair), Nichola Meserve (MA), Marty Gary (NY), Adam Nowalsky (NJ), Mike Luisi (MD), David Sikorski (MD), Max Appelman (NOAA)

ASMFC Staff: Emilie Franke, Katie Drew, Kurt Blanchard

Other Board Members: Megan Ware (ME, Board Chair), Ray Kane (MA)

Public: Allison Colden, Angela Giuliano, Corrin Flora, Daniel Herrick, Michael Woods, Mike Waine, Ralph Vigmostad, Ross Squire, Tony Friedrich, Will Poston

The Striped Bass Board Work Group (WG) on recreational release mortality (RRM) met for the second time on July 17 via webinar. The WG Chair reviewed the four WG tasks approved by the Board and reviewed the WG timeline. After this meeting, the WG will provide a progress update and initial recommendations to the Board on Task #3 on the stock assessment and Task #4 on public scoping at the 2024 Summer Meeting in August. The WG will meet a few more times in August and September to continue working on the WG tasks and develop final WG recommendations. The WG will provide a report to the Board at the 2024 Annual Meeting in October with a summary of all tasks and any recommendations on how the Board should address recreational release mortality based on the findings of the WG tasks.

Task #3 Stock Assessment and Release Mortality

Task #3. Identify assessment sensitivity runs which may inform Board discussion around release mortality (e.g., how low would you have to reduce the release mortality rate in order to see a viable reduction in removals with the same level of effort?). Consider the tradeoff of reducing the release mortality rate vs. reducing the number of releases overall.

ASMFC Staff, K. Drew, reviewed past work by the TC in late 2020 to explore the sensitivity of the stock assessment model to different recreational release mortality rates (TC Memo M21-04). The TC ran the assessment model under five RRM scenarios:

- Base case: 9% rate for all regions and seasons
- Low rate: 3% for all regions and seasons
- High rate: 26% for all regions and seasons
- Seasonal rates: 5% for Jan-June, 12% for July-Dec for both regions
- Regional rates: 16% for the Chesapeake Bay, 9% for the ocean for all seasons

Overall, changing the release mortality rate assumption for the entire time series of the stock assessment changed the scale of the estimates of female spawning stock biomass (SSB), fishing mortality (*F*), and recruitment but did not change the overall trend, or change stock status in 2017. Significant changes to the release mortality rate (i.e., going from 9% to 3% or 26%) resulted in significant changes to the scale of the population, but did not affect the final stock status determination. The higher release mortality rate did result in a stock trajectory where striped bass became overfished earlier in the time series than the other scenarios, but the 2017 stock status was consistent across all scenarios.

The seasonal and regional release mortality rates, which the TC felt were the more realistic scenarios, had minimal impacts on the estimates of SSB, *F*, and recruitment, and minimal impacts on stock status. Therefore, the TC concluded that the model is somewhat sensitive to major misspecifications of release mortality rate, but less sensitive to smaller scale misspecifications. Refining the overall coastwide estimate to reflect regional and/or seasonal differences can be pursued for the next benchmark assessment; it would likely not result in significant changes to population estimates or stock status but could produce minor improvements in the estimates.

To address the Board's interest in the tradeoff between reducing the release mortality rate vs. reducing the number of live releases, ASMFC staff presented three potential questions that the TC could address during the 2024 stock assessment. The WG could recommend the Board task the TC with these (or other) questions related to RRM.

Potential Questions for TC

1. If a reduction is needed to achieve rebuilding, how low would the release mortality rate need to be to achieve that entire reduction through the release mortality rate alone? In other words, if the number of live releases is constant, what release mortality rate applied to those live releases would achieve the reduction?

2. If a reduction is needed to achieve rebuilding, what percent reduction in number of live releases is needed to achieve the entire reduction through live releases alone? In other words, using the current 9% release mortality rate, how many fewer live releases would there need to be to achieve the reduction?

3. If a reduction is needed to achieve rebuilding, what percent reduction in number of live releases under the current 9% mortality rate is needed, assuming there is an associated reduction in recreational harvest due to no-targeting closures?

Staff noted Questions 1 and 2 represent the two extremes of reducing RRM. Question 1 would rely entirely on reducing the RRM rate to achieve a reduction (i.e., decreasing mortality from the fishing interaction), while Question 2 would rely entirely on reducing the number of live releases (i.e., controlling effort). These are hypothetical scenarios which are not necessarily realistic for management implementation but would demonstrate the tradeoff between the two approaches to reduce RRM. Recreational harvest would be assumed constant for these

scenarios in order to isolate the reduction to RRM. For all three questions, two iterations could be run for each scenario to account for commercial harvest in the calculations: one with constant commercial harvest and one with an equal reduction for commercial harvest.

The WG asked staff to clarify the difference between the past TC work on sensitivity runs and the RRM rate and the first question regarding how low the RRM rate would need to be to achieve a reduction. Staff clarified that the past TC sensitivity runs looked back in time and applied different RRM rates to the historical time series to address the scenario of if the RRM rate was different in the past, how stock status would be affected over time. These three potential questions for the TC look to the future assuming management occurs to reduce the RRM and by how much RRM would need to be reduced in the next several years to achieve the reduction. The 9% assumption for the historical time series would not change.

For question 3, the TC would need to determine how to best quantify the reduction in live releases from no-targeting closures, which depends on several assumptions including how many striped bass are still caught and released as incidental catch when targeting other species. The WG noted that harvest and effort is not constant throughout the year, so a no-targeting closure (question 3) would have different potential reductions depending on the time of year. Staff noted this is something the TC would have to consider in determining the estimated reduction overall ,and how effort might change under a no targeting closure. It's possible the TC could present a range of estimated reductions depending on assumptions about effort, timing, etc.

Staff also clarified that it's difficult to tease apart why live releases might decrease in the future, either from management or from reduced effort due to reduced availability from weaker year classes entering the populations (i.e., poor recruitment). However, the projection scenarios are hypothetical and a reduction in live releases is achieved to compare to reducing the RRM rate.

The WG supports moving the three proposed questions forward to the Board for potential tasking to the TC. The WG noted these questions would be useful. Staff also clarified this would be a realistic task for the TC to complete during the 2024 assessment, and there is a sub-group of TC members working on the challenge of quantifying estimated reductions from no-targeting closures.

The WG added one additional question to bring to the Board:

> 4. Identify the tradeoffs of implementing no-targeting closures at different times of the year with different assumed release mortality rates. Generally, when/where would implementing a no-targeting closure result in the highest reduction? Factors could include water temperature and salinity with the assumption that the release mortality rate is higher when the water temperature is high and the salinity is low.

For example, if we close during a time when RRM is less than 3%, is it worth a closure during that time? If we close during a time when RRM is high, are there more savings? The WG noted

any guidance from the TC on the best use of no-targeting closures to achieve reductions and the different factors to consider would be helpful. Staff noted the TC may not be able to provide a perfect answer but could perhaps provide a tool to understand different factors like length of closure, time of year, and associated RRM and what may be feasible management options. A WG member noted past Maryland conservation equivalency proposals applied methodologies to quantify the impact of no-targeting closures and circle hook implementation and could be used as a starting point.

Next Step: Recommend the four questions to the Board for potential TC tasking via WG memo for August meeting.

Task #4: Public Survey

The WG continued discussion on this task from the June 24 WG call. Staff reviewed the origin of this task again, which emerged from the possible scenario of the Board considering management action via Board vote (i.e., no addendum process) in October 2024, or shortly after, if the 2024 Stock Assessment Update indicated a reduction to achieve rebuilding was necessary. If that were to occur, public scoping completed prior to October could provide the Board with public input on measures to address RRM as the Board considered that action. A survey would need to be conducted from about mid-August to mid-September in order to gather and process the information prior to the October Board meeting.

Since the first WG call on June 24, three WG members drafted survey questions for WG discussion. The draft survey questions incorporated several issues associated with these types of measures into the questions, including angler response to closures, voluntary vs. mandatory gear restrictions, equity, enforceability, ability to quantify impacts, and general level of support for these types of measures. The survey questions also asked for information about survey participants such as where they fish, what type of recreational stakeholder they identify as, how frequently they target striped bass, and why they release striped bass (preference vs. regulation).

WG members generally supported the progress on the survey questions and continue to support the idea of a survey but expressed additional concerns about the proposed fast timeline to potentially conduct a survey starting in August. The WG noted they are not survey design experts, and this is a very important issue that the Board may want additional input on to develop the best survey possible before taking it out to the public. The WG noted this is a critical, valuable opportunity to gather input from the public on RRM, and the survey should be done right.

WG members suggested potentially extending the timeline for this survey and conducting it this fall, potentially after the October meeting but before the Board takes any action, or a longer-term timeline of conducting the survey in 2025. The Board should also develop an outreach plan to make sure states have a plan in place with resources to distribute the survey to stakeholders.

WG members suggested getting input from the ASMFC Committee on Economics and Social Science (CESS), which may have some members who are experienced with similar surveys, as well as input from the Striped Bass Advisory Panel. If funds are available, the Board could also consider consulting an outside expert on survey design.

The WG decided to pause work on further developing the survey questions until the Board provides guidance on the timeline and other committees/experts can be involved in the process. The WG decided the Board should decide on the timeline and process first, and then the draft survey questions can be further developed and shared with others at that time. The WG did have initial feedback on the first set of survey questions as follows:

- Need for email validation and/or gather additional personal information from participants to ensure only one reply per person. Could ask for name, city, state. Validating emails would be the most effective.
- Original goal of 15 minutes for a participant to complete, but this might be too long. Consider a goal of 5-10 minutes. We want to be comprehensive but unrealistic to try and collect a complete view of what people think of the fishery. Shorter is better. Focus on the areas where we want impact.
- Concern about leading questions. For example, the questions state there is a concern about enforcement rather than letting the participant express their concerns about no-targeting closures.
- Emphasize that MRIP data are estimates of harvest and release numbers. They are not absolute, these are estimates.
- We should think intentionally about how we ask stakeholders to identify themselves (private, for-hire, shore-side).
- The topics of fish handling and gear restrictions should be separate.
- Question about how angler behavior would change with a no-targeting closure is difficult because the answer could depend on when the no-targeting closure would occur. If striped bass were the only species available, that would mean one answer. But if there were other species available to target, the answer might be different.

Next Step: WG recommend the Board extend the survey timeline and identify people to involve in the process (possibly CESS, AP, outside experts if Board desires and funds allow).

Public Comments

- Will Poston (ASGA) - Appreciate including the broader industry (e.g., tackle shops), in addition to people who are actually fishing. Consider asking the broad question of if a reduction is needed, what is the preference/trade-off of the ability to target striped bass throughout the year vs. the ability to harvest at certain times.

Atlantic States Marine Fisheries Commission

American Lobster Management Board

August 6, 2024
2:45 – 5:30 p.m.

Draft 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 *(P. Keliher)* — 2:45 p.m.

2. Board Consent — 2:45 p.m.
   - Approval of Agenda
   - Approval of Proceedings from April 2024

3. Public Comment — 2:50 p.m.

4. Progress Update on Benchmark Stock Assessment for American Lobster *(J. Kipp)* — 3:00 p.m.

5. Plan Development Team Report on Conservation Measures for Lobster Conservation Management Areas 2 and 3 *(C. Starks)* — 3:10 p.m.
   - Report from Lobster Conservation Management Team 3

6. Report on Colby College Economic Impact Analysis of a Lobster Gauge Increase *(A. Lindsay)* — 3:45 p.m.

7. Review Discussions with Canada on Complementary Management Measures *(T. Kerns)* — 4:00 p.m.

8. Consider Addendum XXX on the Mitchell Provision for Final Approval — 4:15 p.m.
   Final Action
   - Review Options and Public Comment Summary *(C. Starks)*
   - Consider Final Approval of Addendum XXX

9. Vessel Tracking Workgroup Report on the 24/7 Tracking Requirement of Addendum XXIX *(C. Starks)* — 5:15 p.m.

10. Other Business/Adjourn — 5:30 p.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click here for details.

MEETING OVERVIEW

American Lobster Management Board
August 6, 2024
2:45 – 5:30 p.m.

