

Atlantic States Marine Fisheries Commission

Atlantic Menhaden Management Board

*February 1, 2017
2:15 – 5:45 p.m.
Alexandria, Virginia*

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 (*R. Ballou*) 2:15 p.m.
2. Board Consent 2:15 p.m.
 - Approval of Agenda
 - Approval of Proceedings from October 2016
3. Public Comment 2:20 p.m.
4. Review Socioeconomic Study of the Atlantic Menhaden Commercial Fishery (*J. Harrison; J. Whitehead*) 2:30 p.m.
5. Public Comment Summary of Draft Amendment 3 Public Information Document 3:25 p.m.
 - Review Public Comment (*M. Ware*)
 - Review Advisory Panel Report (*J. Kaelin*)
6. Provide Guidance to Plan Development Team on Draft Amendment 3 (*R. Ballou*) **Possible Action** 4:15 p.m.
7. Consider Renewal of Provision Which Allows Cast Nets to Harvest Under the Amendment 2 Bycatch Provision (*M. Ware*) **Possible Action** 5:30 p.m.
8. Review and Populate Advisory Panel Membership (*T. Berger*) **Action** 5:40 p.m.
9. Other Business/Adjourn 5:45 p.m.

The meeting will be held at the Westin Alexandria, 300 Courthouse Square, Alexandria, Virginia;
703.253.8600

MEETING OVERVIEW

Atlantic Menhaden Management Board Meeting
Wednesday-February 1, 2017
2:15 – 5:45 p.m.
Alexandria, Virginia

Chair: Robert Ballou (RI) Assumed Chairmanship: 05/16	Technical Committee Chair: Jason McNamee (RI)	Law Enforcement Committee Representative: Capt. Kersey (MD)
Vice Chair: Russ Allen (NJ)	Advisory Panel Chair: Jeff Kaelin (NJ)	Previous Board Meeting: October 26, 2016
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (18 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2016

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. Socio-Economic Study of the Atlantic Menhaden Commercial Fishery (2:30-3:25 p.m.)

Background

- In March 2016, the Board initiated a socio-economic study to characterize coastwide commercial fisheries, including the bait and reduction sectors and the fishing communities they support. The study was headed by Dr. John Whitehead of Appalachian State University and Dr. Jane Harrison from North Carolina Sea Grant.
- The study has been completed and an executive summary of the results is ready for Board review. Information from this study will be incorporated into draft Amendment 3.

Presentations

- Socio-economic study overview by J. Harrison and J. Whitehead (**Briefing Materials**)

5. Amendment 3 Public Information Document (3:25-4:15 p.m.)

Background

- In May 2015, the Board initiated Amendment 3 to the Atlantic Menhaden FMP to review allocation and consider ecological reference points.
- As a first step in the process, the Board approved the Amendment 3 PID for public comment in October 2016. Public hearings were conducted in ME, NH, MA, RI, CT, NY, NJ, DE, MD, PRFC, VA, NC, and FL. Over 25,000 written comments were submitted on the PID.

Presentations

- Public comment summary by M. Ware (**Briefing Materials**)
- Advisory Panel Report by J. Kaelin (**Supplemental Materials**)

6. Draft Amendment 3 (4:15-5:30 p.m.) Possible Action**Background**

- As the next step in the amendment process, the PDT will begin writing draft Amendment 3. This draft Amendment will be presented to the Board in August 2017.
- The Board needs to provide direction to the PDT on what management alternatives and issues should be included in the document.

Presentations

- Board discussion on management alternatives to include in draft Amendment 3 by R. Ballou

7. Cast Net Fishery Bycatch Allowance (5:30 -5:40 p.m.) Possible Action**Background**

- At its February 2014 meeting, the Board passed a motion to manage the cast net fishery under the Amendment 2 bycatch provision for 2014 and 2015.
- In November 2015, the Board approved a motion to continue managing the cast net fishery under the bycatch provision for 2016.
- The Board needs to consider if they would like to further extend this cast net provision.

Presentations

- Overview of cast net fishery by M. Ware

Board actions for consideration at this meeting

- Extend management of cast net fishery under the bycatch provision until final action on Amendment 3.

8. Advisory Panel Membership (5:40 -5:45 p.m.) Action**Background**

- Chris Hole from Maine has been nominated to the Atlantic Menhaden Advisory Panel.

Presentations

- Nominations by T. Berger (**Briefing Materials**)

Board actions for consideration at this meeting

- Approve nomination of Chris Hole to Menhaden AP.

9. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
ATLANTIC MENHADEN MANAGEMENT BOARD**

**The Harborside Hotel
Bar Harbor, Maine
October 26, 2016**

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

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INDEX OF MOTIONS

1. **Approval of Agenda** by Consent (Page 1).
2. **Approval of Proceedings of August, 2016 by Consent** (Page 1).
3. **Tabled Motion from August 2016**
Move to set the 2017 coastal total allowable catch (TAC) for the Atlantic menhaden fishery at 255,456 metric tons (20% increase) (Page 11). Motion by Martin Gary; second by ___Schill. Motion amended (Page 13).
4. **Motion to Amend**
Move to amend the motion to set the 2017 coastal total allowable catch for Atlantic menhaden at 200,000 metric tons (approximate 6.45% increase) (Page 11). Motion by Malcolm Rhodes; second by Terry Stockwell. Motion passes unanimously and becomes the main motion (Page 13).
5. **Move to amend to set the 2017 coastal total allowable catch for Atlantic menhaden at 187, 880 (status quo) metric tons** (Page 13). Motion by Bill Goldsborough; second by Ritchie White. Motion fails (Page 20).

Main Motion as Amended
Move to set the 2017 coastal total allowable catch for Atlantic menhaden at 200,000 metric tons. Motion passes 16 to 2 (Page 21).
6. **Move to approve the Atlantic Menhaden PID, with the additions suggested and discussed by the board here today, and including editorial changes submitted to the FMP Coordinator by Friday close of business** (Page 39). Motion by Robert Boyles; second by Jim Gilmore. Motion passes unanimously (Page 39).
7. **Move to appoint Bob Hannah (MA), Patrick Paquette (MA), Dave Monti (RI), Meghan Lapp (RI), Paul Eidman (NJ), Leonard Voss (DE), Peter Himchak (VA), and Scott Williams (NC) to the Atlantic Menhaden Advisory Panel** (Page 46). Motion by Michelle Duval; second by Bill Adler. The motion was approved by consent (Page 47).
8. **Move to add Jeff Deem to the Atlantic Menhaden Advisory Panel as a third member from Virginia** (Page 48). Motion by Rob O'Reilly; second by Nichola Meserve The motion was approved (Page 48).
9. **Motion to adjourn** by Consent (Page 48).

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)	Tom Moore, PA, proxy for Rep. Vereb (LA)
Sen. Brian Langley, ME (LA)	John Clark, DE, proxy for D. Saveikis (AA)
Steve Train, ME (GA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Cheri Patterson, NH, proxy for D. Grout (AA)	Roy Miller, DE (GA)
G. Ritchie White, NH (GA)	Rachel Dean, MD (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Dave Blazer, MD (AA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Bill Goldsborough, MD, proxy for Del. Stein (LA)
Bill Adler, MA (GA)	John Bull, VA (AA)
David Pierce, MA (AA)	Rob O'Reilly, VA, Administrative proxy
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Kyle Schick, VA, proxy for Sen. Stuart (LA)
Robert Ballou, RI, proxy for J. Coit (AA)	Cathy Davenport, VA (GA)
David Borden, RI (GA)	Michelle Duval, NC, proxy for B. Davis (AA)
David Simpson, CT (AA)	David Bush, NC, proxy for Rep. Steinburg (LA)
Rep. Melissa Ziobron, CT, proxy for Rep. Miner (LA)	W. Douglas Brady, NC (GA)
Lance Stewart, CT (GA)	Malcolm Rhodes, SC (GA)
Jim Gilmore, NY (AA)	Robert Boyles, Jr., SC (AA)
Emerson Hasbrouck, NY (GA)	Sen. Ronnie Cromer, SC (LA)
Sen. Phil Boyle, NY (LA)	Patrick Geer, GA, proxy for Rep. Nimmer (LA)
John McMurray, NY, Legislative proxy	Spud Woodward, GA (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)	Nancy Addison, GA (GA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)	Jim Estes, FL, proxy for J. McCawley (AA)
Tom Fote, NJ (GA)	Martin Gary, PRFC
Loren Lustig, PA (GA)	Derek Orner, NMFS
Andy Shiels, PA, proxy for J. Arway (AA)	Wilson Laney, USFWS

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

Ex-Officio Members

Jason McNamee, Technical Committee Chair	Jeff Kaelin, Advisory Panel Chair
Rob Kersey, Law Enforcement Representative	