Chair: Pat Keliher (ME) Assumed Chairmanship: 02/24	Technical Committee Chair: Tracy Pugh (MA)	Law Enforcement Committee Rep: Rob Beal (ME)
Vice Chair: Renee Zobel (NH)	Lobster Advisory Panel Chair: Grant Moore (MA) Jonah Crab Advisory Panel Chair: Sonny Gwin	Previous Board Meeting: April 30, 2024
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NMFS, NEFMC (12 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from April 2024

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. Progress Update on Benchmark Stock Assessment for American Lobster (3:00-3:10 p.m.)

Background

- The benchmark stock assessment for American lobster is in progress with results expected in 2025.
- The Assessment Methods Workshop was held in July 2024. The Assessment Workshop is scheduled for Fall 2024.

Presentations

- Progress Update on Benchmark Stock Assessment for American Lobster by J. Kipp

5. Plan Development Team Report on Conservation Measures for Lobster Conservation Management Areas 2 and 3 (3:10-3:45 p.m.)

Background

- In January the Board tasked the lobster Plan Development Team (PDT) to review the original goals and objectives of Addenda XXI and XXII and make recommendations for alternate measures to achieve those goals, considering recommendations from the LCMA 2 and 3 Lobster Conservation Management Teams (LCMTs).

- LCMTs 2 and 3 met to provide input to the Board on possible measures and impacts to the lobster fishery **(Briefing Materials)**.
- The PDT compiled a report to characterize the changes in the lobster fishery and possible alternative management measures (**Briefing Materials**).

Presentations

- Plan Development Team Report by C. Starks

6. Report on Colby College Economic Impact Analysis of a Lobster Gauge Increase (3:45-4:00 p.m.)

Background

- In April the Board reviewed an Economic Impact Analysis on the minimum gauge size increase for LCMA 1 (**Briefing Materials**).
- A review of this study was carried out by Dr. Amanda Lindsay, Assistant Professor of Economics at Bates College. Dr. Lindsay specializes in bioeconomic modeling and management of marine fisheries **(Briefing Materials)**.

Presentations

- Report on Colby College Economic Impact Analysis of a Lobster Gauge Increase by A. Lindsay

7. Review Discussions with Canada on Complementary Management Measures (4:00-4:15 p.m.)

Background

- Maine, New Hampshire and Massachusetts fishery lobster managers and industry members met with Canadian lobster fishery managers and industry members to discuss complementary management between the US and Canada **(Supplemental Materials).**

Presentations

- Review Discussions with Canada on Complementary Management Measures by T. Kerns

8. Consider Addendum XXX on the Mitchell Provision for Final Approval (4:15-5:15 p.m.)
Final Action

Background

- In January 2024, the Board initiated Draft Addendum XXX. The Addendum is being considered to clarify how the measures of Addendum XXVII, approved in May 2023, will apply to foreign imports of American lobster (**Briefing Materials**).
- Two virtual public hearings were held in April and May. The public comment period ended on June 3, 202 (**Briefing Materials**).

Board actions for consideration at this meeting

- Addendum XXX Final Approval and Public Comment Summary by C. Starks

Board actions for consideration at this meeting

- Consider Final Approval of Addendum XXX

9. Vessel Tracking Workgroup Report on the 24/7 Tracking Requirement of Addendum XXIX (5:15-5:30 p.m.)

Background

- Responding to industry concerns over privacy related to the tracking requirements of Addendum XXIX, the Board tasked the Vessel Tracking Workgroup, with input from the law enforcement committee, to investigate modifications to the 24/7 vessel tracking requirement which still ensure monitoring of fishing activity while acknowledging that fishermen also use boats for personal/nonfishing reasons, and reviewing existing processes for when Vessel Monitoring Systems (VMS) devices can be turned off.
- The Vessel Tracking Workgroup compiled a report on possible solutions, impacts to data collection, law enforcement considerations, and VMS regulations (**Briefing Materials**).

Presentations

- Vessel Tracking Workgroup Report by C. Starks

10. Other Business/Adjourn (5:30 p.m.)

Canada/United States Dialogue on Lobster Management
Delta Hotel – Saint John
June 27-28, 2024
DRAFT

Participants	
Doug Wentzell	Regional Director-General, DFO Maritimes Region
Jacinta Berthier	Regional Director, Fisheries Management, DFO
Adam Cook	DFO Science
Verna Docherty	DFO Fisheries Management
Noel d'Entremont	DFO SWNB Area Director
Robert MacDougall	DFO SWNB Area Office
Dwayne Surette	DFO SWNS Area Office
Lillian Mitchell	DFO SWNB Area Office
Beth Lomax	DFO SWNB Area Office
Leigha Thurber	DFO SWNB Area Office
Robert Harris	LFA 34 Advisory Committee Co-chair
Bernie Berry	LFA 34, Coldwater Lobster Association
Wendy Narvey	Mi'gmawe'l Tplu'taqnn Incorporated (MTI)
Justin Martin	Kwilmu'kw Maw-klusuaqn- Mi'kmaq Rights Initiative
Alexa Meyer	Peskotomuhkati Nation at Skutik PNS
Judith Maxwell	Scotia-Fundy Inshore Fishermen's Association
Jessica Matthews	Scotia-Fundy Inshore Fishermen's Association
Amanda Johnson	Fundy North Fishermen's Association
Emily Blacklock	Fundy North Fishermen's Association
Bonnie Morse	Grand Manan Fishermen's Association
Melanie Sonnenberg	Grand Manan Fishermen's Association
Terry Hatt	Province of New Brunswick
Cyril Boudreau	Province of Nova Scotia
Laurent Law	Province of Nova Scotia
Dainelle Deonarine	PNS Programs Coordinator
Patrick Keliher	Commissioner, Maine Department of Marine Resources and Chair of the ASMFC Lobster Board
Dan McKiernan	Director, Massachusetts Division of Marine Fisheries
Cheri Patterson	Director, New Hampshire Fish and Game Department-Marine Fisheries and Vice Chair of the ASMFC Lobster Board

Megan Ware	Director of External Affairs, Maine Department of Marine Resources
Lorraine Morris	Lobster Resource Coordinator, Maine Department of Marine Resources
Kathleen Reardon	Lobster Fishery Biologist, Maine Department of Marine Resources
Toni Kerns	Fisheries Policy Director, ASMFC
John Drouin	Lobster Zone A Chair
Richard Howland	Lobster Zone B Secretary
Jake Thompson	Lobster Zone C Chair
Mike Dawson	Lobster Zone D Chair
Andrew Hawke	Lobster Zone E Lobster Advisory Representative
Jeff Putnam	Lobster Zone F and Lobster Advisory Committee Chair
Kristan Porter	Maine Lobstermen's Association President (Zone A)
Dustin Delano	New England Fishermen's Stewardship Association, COO (Zone D)
Patrice McCarron	Executive Director, Maine Lobstermen's Association

Agenda Items and Corresponding Discussion Notes/Actions

1. Welcome and Introductions	**Doug Wentzell/Patrick Keliher**
Objective of this meeting is to build greater understanding of adjacent lobster stocks on both sides of the border, including current management measures and possible opportunities to strengthen those measures given current trends in population abundance and distribution throughout the broader Gulf of Maine.	
Action: No action items.	

2. DFO Fisheries Management - Lobster Management	**Verna Docherty**
Verna presented an overview of the legislative and policy frameworks used by DFO to make fisheries management decisions, the harvest control rules in place for the inshore lobster fishery, and a summary of current management measures in place in DFO's Maritimes Region. She noted that the management measures outlined are specific to DFO's Maritimes Region which covers from the tip of Cape Breton in Nova Scotia to the Bay of Fundy and the Canada/US boundary in New Brunswick. Other DFO Regions which fish the Atlantic coast were not in attendance, and have different measures in place, including different minimum legal sizes.	

In response to a question, Verna noted that decision making is kept to the lowest/most local possible level but may be elevated depending on the impact of the decision or international considerations. The harvest control rules in place for the fishery are a set of pre-agreed decision rules of actions to be taken when either the stock is below the upper stock reference (USR) or when fishing pressure exceeds the removal reference, the maximum acceptable removal rate. DFO is unlikely to impose new conservation measures unless either of these reference points is met.
Action: Provide a copy of the presentation

3. Atlantic States Marine Fisheries Commission	**Megan Ware**
Megan explained how the ASMFC and the Lobster Board operate and enact new regulations. Each jurisdiction gets one vote on the Board when considering a change in the fishery management plan. States are the implementing bodies of the Commission, meaning states use their regulatory authority to implement management changes in their waters. The Lobster Board also requests NOAA fisheries implement complementary measures in Federal waters. The US lobster stock is managed by two biological stocks and seven management areas. The minimum size for LCMA 1 fishery is 3 ¼", LCMA 3 is 3 17/32", and Outer Cape Cod is 3 3/8".	
Action:	

4. Maine Department of Marine Resources	**Kathleen Reardon**
Detailed review of the stock assessment surveys completed by ME DMR. Recruit (71-80mm) stage indices were estimated from these surveys and these form the basis for the management trigger for the proposed gauge increase. The LMA1 fishery, and Maine in particular, accounts for the vast majority of US lobster landings and therefore is projected to produce the largest biological impact from a gauge size change. Western Maine catch and survey data has been relatively stable whereas the eastern catch and survey data indicate an increase to a peak in 2016, and a subsequent decrease across a range of metrics. The most recent stock assessment indicated the stock is not overfished and overfishing is not occurring. Dan: Increasing gauge size in Area 1, inshore fishery, would have the largest impact on recruitment and perhaps the overall fishery	

Action:

5. DFO Science	**Adam Cook**
Adam presented the methodology used by DFO-Science to determine stock status. Data presented ranged from 1995-2023. Fishery dependant Catch per Unite Effort if the primary metric for the assessments in most LFAs. Multiple fisheries independent trawl surveys are also completed where they use the "weight of Evidence" approach for advice (i.e. 2 of 4 survey indices above the Upper Stock Indicator indicates that the stock is healthy) All LFA's in Maritimes Region are in the healthy zone and DFO Science data suggests that where we have exploitation rate indices and removal references overfishing is not occurring.	
Action:	

6. Recent Discussion and Actions at ASMFC	**Toni Kerns**
Toni presented an overview of Addendum XXVII and outlined the proposed gauge changes in LMA1. Addendum XXVII established a trigger mechanism to automatically implement management measures to provide additional protection of the Gulf of Maine/Georges Bank (GOM/GBK) spawning stock biomass. The trigger set by the Lobster Board was a 35% decline in the trigger index from 2016-2018 levels, which represent the last three years in the stock assessment. In October 2023, it was determined this trigger had been met (39.1% decline). The management response in LMA1 is an increase in the minimum gauge (Year 1: 3-5/16, Year 3: 3-3/8). Addendum XXX is proposed to clarify that the Mitchell provision within the Magnuson Stevens Act (MSA) should apply. The Mitchell provision prohibits shipping, transporting, offering for sale, selling, or purchasing whole live lobster smaller than the lowest minimum gauge size. The ASMFC see the clarification as necessary as Amendment 3 to the Lobster Fishery Management Plan specifies the minimum gauge size as 3 ¼", despite the addendum saying otherwise. There will be an ASMFC Lobster Board meeting in August 2024 for the ASMFC to decide on Addendum XXX.	

Action:

7. Begin Discussion in Support of Meeting Goal	**All**

The approach to bonded product will fall in the hands of NOAA Fisheries. Would possibly require a legal opinion on the issue of bonded product as fitting the intent of sealed and passed through. Re-sorting would not be permitted. An agency legal opinion would look at that flow of commerce via bonded shipment but it will be reviewed in the examination of Mitchell Provision. Will be a NOAA decision but current practice allows bonded product provided repacking does not occur.

Patrick: State of Maine is willing to consider a delay in implementing Addendum XXVII if Canada is interested in making a change similar to the US.

In response to a question, Dan McKiernan noted that no further action would be required from NOAA if Addendum XXX is adopted. However, NOAA must promulgate regulations to match the new gauge size which can take time, e.g., 1-2 years. In the meantime, until NOAA makes the necessary adjustments, the states enforce the gauge size based on landing limits.

Western Maine fishers – lobsters don't have passports, therefore there is a Canadian advantage on the Can/US border and especially in Area 38B. They would like to discuss options which satisfies everybody.

Canadian Harvesters: Timeframe for Canada is not on track with the US. Canada just heard about the increase in the spring of 2024. For SWNS, the earliest availability for a gauge increase would be next June IF approved at the advisory committee. FNFA is the same. Have not discussed this with the LFA 36 fishers. It is low priority at the moment in that area as there are other issues they think require more attention. Joint agreement would be needed within Canada along LFA borders.