Staff

Bob Beal	Shanna Madsen
Toni Kerns	Megan Ware

Guests

Tim Sartwell, NOAA	Greg Peterson, MA F&G	Stewart Michels, DE DFW
Chris Wright, NMFS	Doug Christel, MD F&G	Heather Corbett, NJ DFW
Vincent Balzano, NEFMC	Mike Luisi, MD DNR	Steve Heins, NYS DEC
Diedre Boelke, NEFMC	Mark Belton, MD DNR	Mark Gibson, RI DEM
Matthew Gates, CT DEEP	Michael Luisi, MD DNR	Joe Cimino, VMRC
Nichola Meserve, MA DMF	Diedre Gilbert, ME DMR	Jerry Morgan, ACCSP
Lynn Fegley, MD DNR	Meredith Mendelson, ME DMR	Bill Trotter, Bangor Daily News

Draft Proceedings of the Atlantic Menhaden Management Board Meeting October 2016

Ben Martens, CCCFA
Raymond Kane, CCCFA
Emily Tucker, CCCFA
Jim Dow, MLA
Patrice McCarron, MLA
Lawrence Manning, MSBA
Edwin Tully, MSBA
Wayne Correia, MSBA
Norman Cohen, MSBA
Derven O'Shea, MSBA
Jim Reeves, MSBA
Jonathan O'Connor, MSBA
Ken Himnam, Wild Oceans
Shaun Gehan, Omega Protein
Ben Landry, Omega Protein

Pete Himchak, Omega Protein
Monty Diehl, Omega Protein
Peter Baker, PEW
Katherine Deuel, PEW
Morgan Callahan, PEW
Aaron Kornbluth, PEW
Zak Greenberg, PEW
Greg Weiss, PEW
Christine Fletcher, PEW
Joseph Gordon, PEW
Bob Vanesse, Saving Seafood
Simon Dean, Solomons, MD
Raymond Kane, CHOIR
Pat Augustine, Coram, NY
Arnold Leo, E. Hampton, NY

Michael Gordon, Bar Harbor, ME
Jennie Bichrest, Topsham, ME
Chris Hole, Harpswell, ME
Emily Morse, Harpswell, ME
Jimmy Kellum, Kellum Maritime
Jonathan Atwood, Ofc. Asm
Andrzejczak
Bob Brown, MD Watermens
Assn.
Rob Winkel, NJ Sportsmens Fed.
Zack Klyver, ME

he Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission convened in the Statesbury Grand Ballroom of the Bar Harbor Club, Harborside Hotel, Bar Harbor, Maine, October 26, 2016, and was called to order at 2:35 o'clock p.m. by Chairman Robert Ballou.

CALL TO ORDER

MR. ROBERT BALLOU: I would like to call this meeting of the Menhaden Management Board to order; my name is Bob Ballou, I have the honor of serving as board Chair. Before we begin, I would just like to note that we have a very full agenda, and three hours to get through it; so I ask for the board's and the public's assistance in being as concise as possible with questions and comments.

I also want to remind the board that the one item on our agenda today involving final action would be the 2017 Specifications. Any meeting specific proxies will be able to fully engage with the caveat that they will not be able to participate in the final voting by the board on the final action item.

APPROVAL OF AGENDA

CHAIRMAN BALLOU: Item 2 on our agenda is the approval of the agenda itself. Are there any additions to the agenda? Seeing none; is there any objection to approving the agenda as proposed? Seeing none; the agenda as approved stands approved by consent.

APPROVAL OF PROCEEDINGS

CHAIRMAN BALLOU: The next item is the approval of the proceedings from the August, 2016 board meeting. Are there any changes to those minutes? Yes, Emerson Hasbrouck.

MR. EMERSON C. HASBROUCK: I noticed that in the proceedings, starting on Page 1 or Page 2, the header indicates that it is for the February, 2016 board meeting. The cover says it was for the August, 2016 meeting. I would just suggest

that the header on each of the individual pages be updated to indicate that it is the August, 2016 meeting.

CHAIRMAN BALLOU: That's a controversial suggestion, but I'm going to take it as a very fair and reasonable modification to the minutes. Is there any objection to approving the minutes as just modified? Seeing none; the minutes as modified stand approved by consent.

PUBLIC COMMENT

CHAIRMAN BALLOU: Public comment is the next item on the agenda.

This is an opportunity for anyone from the public who wishes to comment on any issue that is not on today's agenda to do so; which means that if your comments pertain to either the 2017 Specifications or the Draft PID for Amendment 3, now is not the time to comment. There will be opportunities to comment on at least one of those issues when we get to them, the PID in particular. We do have a signup sheet, and we have three people signed up, so I will go in order; beginning first with Mr. Robert T. Brown.

MR. ROBERT T. BROWN: Robert T. Brown; President of the Maryland Watermen's Association. I want to thank the Chair and the Commissioners for allowing me to speak today on menhaden. First, I would like to thank the Commission for allowing two quota bycatch per vessel per day. This has allowed our fishermen to continue work this year; and they thank you, as well.

A majority of the menhaden in Maryland are caught by pound nets, which is a stationary gear. In Maryland, our quota is only 1.37 percent of the overall quota. Fishing management is not a precise science, and it has so many unknowns and assumptions. The Technical Committee uses the best science available at the time to make proposals to this Commission.

If the Technical Committee determines that the spawning stock is in decline and determines action needs to be taken, the Commission acts promptly. Now, the Technical Committee proposes an increase up to 40 percent without harming the fishing stock. I ask the Commission to act swiftly and promptly today. Thank you.

CHAIRMAN BALLOU: Thank you, Mr. Brown. Next, I have John McMurray.

MR. JOHN G. McMURRAY: I'm going to pass, Mr. Chairman. I signed the wrong sheet, apparently.

CHAIRMAN BALLOU: Then the next and last would be Zack Klyver.

MR. ZACK KLYVER: I had signed up to speak to menhaden, as well.

CHAIRMAN BALLOU: Now is the time.

MR. KLYVER: I am very excited that you're all here. Welcome to Bar Harbor. I know you've been welcomed many times to Maine. My name is Zack Klyver, and I work as a naturalist for the whale watch company here in Bar Harbor. It is very appropriate that we're talking about menhaden in the context of Bar Harbor.

Historically, these islands that are right out offshore from here, a hundred years ago there were many fish shacks on them and in the fish shacks were poggy presses; and there they would squeeze the menhaden down for oil. If the wind was blowing in the right direction, it would blow the fish smell all over the town of Bar Harbor, and it wasn't very popular with the summer residents.

But it was a fish run that made it a lot of times up into Frenchman Bay. I want to congratulate you on the work you've done recently to increase the stock of menhaden in the Atlantic Ocean. The fact that we had menhaden coming up to Portland this summer was very exciting.

We're hopeful that the menhaden stock will continue to expand, and eventually make its way back up into Frenchman Bay in large numbers.

We did have a year back in the early nineties when we had a lot of menhaden here. It was an incredible thing; there were whales in the Bay, tremendous amounts of runs of fish up into Frenchman Bay. I hope you'll continue to consider the tourism industry in all that you do with fisheries. Tourism here in Maine is a \$7 billion industry.

It is more than all of fisheries, forestry and agriculture put together. The more we can expand the stock, that is great for tourism. It's also good for the lobster industry. We know that quite a few of the fishermen were able to catch bait this summer. I hope, as the population continues, that it will benefit the Maine lobster industry tremendously, as well. Thank you.

CHAIRMAN BALLOU: Is there anyone else from the public who wishes to address the board? Yes, Ma'am in the back.

MS. JENNIE BICHREST: I'm Jennie Bichrest; I'm from here in Maine. I don't know if this is the appropriate place or time to ask about this, but I was wondering if, perhaps, it might be time to think about a possible control date for menhaden. Unless it's for the future, we talk about redistributing the allocations that at least in Maine we have, you might as well say, no quota; and we have in the past caught an incredible amount of fish.

At least if we're not going to get redistribution of the coastwide quota, we may need to look at possibly limited entry in the future or at least a control date; so we can discuss it so that we can move forward with everyone able to make money. The more boats and boats that are in this, it is just ridiculous; you can't make money allowing every last person into the fishery when

they're closed out of everything else. I guess that's it.

CHAIRMAN BALLOU: Thank you very much for that suggestion. It sounds like the type of suggestion that could be included in Amendment 3, and we will be taking up that matter later in this meeting. Is there anyone else from the public who would like to address the board?

OVERVIEW OF THE TIMELINE OF MENHADEN ACTIVITIES THROUGH 2019

CHAIRMAN BALLOU: Seeing no hands, we'll move on to the next agenda item, which is an overview of the timeline through 2019. The board has a very busy year ahead, dominated by the Amendment 3 process, but also involving several other issues and actions.