Verna Docherty stated that the US gauge change has been brought to each LFA advisory committee in Maritimes Region as an information item, was an item at the Maritimes Region Lobster Advisory Committee (MRLAC) in September 2023 and would be a MRLAC agenda item again this fall. She further noted that, while DFO's precautionary approach triggers have not been met, that there are opportunities for each LFA to establish target reference points based on objectives which may be social, cultural, economic, etc. While the DFO-established reference points are intended to conserve the stock, there may be a desire to implement management measures earlier to ensure the sustainability of the fishery. Defining clear objectives for how the resources users want to manage while still in the healthy zone is a conversation that DFO is willing to support in all LFAs.

Grand Manan Fisherman's Association requested further discussion with DFO on the MRLAC agenda item and how the information will be presented.

Maine fisher: the benefit is for the next generation but also for market value increases. Is there a want in the market for a larger lobster, this could be a selling point.

US dealers want to import the smaller Canadian lobsters for lower price. This would reduce the demand for US lobsters and decrease price. Canada would gain the market advantage.

Justin Martin: the data received from ASMFC was compelling. Would like to discuss with DFO Science on what it means and what/how this should inform lobster management. Would like this conversation to happen sooner than later. Is there a peer reviewed action being taken by DFO to make decisions effectively and timely? What is the significance of the data differences between the US and Canada stock assessments and does this need to be considered/changes made to ensure conservation?
Adam: trends are comparable therefore data integrity does not seem to be an issue. Target reference points do have socio economic metrics included. Stock assessments and updates have been peer reviewed.

FNFA: LFAs 35-38 does not have a removal reference so how can DFO say that overfishing isn't occurring. Also, the size of maturity hasn't been updated since the 1990s. Adam: prefaced his comments that where a removal references are established, fishing pressure remains below those points. Also, size of maturity was completed in 2023 with a tech report forthcoming.

Kathleen: Addendum XXVII commenced outside of the limit reference points. US regulators saw a concern which was not triggered by the management control rules and chose to take action.

Alexa (PRG): topic for tomorrow – difference between proactive approach and precautionary approach, why did they not trigger the same reaction?

Lillian:
Response: Dan – spearheaded by Maine, the strategy was to get out in front of a decline because of past experience with the Southern New England stock. Created the initiative to make these decisions outside of the management control rules for that purpose.

Doug and Patrick: recap and closing for the day.

Action:

8 Day 2 Can/US June 28th 0900 - Brief Recap of Day 1 Discussion	**Doug /Patrick**
Doug –	

Canadian perspective good to learn about Addendum XXVII and XXX.
Key take away - to have good Canadian and US discussions. Good to see what our colleagues are planning and to learn about management changes in the US.

Patrick-
More collaborative science is the key.
Expand on dialogue – questions for folks to think about.
States and Commission is looking at allowing MRLAC to have the discussion and see what comes of it for consideration.

Action:

9. Discussion in support of meeting goal	**All**

Patrick and Doug suggested a few questions to reflect on to get the conversation started:

- What questions do you have, or what data do you need, to have an informed conversation on the best path forward?
- What could market impacts be for US and Canadian fishermen if:
- The min gauge increases in Maine but remains as is in Canada
- The min gauge is aligned in the Gulf of Maine
- How should we carry forward collaboration and communication on this topic?
- What is the best path forward to support conversations about this meeting with our respective industries?
- What outstanding questions do you have from yesterday's conversation?

Dan,
What happens at MRLAC? What is the process to move forward on size increase?
Doug – MRLAC would be an opportunity to have the DFO Maritimes Region Indigenous rights holders and industry collected together to discuss. Further consultation with LFA-specific advisory committees would be needed as any decision may be made on an LFA basis. Consultation with Indigenous communities would also be required.

GMFA- Buyers and processors need to be part of the conversation. They could speak to economic impacts.

Kathleen Reardon – Department of Marine Resources.
-Presentation on size of maturity by stat area off Maine's coast. In general, size at maturity is decreasing but it is still above the minimum gauge size.
-Presented catch per trap data from the Maine lobster fleet. Catch per trap per trip is not an index used in the trigger mechanism but Maine DMR does look at this data. Recent information shows fishermen are

adapting fishing practices to potential declines in lobster landings and higher input costs by modifying effort, so CPUE has been fairly steady over the last decade.
- Presented projections on what the estimated long term impact would be from an increase in the minimum gauge size. In general, small increases in the minimum gauge are expected to produce large benefits in the spawning stock biomass. For fishermen it would increase the weight of catch and decrease the number of catch.
- Presents slides on percentage of catch of legal lobsters caught by mm.
83 mm=11%
84mm=9%
85mm=8%
86mm=9%
87mm=9%
This would represent the short-term, year 1 impact from the first increase in the minimum gauge. By weight, the impact is about an 8% loss in average trip weight in Year 1 of the gauge increase. Impacts can vary by Maine Lobster Zone.

Adam Cook – DFO Science - See presentation.

Presented by LFA size percentage
LFA 34 - 84 mm=16%

LFA 33 and 34 would not meet same threshold (trigger index 35%)as US. we are at 20%
Size at maturity

On average, a lobster at 82.5mm = 0.97lbs, after one molt the lobster will be 93.8mm = 1.44lbs.

Question -if minimum size was increased to 84mm, what would the impact be to the LFA's?.
Adam will provide.

Patrick –
what do we need for data?
- -Market side of the equation needs to be provided.
- -Data on size at maturity and independent information. What size required for each LFA .
- -Removal reference in LFA 35, 36, 38.
- -Market impacts on increased size.

Q. What happens if Addendum XXX does not pass? Could each state have different regulations?
A. Yes, lots of variables. States have the authority to control what comes in and out of state.

Q. Is there concern on price if US does not take small lobsters?
Bernie - China or Asia will absorb it, however, price may suffer.

Has NOAA requested legal advice on lobster moving across border in bond? The commissioners are not aware that advice has been sought.

Q. How should we move forward on conversations?
GMFA- all fisherman should be involved in the discussion…our fisherman are fishing today and were not able to attend.
Patrick- we need better planning
US fisherman - We are not here to strong arm anyone into doing this. Just sharing what we are doing. Timing of the implementation is key, strategic timing.

Melanie- we need to bring in all LFA's . NFLD is now catching more lobsters and they are being shipped somewhere. There are many other districts in Atlantic Canada that are not represented here today.

Robert Harris– May help Canadian interest to be proactive when we see troubling trends.
Patrick – the ASMFC Lobster Board is looking at long term stability.

Bernie-
Canadians are still in the driver's seat, we can take it back and begin to have conversations. Better communications in the future are required so that conversation and start early. Expectations- LFA 32 to LFA 12 would not entertain this.

GMFA-under siege by many issues: marine protected areas, whales, wind turbines. We are in the healthy zone, market implications is a hard sell to over 200 fisherman.

US Rep – we are all frustrated, grateful to our Canadian colleagues, Canada needs its own conversations. We need more time to figure out the issues.

Justin- I build consensus in first nations. Bring information for harvesters to understand how this affects their business at an individual level.

Megan- more communication on US side to get answers on the Addendum XXX

Will ASMFC put a pause on the increase so that Canada can have these conversations.

Judith-more time for discussion, many fisherman have no idea this is even being talked about.

US fisherman- More whale rules are coming in the next few years, not sure where it ends.

FNFA- is this happening in January?
Patrick- that is the course right now. We will be having conversations so stay tuned.

We are willing to have further discussion on the implementation time line. Vote for addendum XXX is Aug 6th in the afternoon. Doug and Patrick thanked everyone for attending and gave closing remarks.
Action:

10. Next Steps	
The ASMFC Lobster Board is scheduled to vote on Addendum XXX at their August Board meeting and the public is encouraged to listen via webinar. There will also be a discussion regarding the timing of the minimum gauge size increase in LMA1 and an updated on this conversation. There will be a MRLAC meeting in September where this topic will be an agenda item. It would likely be helpful to have industry meetings within the LFAs over the summer to present information related to this topic. There is an opportunity for greater cross-border science on the lobster resource and this should be a focus moving forward.	
Action:	

Adjournment:	

EAST COAST SEAFOOD
COMPANY

July 29, 2024

Dear Commissioners:

East Coast Seafood is a Maine lobster dealer, a Massachusetts lobster processor and a Canadian lobster dealer writing to express our opposition to Addendum 27. Maine based dealers cumulatively purchase upward of 150 million pounds of lobster annually, employ thousands of Mainers, and contribute millions of dollars to state coffers in taxes.

Addendum 27 will have crippling effects on our businesses, Maine's economy, the tax base, and our work force. We are writing to ask that you defeat, or at least defer, this proposal to protect an industry essential to our state's economy and identity.

As you are aware, we are gravely concerned the proposed gauge adjustment will deprive harvesters, dealers, and processers alike of some of our most popular products. For example, the so-called chicken lobster in the 1 to 1.15 lb range is in high demand among restaurants, wholesalers, and European markets. We will lose this product entirely once Addendum 27's gauge increases are triggered.

Another product the gauge increases threaten are lobster tails in the three-to-fourounce range. Major buyers such as cruise lines and restaurant chains, including Red Lobster, prize this product for "surf and turf" offerings. These tails are harvested from lobsters below Addendum 27's minimum allowable catch size.

The chicken lobster and the three-to-four-ounce lobster tails represent a significant portion of our businesses, which have an uncertain future thanks to Addendum 27. The variability in our regulatory environment is especially unwelcome in maritime communities east of Casco Bay, where we cumulatively employ thousands of Mainers and constitute a large portion of the tax base. We fully expect that declines in revenue owing to Addendum 27 will lead to layoffs and a decline in our tax contributions.

It is no answer to reply that Addendum 27 is in the industry's best interests. First and most importantly, Addendum 27 does not protect industry by protecting stocks. Indeed, there is no guarantee that Addendum 27 will have any positive impact on lobster stocks. All a gauge increase does is increase egg production, and there is no evidence that more eggs will lead to more lobsters down the road.

Maine lobstermen have been true leaders in conservation and sustainability with the most restrictive regulations on carapace length and v-notching in all of New England and neighboring Canada. Surveys along the Maine coast remain healthier than those to the south, likely from the due diligence of conservation measures enacted by Maine lobstermen.

East Coast Seafood SEATRADE Paturel INTERNATIONAL Salt & Sky

East Coast Seafood LLC | 10 North Front St. | New Bedford MA 02740
Tel: +1 (774) 305-4948 Fax: +1 (508) 999-1291

This past year saw an uptick in the young of year lobster population according to two separate monitoring programs conducted by the University of Maine and the Maine Department of Marine Resources. There is no question that our fishery is healthy and robust. Nor are there alternative products that could sustain the industry at current levels. For example, lobsters in the 1.25 lb range are popular, but have been recently selling at historically low prices. This is an especially inopportune moment for our businesses to abandon our core offerings and pivot to a cheap alternative.

We thank you for your attention to this matter and hope you will prioritize the heritage and economic vitality of our fisheries.

Sincerely,
East Coast Seafood, LLC

Robert L. Blais
Chief Executive Officer

New England Fishermen's Stewardship Association
500 Southborough Dr. Suite 204
South Portland, ME 04106

July 26, 2024

Atlantic States Marine Fisheries Commission
Caitlin Starks, Senior Fishery Management Plan Coordinator
1050 N Highland St, Suite 200 A-N
Arlington, VA 22201

Dear Commissioner,

On behalf of the New England Fishermen's Stewardship Association (NEFSA), I am writing today to thank you for your efforts in considering a delay of implementation of the gauge increase in Addendum 27. We understand that our ask for a delay is unusual and unprecedented, however, lobster fishermen and dealers want to ensure the most minimal impacts on markets, trade, and their own financial security.

Unfortunately, NEFSA does not have comments on the record in opposition to Addendum 27. When the addendum passed ASMFC in May of 2023, NEFSA was just being formed. With over 900 active members, the New England Fishermen's Stewardship Association is the fastest growing fishing advocacy group in New England. Guided by fishermen at the helm, NEFSA is rooted in Maine and has a board of directors compiled of fishermen from all over New England. Our mission statement reads:

> "NEFSA is an alliance of the wild harvesters of the waters off of New England, dedicated to educating the public about how best to manage our seafood resources through sound science and best practices at conservation used by fishermen, with a view toward economic well-being, ecosystem sustainability and US food security."

Last month NEFSA's Chief Operating Officer, Dustin Delano, attended meetings in Saint John, New Brunswick which included members of the ASMFC Lobster Board, DFO, lobstermen, and several other industry groups from both sides of the border. The conversation was productive and lead to the conclusion that both countries should be exchanging dialogue much more frequently to improve communication and understanding within the lobster fishery of which each country significantly relies upon. Much conversation was had around lobster catch, science, and the importance of a unified lobster gauge—specifically between LMA1 and the bordering Canadian LFA's. From those meetings, DFO expressed willingness to engage in conversations with Canadian fishermen on the topic of maintaining a unified gauge across the area.

NEFSA is asking for a further pause to allow time for the Canadians to have conversations and decide on their path forward with a gauge change. It is crucial for the survival of our members, dealers, and all fishermen that we work in lock step with our Canadian counterparts. A pause until July 1, 2025 would give our Canadian neighbors more time for discussion and also allow dealers to continue processing through the months of May and June without possession hurdles during peak landings. Allowing time to conduct proper conversations ensures the original proactive intention from Addendum 27 is achieved.

The lobster fishery and business plans surrounding it are incredibly volatile. Lessening the economic impacts for which the commission creates through regulation is absolutely crucial to ensure prospering businesses within a viable and sustainable fishery. With that said, beyond the time extension, NEFSA also asks commissioners to consider a more gradual increase in the gauge to 1/32nd increases rather than 1/16th. The impact would be much less of a burden to both harvesters and dealers if the lobster board followed the previous increase increment from 1989.

NEFSA greatly appreciates the efforts made by the commission to begin conversations with Canada. We also send a sincere thank you to Commissioners Cheri Patterson, Dan McKiernan, and Pat Keliher for taking time out of their busy schedules to participate in the two day meeting regarding the gauge in Saint John. We respectfully ask that you all consider a further pause in the gauge increase until July 1, 2025.

Thank you,

Dustin W. Delano
Chief Operating Officer
New England Fishermen's Stewardship Association

Maine Lobstering Union

Local 207

150 Bar Harbor Rd, Trenton, ME 04506

American Lobster Management Board,

We, the Maine Lobstering Union are asking this body to again push the pause button on the Lobster gauge increase. While no fishermen want to see the lobster stock fall or our landings go down, pulling the trigger before we have had time to figure out the implications of this increase with bordering countries like Canada will not improve our stocks. This year we are seeing more juvenile lobsters than we have in previous years, some years they move inshore with greater numbers than others, as fishermen we know this and see it happening. For this reason, we request a more robust sampling with the Department of Marine Resources and fishermen working together. If we don't improve the data we collect and our communication with Canada, Maine fishermen will conserve a lobster that can be harvested and landed in Canada when they are fishing directly beside Maine fishermen, now what does that preserve? It does not benefit the Maine Lobstermen; it does give our market to Canada just as the tariff did. Maine lobstermen are stewards of the sea, they pride themselves on protecting the sustainability of the waters that they fish. We have been v-notching the egg-bearing females for years, along with past measure increases when warranted, long before others. If lobstermen are sounding the alarm that this gauge increase is coming too early, trust in that.

In 2020 Woods Hole Oceanographic (WHOI) conducted a study on the effects that sonar used in offshore wind had on the lobster population. This study's findings were published in 2021 showing that the noise produced by the windmills is the same frequency (hertz) 100-200 that lobsters use to mate, move and interact with other male lobsters. This was detrimental to the lobster larvae study points off of Boothbay and would have affected the lobster population reported in 2021-2022.

This gauge increase is being bought on without considering all available science. For the past few years, we have observed lobsters spawning in deeper waters, not where they are trawling and setting ventless traps. This is the very reason science needs fishermen to collaborate on these issues together. We have been fishing the ocean bottom and observing the movement of lobsters our entire lives. We know our industry, yet it appears that our knowledge and input are not considered and disregarded.

Thank you for considering our viewpoint.

The Maine Lobstering Union

If you have any questions please call, text or email: 207-240-0556, volsen@district4.net

118TH CONGRESS
2D SESSION

S. 4113

To allow States to require payment of State fees related to boating as a condition for issuance of a vessel number and to collect such fees in conjunction with other fees related to vessel numbering.

IN THE SENATE OF THE UNITED STATES

APRIL 11 (legislative day, APRIL 10), 2024

Mrs. SHAHEEN (for herself, Mr. CRAPO, and Mr. RISCH) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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A BILL

To allow States to require payment of State fees related to boating as a condition for issuance of a vessel number and to collect such fees in conjunction with other fees related to vessel numbering.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "State Boating Act".

SEC. 2. COLLECTION OF STATE FEES RELATED TO BOATING.

Section 12307 of title 46, United States Code, is amended—

(1) in the matter preceding paragraph (1)—

(A) by striking ''The authority'' and inserting ''(a) IN GENERAL.—The authority''; and

(B) by striking ''that are—'' and inserting ''that—'';

(2) in paragraph (1)—

(A) by inserting ''are'' before ''prescribed''; and

(B) by striking ''; or'' and inserting a semicolon;

(3) in paragraph (2)—

(A) by inserting ''are'' before ''related''; and

(B) by striking the period and inserting ''; or''; and

(4) by adding at the end the following:

''(3) require the payment of State fees related to boating, which may include fees for search and rescue operations, boating safety measures, or efforts to address aquatic invasive species.

''(b) STATE FEES RELATED TO BOATING.—A State issuing authority may collect a fee described in subsection

(a)(3) in conjunction with the collection of any other fee established under this section.''.

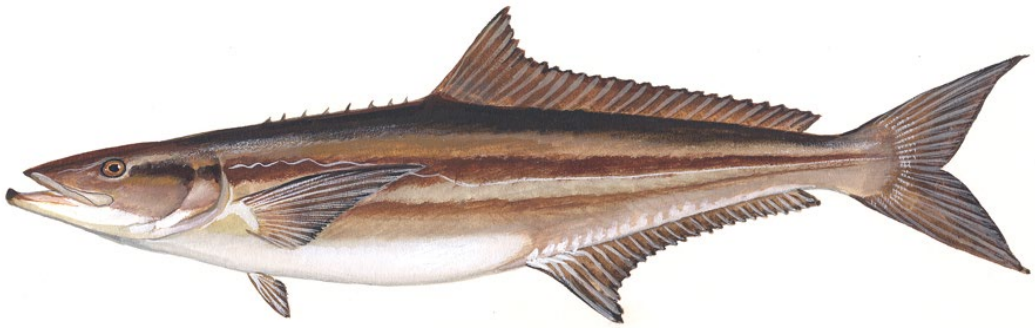
○

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR ATLANTIC COBIA
(*Rachycentron canadum*)

2023 FISHING YEAR



Prepared by the Atlantic Cobia Plan Review Team
For Board Review
July 2024

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

DRAFT FOR BOARD REVIEW

Table of Contents

I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – November 2017
Amendments & Addenda:	Amendment 1 – August 2019 Addendum 1 – October 2020
Management Areas:	The distribution of the Atlantic stock of cobia from Georgia through Rhode Island
Active Boards/Committees:	Coastal Pelagics Management Board; Cobia Technical Committee, Plan Development Team, and Plan Review Team; South Atlantic Species Advisory Panel

The Atlantic States Marine Fisheries Commission (ASMFC) adopted an Interstate Fishery Management Plan (FMP) for the Atlantic Migratory Group of cobia (Atlantic cobia) in 2017 (ASMFC, 2017). Prior to the FMP, federal management was through the South Atlantic Fishery Management Council's (SAFMC) Fishery Management Plan for Coastal Migratory Pelagic Resources (CMP FMP), while New York, New Jersey, Delaware, Virginia, North Carolina and South Carolina had regulations for their respective state waters.

The FMP established a complementary management approach between the ASMFC and SAFMC. Under the ASMFC, Atlantic cobia are managed as part of the Coastal Pelagics Board (Board). Through the FMP, regulations for states with a declared interest were required to reflect several measures established federally through the CMP FMP.

In March, 2019, Regulatory Amendment 31 to the CMP FMP became effective (SAFMC, 2018). This removed Atlantic cobia from the CMP FMP, resulting in management solely through the ASMFC.

In August, 2019, the Board approved Amendment 1 to reflect removal of Atlantic cobia from the CMP FMP, assume management responsibilities previously accomplished through the SAFMC and CMP FMP, and establish recommendations for measures in federal waters. Amendment 1 stated requirements were to be implemented by July, 2020.

Amendment 1 maintains many regulations of the original Commission FMP and previous CMP FMP. These include a 36-inch fork length (or 40-inch total length) recreational minimum size limit, 1 fish per person recreational bag limit, a recreational daily vessel limit not to exceed 6 fish per vessel, a 33-inch fork length (or 37-inch total length) commercial minimum size limit, and a commercial possession limit of 2 cobia per person not to exceed 6 cobia per vessel.

There are four plan objectives:

1) Provide a flexible management system to address future changes in resource abundance, scientific information, and fishing patterns among user groups or areas.

2) Promote cooperative collection of biological, economic, and social data required to effectively monitor and assess the status of the cobia resource and evaluate management efforts.
3) Manage the cobia fishery to protect both young individuals and established breeding stock.
4) Develop research priorities that will further refine the cobia management program to maximize the biological, social, and economic benefits derived from the cobia population.

In February, 2020, the Board approved an annual total harvest quota of 80,112 fish for 2020-2022, based on results from the Southeast Data, Assessment, and Review (SEDAR) 58 stock assessment for Atlantic cobia, allocated to the recreational and commercial sectors based on the Amendment 1 allocation of 92% recreational and 8% commercial. However, states with commercial harvest had an agreement to harvest a smaller portion of that amount in 2020. SEDAR 58 used updated recreational catch estimates from the Marine Recreational Information Program's (MRIP) 2018 transition and calibration to the mail-based Fishing Effort Survey effort estimates, which replaced those of the Coastal Household Telephone Survey.

Given the increased recreational catch estimates used in the SEDAR 58 assessment, the total annual quota approved by the Board also increased, resulting in increases to both the recreational and commercial quotas. As this increase in recreational harvest did not truly reflect a change in previous effort, only the estimate of that effort, Addendum I to Amendment 1 was approved by the Board in October 2020 to reconsider the percent allocations to the commercial and recreational sectors to better reflect the observed harvest. The Addendum changed the allocation of the resource between the recreational and commercial fisheries from 92% and 8%, respectively, to 96% and 4%, respectively. The calculation of the commercial trigger, which determines when an in season coastwide commercial closure occurs, was also revised. The Addendum established a commercial *de minimis* set aside of 4% of the commercial quota with a maximum cap of 5,000 pounds to account for potential landings in *de minimis* states not tracked in-season against the quota. The Addendum also allowed states that are *de minimis* for their recreational fisheries to choose to match the recreational management measures implemented by an adjacent non-de minimis state (or the nearest non-de minimis state if none are adjacent) or limit their recreational fishery to 1 fish per vessel per trip with a minimum size of 33 inches fork length (or an equivalent total length of 37 inches). Based on maturity data from the SEDAR 58 assessment, this latter regulatory option was updated from 29 inches fork length to 33 inches fork length in Addendum I to allow a greater number of females to spawn before being susceptible to harvest. Addendum I measures were effective January 1, 2021.

In May 2022, the Board changed the cobia quota timeframe from 2020-2022 to 2021-2023, thereby, maintaining the total harvest quota of 80,112 fish for the 2023 fishing season. For the 2024-2026 fishing seasons, the total harvest quota for both sectors combined is 80,112 fish, which is the same harvest quota that has been in place since 2020.

Per the Addendum I allocation of 4% to the commercial sector, the commercial fishery has a coastwide commercial quota of 73,116 pounds (3,204 fish) annually for the 2021-2023 fishing seasons. The current management measures for the commercial fishery include a 33" FL minimum

size limit and 2 fish limit per person, with a 6 fish maximum vessel limit. The commercial Atlantic cobia fishery will close once the commercial quota is projected to be reached.