That active pace will continue through 2018 and 2019. To ensure that the board is clear on what is ahead; that is what's in the cue and how the various pieces and pending actions relate and will sequence. Staff has put together a comprehensive timeline, which Megan is about to present. We just have about ten minutes on this item, so this is just a quick overview; really an FYI intended item. But Megan, I'm sure, will be happy to take questions, after her presentation.

MS. MEGAN WARE: I'll just reiterate that the purpose of this timeline is to one, show the immense amount of action that is before this board in 2017. Not only do we have Draft Amendment 3, but we have a stock assessment update, we have a socioeconomic study, we have the ongoing work of the BERP working group.

I just wanted to highlight to everyone what's ahead, and also set uniform expectations for what's going to happen at each of the board meetings. Today I'm just going to go through the board meetings for 2017. But if you want a more detailed look at the committee meetings

that are going to happen, or what might happen in 2018 and 2019, please refer to that timeline.

If everything goes according to plan today, we will be reviewing public comment on the PID at our next meeting in February, so that will include both written comment and public hearings. The ultimate goal of this meeting is for the board to provide direction to the PDT what management options should be included in Draft Amendment 3. We'll go through the PID later, but some of those issues, such as the small scale fishery and incidental catch issue, have quite a number of management options currently included in the PID. It would be great to try and narrow those down. Other issues, such as quota rollovers, we just have public comment questions; and so it would be great to hear from the board about specific management options to include in that draft amendment.

We will also review the results of the socioeconomic study, and that information will be included in Draft Amendment 3. Our next meeting will be May, 2017. This is going to be a bit of a lighter board meeting, but I think it will be a good break. We're going to focus on the FMP review. The PDT will still be drafting Amendment 3.

We'll go over 2016 landings, overages, transfers, as well as quotas for 2017. I'm also going to ask the board to provide projection runs for the 2018 TAC. The TC, I think, found it really useful to have some idea of what the board is considering. I think we should try and use that method again this coming year. Then we'll hear a BERP working group update, as well.

Our August, 2017 meeting is going to be quite a big lift for this board, and that is because we have three major actions that we're going to be taking here. The first will be considering Draft Amendment 3 for public comment. The PDT will have finished writing that. We'll review it

as we're going to review the PID today and hopefully approve it for public comment.

Our second action item is going to be to consider approval of the 2017 stock assessment update for management use. In the New Year the TC is going to start work on our stock assessment update. Right now, this is scheduled for presentation to the board in August. The reason we're scheduling it for this time is I think it is just too much of a lift for the board to consider a stock assessment update as well as final action on Amendment 3; trying to spread out the workload of the board here, so we can talk about each item in an effective manner.

Finally, we are going to try and set fishery specifications for 2018 at this August meeting. There are a couple of reasons for this; the first is I've just heard the 2017 stock assessment updates. The board is going to be well informed as to the current status of the stock. The other reason is, given our ongoing robust discussion on the 2017 TAC, there is a bit of hesitation in starting this discussion after taking final action on Amendment 3 at the annual meeting.

At the very least, I would like to begin discussion on this topic. Ideally, we would like to set a TAC. I will just note that if the board, after they take final action on Amendment 3, wants to reconsider that TAC, that is an option. But we would like to have something in place. Finally, our annual meeting in 2017 will be devoted to final action on Amendment 3.

We'll be reviewing the public comment, selecting final management options, and an implementation deadline. This is the last slide here. We've gotten a number of questions as to how the BERP Working Group's actions are going to fit in with the management actions of this board, and Shanna is going to provide a thorough and detailed overview of their upcoming timeline.

But I just wanted to kind of throw up some highlights, so everyone has a good idea of where we're going. In 2017, they are going to continue to have in-person meetings and conference calls, and they are going to be focusing on two of the four models they're considering; the multispecies catch-at-age model, and the production model with time-varying parameters. In 2018 there are going to be two data workshops held, and this will be followed by two assessment workshops in 2019. This is really the start of what we typically say is a formal assessment process. Then those multispecies models will be peer reviewed at the end of 2019. I will note that this also does include a review of the single species BAM model, so 2019 is a benchmark stock assessment year for menhaden.

The TC will begin work on the BAM model, so when we go to peer review, we're going to have a complete package of both the multispecies models and the single species model, so we can get the best recommendations from the peer review panel. With that, I'll take any questions.

CHAIRMAN BALLOU: Questions for Megan. Yes, Jim.

MR. JIM ESTES: Megan, thank you for your report. Did I understand correctly that we will not be having a board meeting in February?

MS. WARE: We most certainly will to review public comment on the PID.