Per the Addendum I allocation of 96% for the recreational sector, the coastwide recreational harvest target for 2021-2023 and 2024-2026 fishing seasons is 76,908 fish. This results in the following state-specific soft targets through 2024:

Georgia - 7,229 fish
South Carolina - 9,306 fish
North Carolina - 29,302 fish
Virginia - 30,302 fish
De minimis - 769 fish

Allocation of the coastwide recreational harvest quota (i.e., state soft targets) may change in 2025 based on Draft Addendum II, which is being considered for final approval in August 2024. Draft Addendum II presents options for Atlantic cobia management, including a framework for recreational allocation, ways to account for data uncertainty and respond to quota overages, and an extended multi-year specification setting. For the recreational allocation framework, Draft Addendum II considers options for the data timeframe to form the basis for allocations, and options for the geographic scope of allocations (state-by-state, regional, or coastwide)

When the Board set the total harvest quota for 2024-2026, the Board would typically consider changes to state recreational management measures by comparing each state's recent harvest to state harvest targets. However, the Board considered a Technical Committee analysis reviewing the impacts of maintaining status quo recreational management measures, and ultimately, the Board chose to maintain status quo state waters recreational management measures for the 2024 fishing season while a new addendum was drafted to possibly change current management of the recreational fishery. For 2025, the Board will consider state recreational management measures based on state harvest target evaluations, which will follow implementation of any updates to the allocation framework being considered through Draft Addendum II.

II. Status of the Stock

SEDAR 58

In 2020, the Board approved the SouthEast Data, Assessment and Review (SEDAR) 58 Atlantic Cobia benchmark assessment for management use which continued to use the Beaufort Assessment Model (BAM), a forward-projecting statistical catch-at-age model used in the prior assessment, SEDAR 28 (SEDAR 2013). SEDAR 58 provided new reference points and determined that the stock is not overfished and overfishing is not occurring (Figures 1 and 2). This assessment had a terminal year of 2017, and used the recalibrated recreational catch data from MRIP, which yielded much higher biomass and spawning stock biomass estimates as compared to SEDAR 28 (Figure 3). Even with the large changes in biomass estimates, the trends of abundance, recruitment, and relative status were very similar between the two assessments. Stock structure also remained unchanged

from the SEDAR 28 assessment which established the stock boundary between Atlantic and Gulf of Mexico cobia at the FL/GA border with the Atlantic stock extending northward to Rhode Island.

The assessment proposed updated reference points of $F_{40\%}$ and 75% of $SSB_{F40\%}$ as the threshold reference points (Figures 4 and 5). The reference points were selected as the fishing rate and SSB that allows the population to reach 40% of the maximum spawning potential the stock would have obtained in the absence of harvest. These reference points serve as proxies for maximum sustainable yield-derived relationships due to insufficient data for cobia.

Spawning stock biomass showed little overall trend throughout the estimated time series, but the terminal year is the lowest in the time series. Age structure estimated by the base run indicated a slight decline in the number of younger fish in the last decade, but the rest of the age structure was above the expected values in 2017. The estimated fishing mortality rates have generally increased through the assessment time frame, peaking in 1996, with the recreational fleet as the largest contributor to total F ($F_{2015\text{-}2017}/F_{40\%}$ = 0.29).

SEDAR 95

The SEDAR process has initiated a benchmark stock assessment for Atlantic cobia to be completed in the fall of 2025. The goal of the assessment is to evaluate the health of Atlantic cobia stock and inform the Commission's management of this species.

III. Status of the Fishery

Regulations, by state, for the 2023 fishing year are presented in Table 1. Total Atlantic cobia landings (commercial and recreational) are estimated at about 2.8 million pounds in 2023, which is a 45% increase from 2022 and similar to the 2021 harvest level (Figure 6, Tables 2 and 3). This increase was driven by an increase in recreational landings, while commercial landings slightly decreased. The commercial and recreational fisheries harvested 2.3% and 97.7% of the 2023 total, respectively.

Commercial landings of Atlantic cobia in 2023 span from Rhode Island through South Carolina (Table 2). Coastwide commercial landings show an increasing trend since low harvests in the 1970s and early 1980s, but comprise a small portion of the total harvest due, in part, to the current 4% allocation of the total annual harvest quota since 2021 (Figure 6); the commercial allocation was 8% prior to 2021. Coastwide cobia commercial landings in 2023 were estimated at 64,547 pounds, which is a 14% decrease from 2022 commercial landings and similar to landings in 2021. The commercial quota of 73,116 pounds was not exceeded in 2023. North Carolina (48%) and Virginia (46%) harvested the majority of the commercial landings (Table 2). The total non-*de minimis* commercial landings did not reach the commercial trigger level for fishery closure, so the commercial fishery in state waters did not close under the Interstate FMP.

Recreational harvests have fluctuated widely throughout the time series, often through rapid increases and declines. Average recreational harvest for the time series is about 40,500 fish (1.1 million pounds) (Figures 6-7, Table 3-4). This fishery has grown noticeably over the time series, with

average harvests over the last 10 years of about 79,500 fish (2.3 million pounds). The 2023 recreational harvest was 98,311 fish (2.8 million pounds), which is above the coastwide recreational harvest target 0f 76,908 fish. 2023 harvest increased by 41% in number of fish from the 2022 recreational harvest level, and is the second highest harvest in the time series. The highest recreational harvest of 113,939 fish occurred in 2018.

From 2018-2023, Virginia has harvested the majority of the coastwide recreational cobia, with an average of 70.1% of the total fish by count (average of 60,894 fish/year). North Carolina has the second highest recreational harvest with an average of 14.5% of the total fish by count (average of 12,403 fish) for the same timeframe. South Carolina and Georgia have averaged 7.1% and 5.6% of the total coastwide harvest annually for the same timeframe (6,058 and 4,838 fish respectively), and the *de minimis* states made up the remainder (2.6% on average annually, 2,134 fish). Over the last several years, recreational landings have increased in some Mid-Atlantic states while remaining relatively stable in southern states, indicating a range expansion is more likely than a stock shift. Virginia has harvested above its state recreational target each year since the current state-by-state targets were implemented in 2020. Georgia harvested above their state target in 2021 and 2023. South Carolina has been harvesting just at or under their target each year, while North Carolina has been under their harvest target each year. *De minimis* states (currently from Maryland northward) harvested 361 fish in 2023, which is less than the *de minimis* set-aside of 769 fish. *De minimis* harvest decreased in 2023 from the 2022 *de minimis* harvest of 4,173 fish, which was well above the *de minimis* set-aside.

The PRT notes that changes in harvest can be attributed to multiple factors, including stock distribution, fish availability in nearshore or offshore waters, state regulatory changes, and level of effort.

It should be noted that North Carolina's estimated recreational harvest in 2023 was very low at 629 fish, as compared to the 12,403 average harvest from the previous five years (2018-2022). North Carolina noted in their compliance report that this decline in recreational harvest is likely due to weather conditions, including persistent winds in the 2023 cobia season which hindered fishing effort by reducing the number of fishable days. The North Carolina cobia fishery is a pulse fishery, with the primary wave of fish historically arriving in late May and being available for about 6 weeks. In recent years, anecdotal observations suggest the cobia are migrating to Chesapeake Bay much earlier, in April and May, and are residing in North Carolina for a shorter period of time. The PRT notes the very low 2023 harvest estimate for North Carolina may be an anomaly and is not necessarily indicative of harvest in future years.

Recreational releases of live fish have generally increased throughout the time series (Figure 7, Table 5). In 2023, 248,890 recreationally-caught fish were released, a 31% increase from 2022. This coincides with the increase in recreational landings in 2023 from 2022. From 2018-2023, an average 76% of cobia caught recreationally were released alive each year. This is higher than the average 65% released alive during the period of 2013-2017.

IV. Status of Assessment Advice

Current stock status information comes from SEDAR 58 (SEDAR, 2020), which determined the stock is not overfished and overfishing is not occurring. Results of this assessment were approved for management use by the Board at their February 2020 meeting, and, as such, have been incorporated into ASMFC's FMP.

The stock assessment could be improved by developing a fishery-independent sampling program for abundance of cobia and other coastal migratory pelagic species. The currently used fishery-dependent index causes notable uncertainty in part due to the lack of an effective sampling methodology. In addition, while the terminal year of the assessment was 2017, due to federal water closures, the index could only be calculated through 2015. The assessment could also benefit from improved characterization of age, reproductive, genetic, and migratory characteristics, tag-based information on natural mortality, and more precise recreational catch estimates.

The next stock assessment for the Atlantic cobia stock is a benchmark (SEDAR 95) scheduled for completion in late 2025. The terminal year would likely be 2023 or 2024 and the assessment would likely be available to inform 2026 or 2027 management.

V. Status of Research and Monitoring

There are no monitoring or research programs required annually of the states except for the submission of a compliance report. Fishery-dependent data collections (other than catch and effort data) are conducted in Maryland, Virginia, North Carolina, South Carolina, and Georgia. Data collected includes length, age, and sex data. Fishery-independent monitoring programs conducted by states that may encounter cobia are conducted in New Jersey, Delaware, Maryland, South Carolina, and Georgia.

VI. Status of Management Measures and Issues

Fishery Management Plan

No management changes were required or implemented in 2023. States maintained the same management measures as 2021-2022.

In January 2024, New York declared an interest in the Atlantic Cobia FMP and its management measures meet the requirements of the FMP. New York is requesting *de minimis* status for the recreational fishery and has implemented the default *de minimis* measures of 1 fish per vessel per trip with a minimum size of 37 inches total length with no seasonal restrictions. For the commercial sector, New York is a non-*de minimis* state and has implemented in-season monitoring of cobia commercial landings.

For the 2024 fishing season, the Board chose to maintain status quo state recreational management measures instead of adjusting measures based on each state's harvest target evaluation while a new draft addendum was developed. For the 2025 fishing season, the Board will consider changes

to state recreational management measures based on each state's harvest target evaluation and after implementing any updates to the allocation framework being considered through Draft Addendum II.

The last management changes were in 2021 when some states implemented new recreational cobia measures based on Addendum I. As approved by the Board, Virginia and North Carolina changed their measures after evaluation of previous landings against their new Addendum I recreational harvest targets. Virginia's 2021 measures were designed to reduce recreational harvest by 42% by lowering the vessel limit from 3 fish to 2 fish, and shortening the season by 30 days (changed to June 15-September 15).

North Carolina liberalized their measures in 2021 based on their harvest target, and the vessel limit was increased for private anglers only to allow 2 cobia per vessel per day in June (previously only allowed in May).

Some *de minimis* states also adjusted their 2021 recreational measures based on the updated *de minimis* requirement in Addendum I. Maryland and the Potomac River Fisheries Commission (PRFC) adjusted their vessel limit and season to maintain consistency with Virginia's, the nearest non-*de minimis* state to them.

New Jersey, Delaware, and Rhode Island have implemented the standard *de minimis* measures (1 fish per vessel/minimum size of 37 inches total length/no seasonal restrictions) rather than using the nearest non-*de minimis* state regulations. Rhode Island's measures were effective January 1, 2022 after joining the Board and declaring an interest in the cobia fishery in 2021.

In 2020, the South Carolina legislature codified the federal regulations for Cobia into the South Carolina Code of Laws. Prior to this, Cobia regulations (outside of the SCMZ) were covered by legal adherence to federal regulations for any species that did not have specific regulations in South Carolina law.

De Minimis

For the recreational sector, the FMP requires adherence to state harvest targets, allocated to non-*de minimis* states from the total harvest quota allocated to the recreational sector. One percent of the quota is designated to account for harvest in *de minimis* states.

The FMP allows states to request recreational *de minimis* status if their recreational landings in two of the previous three years are less than 1% of annual coastwide recreational landings during that time period. If a state qualifies for *de minimis*, the state may choose to match all FMP-related recreational management measures (including seasons and vessel limits) implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or the state may choose to limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 33 inches fork length (or 37 inches total length) with no seasonal restrictions. Rhode Island, New York, New Jersey, Delaware, Maryland, and Florida requested recreational *de minimis* status through the annual reporting process. All of these states meet the recreational *de minimis* qualifications.

De minimis status for commercial fisheries may be granted to states if their commercial landings for 2 of the previous 3 years were less than 2% of the coastwide commercial landings for the same time period. Commercial regulations in *de minimis* states are also limited to a minimum size of 33 inches FL with 2 fish per person for a total of 6 fish per vessel (the same requirements as non-*de minimis* states). Commercial *de minimis* states are not required to monitor their in-season harvests. Rhode Island, New Jersey, Delaware, Maryland, Georgia, and Florida requested *de minimis* status for commercial fisheries through the annual reporting process. All of these states except New Jersey meet the commercial *de minimis* qualifications.

In its compliance report, New Jersey acknowledges that its commercial cobia landings exceeded the 2% threshold in 2021 and 2023 but is requesting a waiver from the in-season commercial reporting requirements. The commercial landings in 2021 and 2023 are considered to be anomalously high compared to the past decade of landings which have qualified New Jersey for *de minimis* status for the commercial fishery. New Jersey will reevaluate its *de minimis* request in the next compliance report based on the finalized 2024 commercial landings. Additionally, New Jersey will continue to work towards implementing mandatory in-season reporting of commercial cobia landings so that, should New Jersey's commercial cobia landings continue to consistently exceed the 2% threshold, the mechanism will be in place to maintain compliance with the FMP requirements.

VII. Implementation of FMP Compliance Requirements for 2023

The PRT finds no inconsistencies among states in regards to the Fishery Management Plan.

VIII. Recommendations of the Plan Review Team

Management

The PRT recommends that the Board approve the 2024 FMP Review, state compliance, and all *de minimis* requests from Rhode Island, New York, New Jersey, Delaware, Maryland, Georgia, and Florida.

The PRT agrees with the rationale provided by New Jersey for their commercial fishery to continue under *de minimis* status until 2024 harvest can be evaluated next year.

The PRT emphasizes that multiple states could exceed *de minimis* thresholds over the next few years if cobia landings continue to increase in Mid-Atlantic states due to cobia potentially becoming more available in those areas. The PRT notes the management implications of this, including requiring commercial in-season monitoring in more states and, if state-by-state allocations are maintained, adding new states to the allocation framework. In general, these management challenges reflect why Draft Addendum II was initiated, particularly the challenges with the geographic scope of the recreational allocation. Additionally, completion of the recently initiated stock assessment (expected completion in late 2025) will provide new data from which sector quotas will be determined, and the status of the stock and management will be reevaluated.

Research

The current stock assessment (SEDAR 95) is facing data limitation challenges for cobia. To support future assessments and management, it is important consider long-term monitoring and data collection for cobia. The following are important research recommendations the PRT continues to highlight:

- Define, develop, and monitor adult and juvenile abundance estimates through the expansion of current or development of new fishery independent surveys. This recommendation is especially relevant as it is uncertain that the current abundance index will be able to be updated for the upcoming Atlantic cobia stock assessment scheduled to be completed in fall of 2025.
- Continue to collect and analyze current life history data from fishery independent and dependent programs, including size, age, maturity, histology workups and information on spawning season timing and duration. Increase spatial and temporal coverage of age samples collected regularly from fishery dependent and independent sources.
- Continue collection of genetic material to continue to assess the stock identification and any Distinct Population Segments that may exist within the management unit relative to recommendations made by the SEDAR 58 Stock ID Process.
- Expand existing fishery independent surveys in time and space to better define and cover cobia habitats, including conducting otolith microchemistry studies to identify regional recruitment contributions and new and ongoing satellite tagging programs to help identify spawning and juvenile habitat use and regional recruitment sources.
- Additional work to better understand the impacts of climate change on cobia habitat and range expansion.

Additional research recommendations can be found in Section 2.8 of the SEDAR 58 stock assessment.

IX. References

ASMFC. 2017. Interstate Fishery Management Plan for Atlantic Migratory Group Cobia. ASMFC, Arlington, VA. 85 p.

SAFMC. 2018. Amendment 31 to the Fishery Management Plan for Coastal Migratory Pelagics Resources in the Gulf of Mexico and Atlantic Region. NOAA Award # FNA10NMF441001. Charleston, SC. 209 pp.

SEDAR. 2013. SEDAR 28 – South Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston SC. 420 pp. available online at: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=28

SEDAR. 2020. SEDAR 58 – Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston SC. 500 pp. available online at: http://sedarweb.org/sedar-58

X. Figures

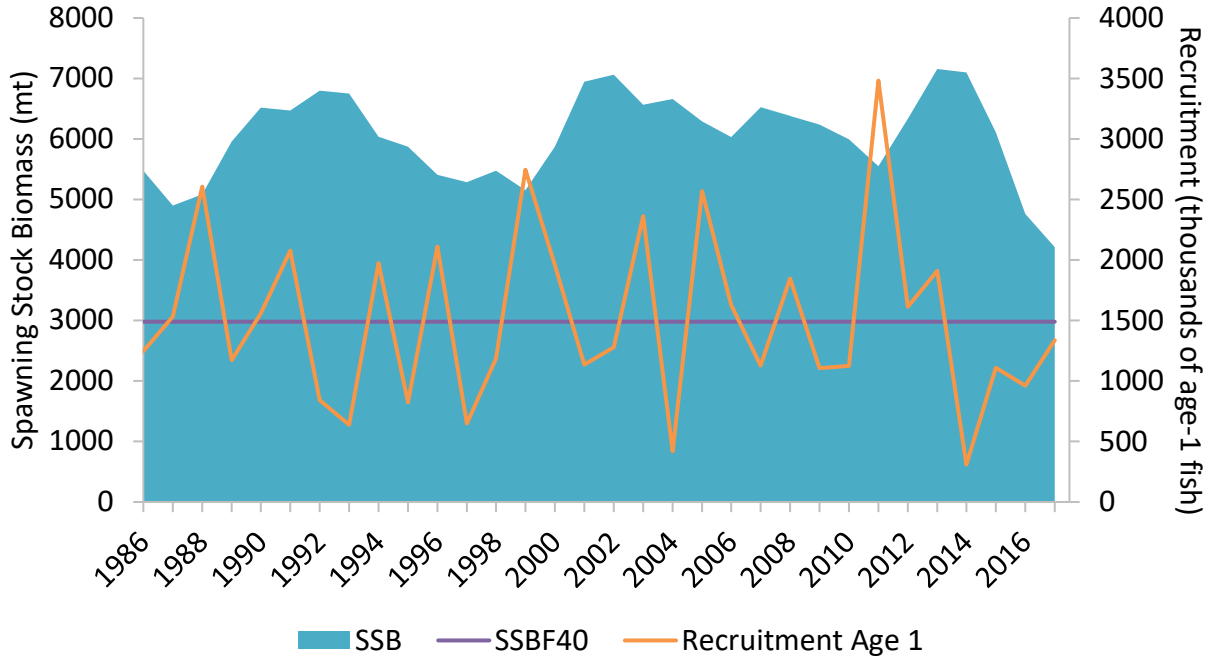


Figure 1. Atlantic Cobia spawning stock biomass (SSB) and recruitment of year 1 fish. (SEDAR, 2020)

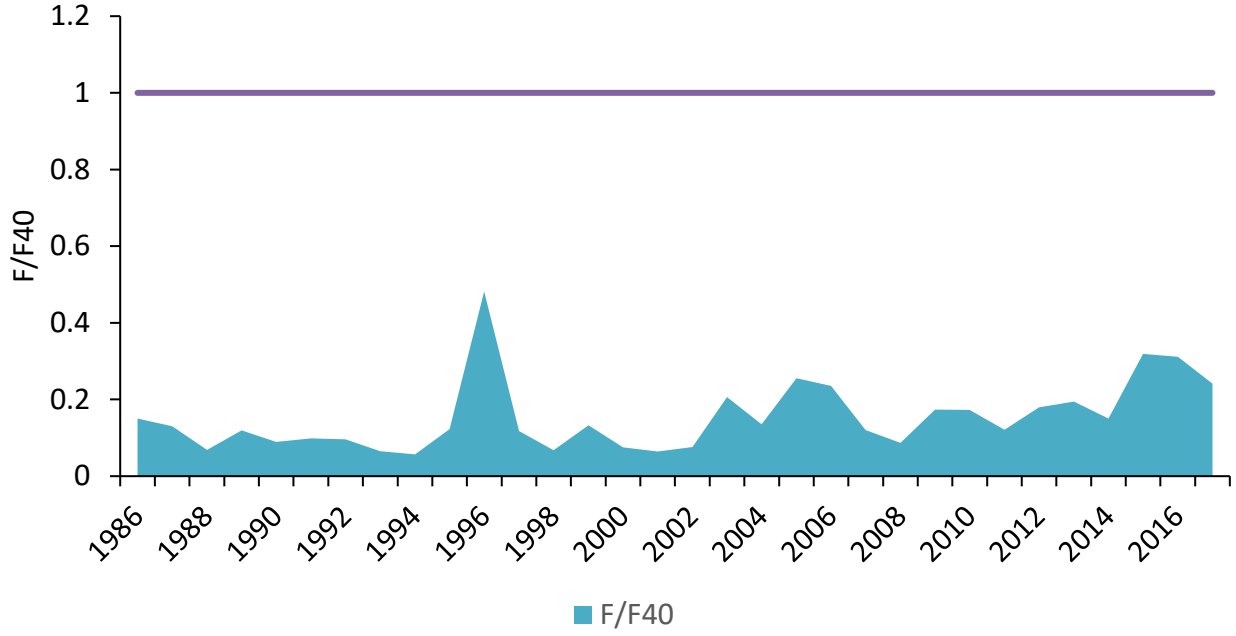


Figure 2. Atlantic Cobia fishing mortality (F) relative to the F40 reference point from 1986-2017. (SEDAR, 2020)

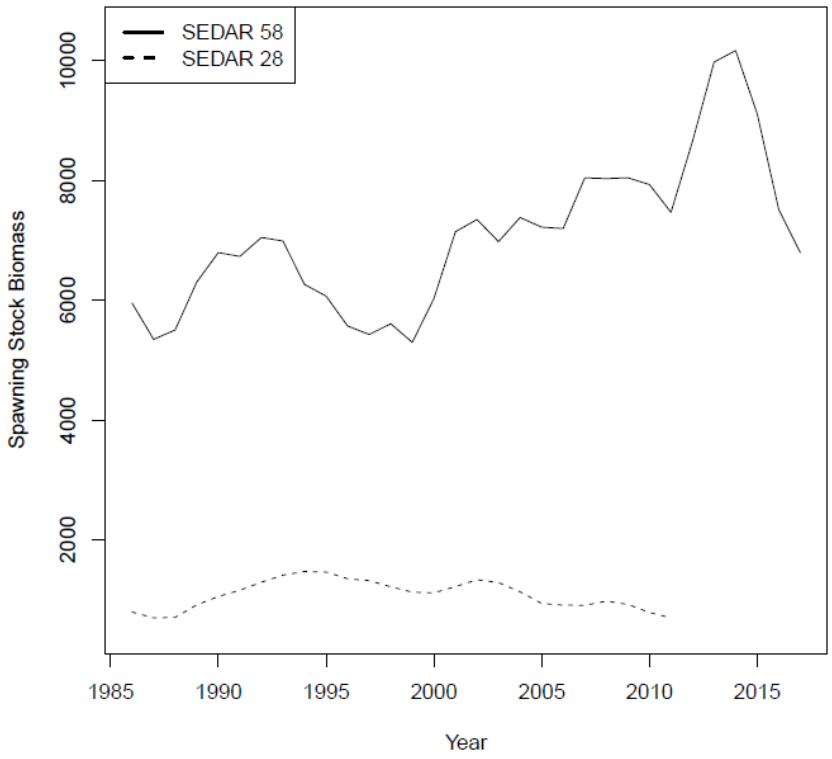


Figure 3. Comparing spawning stock biomass from the current assessment (SEDAR 58) to the last assessment (SEDAR 28). (SEDAR, 2020)

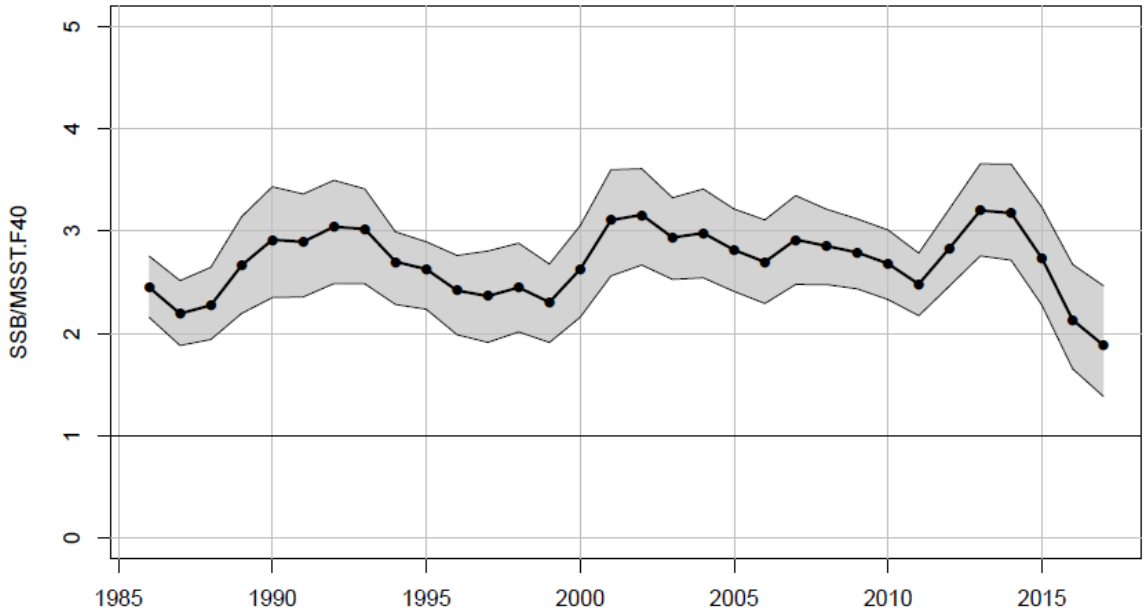


Figure 4. Estimated time series of Spawning Stock Biomass (SSB) relative to the Minimum Stock Size Threshold (MSST) (SEDAR, 2020).

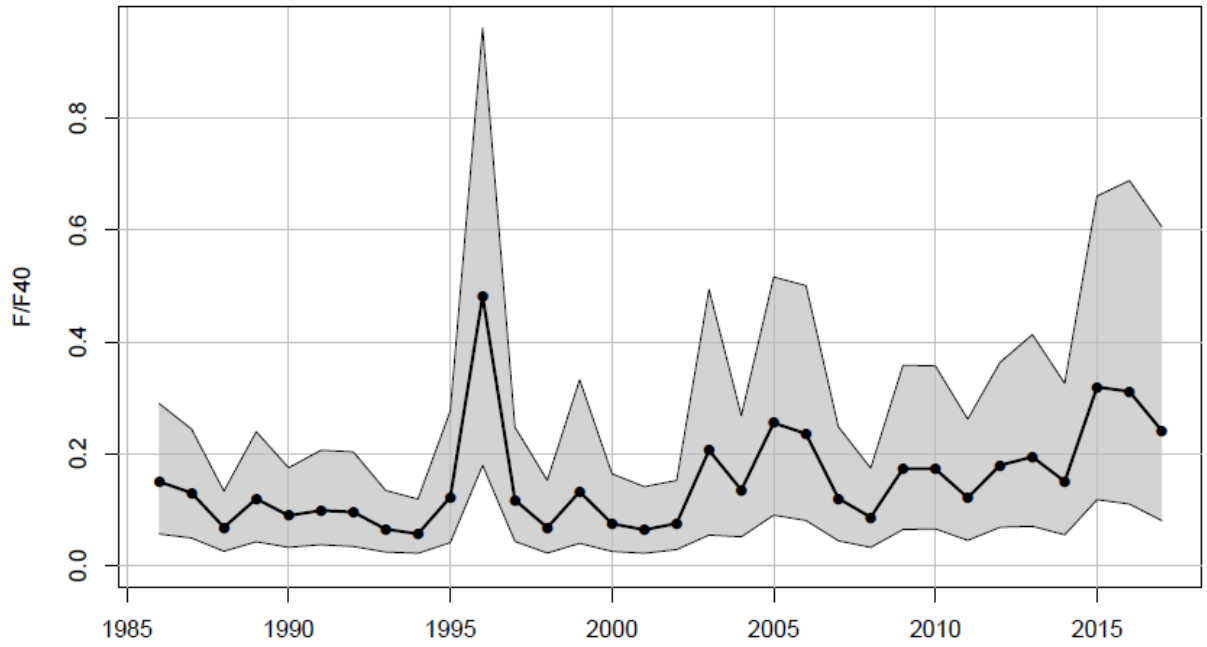


Figure 5. Estimated time series of Fishing Mortality (F) relative to F at Maximum Sustainable Yield ($F_{40\%}$) (SEDAR, 2020).

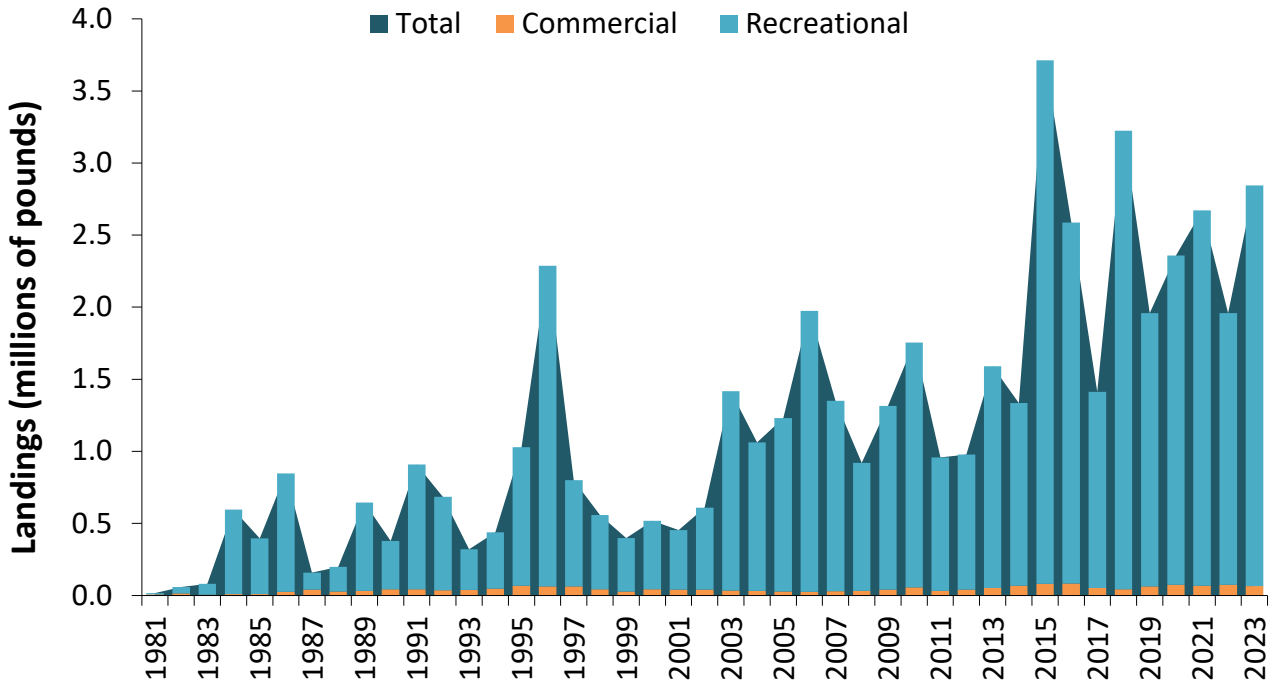


Figure 6. Commercial and recreational landings (pounds) of Atlantic cobia. Recreational data not available prior to 1981. See Tables 2 and 3 for data sources and values from the last ten years.

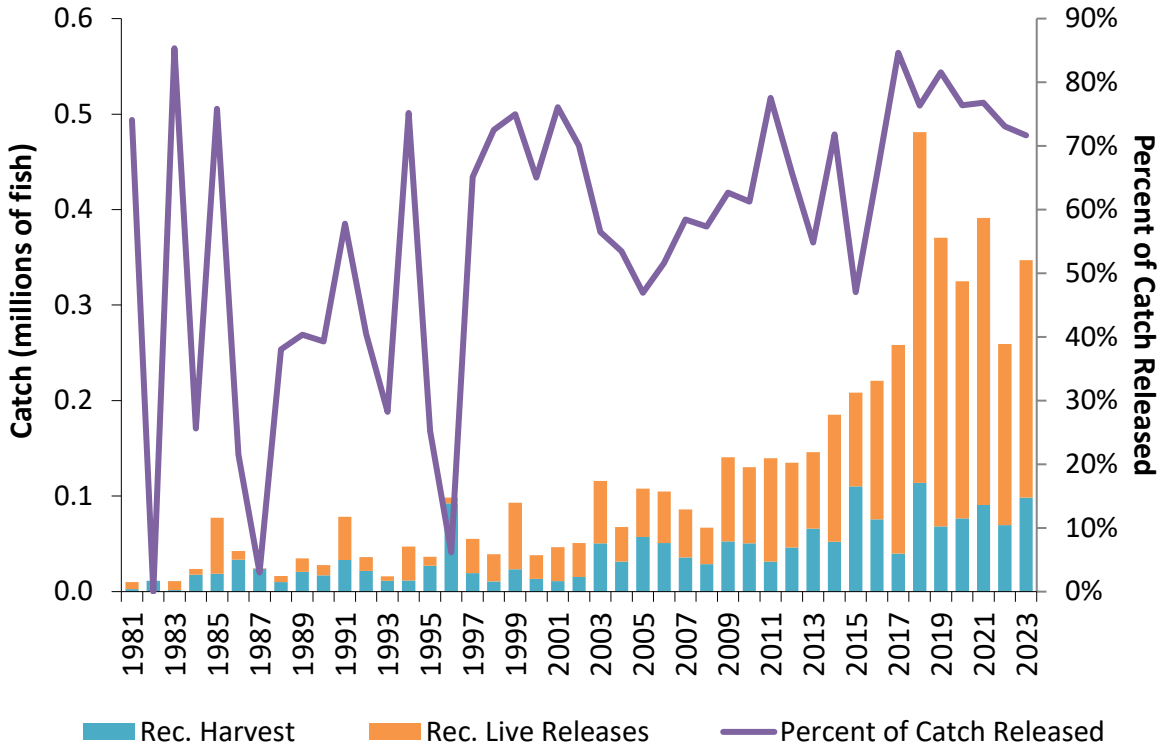


Figure 7. Recreational catch (harvest and live releases) of Atlantic cobia (numbers) and the proportion of catch that is released. See Tables 4 and 5 for data sources and values from the last ten years.

XI. Tables

Table 1. Atlantic cobia regulations for 2023.

State	Recreational Measures	Commercial Measures
RI	*De minimis* Minimum Size: 37 in total length Vessel Limit: 1 fish per vessel Season: year-round	<u>Coastwide</u> Possession Limit: 2 fish per person Minimum Size: 33 in fork length or 37 in total length Vessel Limit: 6 fish If commercial fishing in state waters is closed, commercial fishing in federal waters will be recommended to mirror state closures <u>Deviations</u> -Rhode Island and New York possession limit is 2 fish per vessel -Virginia possession limit is per licensee rather than per person -North Carolina has 36 minimum fork length -No commercial harvest in South Carolina state waters -Georgia possession limit is 1 fish per person (not to exceed 6 per vessel) and minimum size is 36 in fork length
NY	*De minimis* Minimum Size: 37 in total length Vessel Limit: 1 fish per vessel Season: year-round	
NJ	*De minimis* Minimum Size: 37 in total length Vessel Limit: 1 fish per vessel Season: year-round	
DE	*De minimis* Minimum Size: 37 in total length Bag Limit: 1 fish per vessel Vessel Limit: 1 fish per vessel	
MD	*De minimis* Minimum Size: 40 in total length Bag Limit: 1 fish per person Vessel Limit: 2 fish per vessel Season: June 15-September 15	
PRFC	Minimum Size: 40 in total length (only 1 fish over 50” per vessel) Bag limit: 1 per person Vessel Limit: 2 fish per vessel Season: June 15-September 15	
VA	Minimum Size: 40 in total length (only 1 fish over 50” per vessel) Bag Limit: 1 fish per person Vessel Limit: 2 fish per vessel Season: June 15-September 15	

NC	Minimum Size: 36 in fork length Bag Limit: 1 fish per person Season: May 1-December 31 <u>Private Vessel Limit</u> May 1- June 30: 2 fish July 1-Dec 31: 1 fish <u>For-Hire Vessel Limit</u> May 1-Dec 31: 4 fish	
SC	Bag Limit: 1 fish per person Minimum Size: 36 in fork length Vessel Limit: 6 fish Season: Open year-round <u>Southern Cobia Management Zone:</u> Minimum Size: 36 in FL Season: June 1-April 30 (closed in May) Bag Limit: 1 fish per person Vessel Limit: 3 fish -If recreational fishing in federal waters is closed, recreational fishing in all SC state waters is also closed.	
GA	Bag Limit: 1 fish per person Minimum Size: 36 in fork length Vessel Limit: 6 fish Season: March 1-October 31	
***Florida has a declared interest in the Atlantic Coastal Migratory Group, but their cobia fisheries are managed as part of the Gulf of Mexico Migratory Group due to cobia stock boundaries.**		

Table 2. Commercial landings (pounds) of Atlantic cobia by state, 2014-2023. Sources: 2024 state compliance reports for 2023 fishing year; for years prior to 2023, personal communication with Atlantic Coastal Cooperative Statistics Program [ACCSP].

Year	RI	CT*	NY	NJ	DE	MD	PRFC	VA	NC	SC	GA	Total
2014	C		311	359		C		21,255	41,798	3,492	C	68,076
2015	C		235	C		C		25,352	52,684	2,487	C	82,117
2016	183		114	282	C	C		29,459	48,244	4,064	C	83,583
2017	115		80	C	C	C		26,748	16,890	4,261	C	52,376
2018	290	C	388	707		C		21,355	16,578	2,723	C	42,711
2019	352		1,191	C	C	C	2,375	33,496	21,553	2,673	C	63,467
2020	844	C	5,183	851	C	C	378	27,768	38,344	1,588	C	75,303
2021	797	C	1,581	2,273		C	816	29,425	29,301	2,067	C	66,752
2022	83		1,509	C		C	147	38,666	32,686	1,386		75,418
2023	139	C	436	1,328		C		29,842	31,301	1,501	0	64,547

C: confidential landings.

*CT does not have a declared interest in Atlantic migratory cobia.

Table 3. Recreational harvest (pounds) of Atlantic cobia by state, 2014-2023. Source: Personal communication with MRIP queried April 2024.

Year	RI	CT*	NY	NJ	DE	MD	VA	NC	SC	GA	Total
2014							499,218	645,427	79,171	42,481	1,266,297
2015							1,166,000	1,925,762	434,899	102,917	3,629,578
2016						307	1,505,528	838,363	159,345		2,503,543
2017							488,287	872,861		390	1,361,538
2018		4,136			15,053	4,647	2,259,661	685,962	205,647	6,081	3,181,187
2019							1,573,485	254,963	64,937	1,632	1,895,017
2020		1,595				38,991	1,541,393	407,883	247,250	44,976	2,282,088
2021				6,060		131,129	1,722,619	356,340	217,129	170,356	2,603,633
2022			144,715	20,970			1,129,258	306,411	139,599	142,606	1,883,559
2023							2,467,557	12,523	87,486	212,679	2,780,245

*CT does not have a declared interest in Atlantic migratory cobia.

Table 4. Recreational harvest (numbers of fish) of Atlantic cobia by state, 2014-2023. Coastwide harvest shaded in red if coastwide harvest target for 2020-2024 was exceeded.
Source: Personal communication with MRIP queried April 2024.

Year	RI	CT*	NY	NJ	DE	MD	VA	NC	SC	GA	Total
2014							21,585	24,601	3,883	2,168	52,237
2015							38,672	47,110	15,575	8,934	110,291
2016						56	43,780	26,421	5,437		75,694
2017							14,613	25,025		19	39,657
2018		569			581	206	80,679	25,331	6,340	233	113,939
2019							55,770	10,090	2,381	72	68,313
2020		219				1,360	50,287	15,067	7,650	2,203	76,786
2021				250		5,084	57,135	10,970	8,858	8,510	90,807
2022			3,462	711			39,668	12,330	6,988	6,641	69,800
2023	361						81,824	629	4,129	11,368	98,311
Soft Target 2020-2024	769 *de minimis* set-aside						30,302	29,302	9,306	7,229	76,908

*CT does not have a declared interest in Atlantic migratory cobia.

Table 5. Recreational live releases (numbers of fish) of Atlantic cobia by state, 2014-2023.
Source: Personal communication with MRIP queried April 2024.

Year	MA*	RI	CT*	NY	NJ	DE	MD	VA	NC	SC	GA	Total
2014								58,092	32,184	42,811		133,087
2015					416			40,689	44,254	12,369	283	98,011
2016							1,075	81,482	39,237	20,255	2,917	144,966
2017								77,184	125,251	11,359	4,830	218,624
2018					2,879		12,090	194,865	68,219	71,020	18,056	367,129
2019					10,166	30	251	184,716	38,285	59,724	9,080	302,252
2020				2,979		564	8,233	146,913	51,158	23,384	15,091	245,343
2021						197	12,344	187,872	40,136	39,341	20,578	300,468
2022				722	0	0	0	84,150	46,777	43,131	14,828	189,608
2023	1,554	450			3,582	0	0	141,956	32,590	39,864	28,894	248,890

*MA and CT do not have a declared interest in Atlantic migratory cobia.

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **Coastal Pelagics Management Board**

FROM: **South Atlantic Species Advisory Panel**

DATE: **July 30, 2024**

SUBJECT: **Advisory Panel Recommendations on Cobia Draft Addendum II Options**

The South Atlantic Species Advisory Panel (AP) met via webinar on July 25, 2024 to discuss AP recommendations on the proposed options in Atlantic Cobia Draft Addendum II to Amendment 1. ASMFC staff provided the AP with an overview of the draft addendum background, proposed options, and a summary of public comments. The following is a summary of the AP's recommended options and rationale.

AP Members in Attendance
Craig Freeman (AP Chair, VA for-hire/rec./comm.)
Tom Powers (VA recreational)
Mary Ellon Ballance (NC commercial)
Bernie McCants (NC recreational)
Glenn Skinner (NC commercial)

ASMFC Staff: Emilie Franke, Tracy Bauer

Public Attendees: Chris Batsavage (NC Board Member), Alan Bianchi (NC staff)

Section 3.1 Recreational Allocation Framework
4 AP members noted support for status quo Option A: Status quo state allocations based on 2006-2015 data for the following reasons:

- Management should not change while a stock assessment is ongoing. Allocations can be reevaluated after the current stock assessment.
- Based on the last stock assessment, overfishing was not occurring so there is no reason to change management before the next assessment.
- Changing management now and then changing it again after the next assessment (i.e., constantly changing management) is what the Board was trying to avoid, and would be hard on stakeholders, especially given the uncertain data.
- There is concern about the relatively short six-year data timeframe (2018-2023) proposed in the updated allocations with more recent data. For a pulse fishery like cobia

with a low number of MRIP angler intercepts, bad weather could result in low harvest estimates for some years which could distort the average. With all the data uncertainty, a longer time period should be used for allocations. There is particular concern about the effects of weather on North Carolina effort and harvest.

1 AP member noted support for state allocations between Option A. status quo and Option B. state allocations with more recent data for the following reasons:

- Virginia's allocation could increase by some amount, but not to the full extent proposed in Option B. In any case, Virginia's measures should be not be loosened at this point.
- There is concern that under a coastwide allocation framework (i.e., no state or regional allocations), Virginia harvest may increase even more.

Section 3.2 Future Updates to Allocations

No specific AP comments on options in this section.

Section 3.3 Data Uncertainty in Recreational Landings Evaluations

2 AP members noted support for Option B: 5-year average used for harvest target evaluations. They noted more data are better, and the additional data years would balance years affected by weather conditions and related changes in effort, especially for states like North Carolina when cobia are only available for a short period of time.

1 AP member also noted support for the confidence interval approach in the future.

Section 3.4 Overage Response for Recreational Landings Evaluations

1 AP member noted he would typically support Option B (no reduction for overage state if another state is under and coastwide harvest is under), but is not sure whether this should be supported for cobia due to data uncertainty. It makes sense to account for how other states perform and if the coastwide harvest is sustainable, but it is questionable whether we can determine how close harvest is to the targets due to uncertainty.

Section 3.5 Timeline for Setting Management Measures

1 AP member noted support for Option B: set measures for up to 5 years in order to align management with the stock assessments. It requires resources to do these evaluations, and the evaluations should be done at this longer time interval to match when the most assessment information is available.

General Comments

As noted under Section 3.1, there was general AP concern and questions about why the Board is considering changing recreational allocation in 2025 before the current stock assessment is complete, which will result in another management change in 2026 or 2027. AP members noted that changing management multiple times within a few years is difficult for stakeholders, and it is difficult to evaluate the effectiveness of management measures that are only in place for a short period of time, especially given the high uncertainty.

There is ongoing concern about the high uncertainty around MRIP data, and the low number of angler intercepts for cobia and very few anglers being interviewed. Virginia had mandatory cobia harvest reporting for a few years, but the program was ended because it was difficult to implement and could not be used in the stock assessment.

AP members also noted interest in understanding the release component of the fishery, including how many cobia are released and the need for information on release mortality rates (e.g., is the release mortality rate higher during the summer?). The release mortality rate used in the previous stock assessment was 5%.

Summary of Changes to the ASMFC Stock Assessment Schedule

Note the schedule has been extended to now include 2027 and 2028 assessments. The changes are as follows:

- Atlantic croaker's benchmark assessment will be completed in 2025
- Cobia has a benchmark assessment in 2025
- Spot's benchmark assessment will be completed in 2026
- Coastal sharks have a benchmark assessment in 2026; stocks include tiger, spinner, bull, finetooth
- Black drum has a benchmark in 2027
- Scup has assessment updates in 2025 and 2027 prior to the 2028 benchmark assessment
- Striped bass has a benchmark assessment in 2027 and sturgeon and scup have benchmark assessments in 2028
- The following species have assessment updates in 2027: American eel, black sea bass, bluefish, horseshoe crab ARM, scup, summer flounder, winter flounder
- The following species have assessment updates in 2028: Atlantic sea herring, horseshoe crab ARM, Jonah crab, and potentially Atlantic menhaden

Long-Term Stock Assessment Schedule (July 2024 - Not Board-Approved)

Species	2020	2021	2022	2023		2024	2025	2026	2027	2028
American Eel			Benchmark						Update	
American Shad	Benchmark									
American Lobster	Benchmark						Benchmark (Q3)			
Atlantic Croaker							Benchmark (Q3)			
Atlantic Menhaden			Update				Update (Q4)			*Update*
Atl. Menhaden ERPs							Benchmark (Q4)			
Atlantic Sea Herring	Update		Update			Update (Q3)	Benchmark (Q2)	Update		Update
Atlantic Striped Bass			Update			Update (Q4)		*Update	Benchmark	
Atlantic Sturgeon						Update (Q3)				Benchmark
Black Drum			Benchmark						Benchmark	
Black Sea Bass		Update		Benchmark		Update (Q3)	Update (Q3)		Update	
Bluefish		Update	Benchmark	Update			Update (Q3)		Update	
Coastal Sharks	Benchmark			Benchmark				Benchmark		
Cobia								Benchmark (Q1)		
Horseshoe Crab						Update (Q2)				
Horseshoe Crab ARM		Benchmark		Update		Update (Q4)	Update (Q4)	Update	Update	Update
Jonah Crab				Benchmark						Update
Northern Shrimp		Update					Update (Q1)			
Red Drum			Benchmark			Benchmark (Q4)				
River Herring						Benchmark (Q3)				
Scup		Update		Update			Management (Q3)		Update	Benchmark
Spanish Mackerel			Update							
Spiny Dogfish			Benchmark	Update				Update		
Spot								Benchmark (Q4)		
Spotted Seatrout										
Summer Flounder		Update		Update			Update (Q3)		Update	
Tautog		Update					Update (Q4)			
Weakfish							Update (Q1)			
Winter Flounder	Update		Update			Update (Q4)		Benchmark	Update	

Number indicates quarter of presentation to the Board

Q1 Winter
Q2 Spring
Q3 Summer
Q4 Fall/Annual Meeting

ASMFC Peer Review
NRCC Peer Review (Research Track)
SEDAR Peer Review (Research Track)
Completed

**Italics = under consideration, not officially scheduled*

Notes:

Coastal Sharks	Tiger, Spinner, Bull, Finetooth assessments in 2026
Spotted Seatrout	States conduct individual assessments