CHAIRMAN BALLOU: Additional questions for Megan? Seeing none; thank you, Megan, we do have a very busy year ahead of us. I certainly am intending to keep us on track. It is an ambitious timeline, but I think it is important that we try and do our best to reach a decision point one year from now on Amendment 3, which is the big one, and then, as well, feed in those other pieces that Megan referred to.

**SET 2017 ATLANTIC MENHADEN FISHERIES
SPECIFICATIONS**

CHAIRMAN BALLOU: That's where we are, and that's where we're looking to go. With that, we're on to Agenda Item 5, Fisheries Specifications for 2017, a familiar topic. This is a final action. We have slated 30 minutes for this action, and I have every hope and intention of staying well within that 30 minute timeframe. This is an item carried over from the last board meeting in August.

At that meeting, after a series of votes by the board on motions that did not carry, the board approved a motion to postpone the matter until the board's next meeting. When the motion to postpone was improved, the pending motion, which was the main motion, was to set the 2017 coastal TAC for the menhaden fishery at 225,456 metric tons; which would be a 20 percent increase over the current TAC. Given the nature of the motion to postpone, no additional motion is needed to bring the main motion back before the board today, this being our next meeting.

As such, it is now back, and serves as our starting point. Before we reengage in the spec setting process, we have a brief Technical Committee report; which first refreshes the board on the projection runs for the 2017 specifications, and then provides some updates on recruitment trends in the fishery in response to the board's request in August for additional information on that issue. For that report, we have our TC Chair, Jason McNamee keyed up and ready to go, so Jason, the floor is yours.

**REVIEW OF STOCK PROJECTIONS AND
RECENT JAI TRENDS**

MR. JASON McNAMEE: Jason McNamee; Rhode Island DEM Marine Fisheries. I've got a brief presentation here. I'm going to hit two slides on stock status. I'm going to show you two tables on some of the projection information, so you'll have 5,000 numbers bouncing around

in your head again. We can come back to any of these slides at any point, if people need them when you get into your deliberations. With that I will jump right in. The first slide here is on current stock status with regard to fishing mortality. You can see from this slide that we are both below the target and the threshold for fishing mortality for menhaden. This is, of course, generated from the last stock assessment. The next slide -- this is actually fecundity; but that is like our biomass proxy for menhaden. Here you can see we're above the threshold, and we're bounding around the target up there at the top.

Summation of those two slides is that stock status is in pretty good shape right now. The board had us run a number of projections. This first table here was a set of increases to the current TAC. That first row was what the current TAC was in the previous year, and then a series of increases from that so 5 percent, 10 percent, 20, 30, 40.

You can see how the TAC increases as you go down the rows. Just to the right of the TAC column is the risk of exceeding the F target, and then to the right of that is the risk of exceeding the F threshold. Perhaps, not shockingly, as you go up in TAC the risk of exceeding the F target increases. But for all of these runs that we did, the risk of exceeding the F threshold was 0 percent.

The next table was another series of projections that were requested, same setup for this table. These were probabilities of being below the F target, and different levels of risk; so 50 percent, 55 percent and a 60 percent probability of being below the F target in 2017. You can see the TACs that are associated with those risk levels.

Since we had set them to be at these risk proportions, that's just a little math there, but again, all the way to the right the risk of exceeding the F threshold for these projections

was zero. The next couple of slides, I'll call it TC fine print for projections. There are a lot of caveats, a lot of assumptions that go into projections. They are highly uncertain.

Really quickly, I'm actually not going to dig into these too much. I've shown them to you, me personally to this board, probably 10 times over the past few years. There is no structural uncertainty incorporated. There are a lot of functional forms, things like recruitment that condition the projection model.

The allocations are assumed to be carried forward; and what we mean by that is the amount of fish that are being used in these two fishery sectors, bait and reduction. We assume that those carry forward, and that has a lot to do with the selectivity and where these fish are being taken for these different fisheries.

I think this is a final slide on this. If there is a run of poor recruitment or anything like that that can affect the outcome of these projections; and the projections apply the Baranov Catch Equation. This is assuming a couple of different things, such as catches occurring throughout the year, not during specific seasons. Anything that changes that would change the outcome of the projections.

At the August meeting, when you were deliberating on the TAC for 2017, one of the things that had come up during your discussions was a request to look at recruitment trends. I think what folks were asking for specifically was, can you get us an updated recruitment trend for our next meeting. Unfortunately, recruitment is generated by the BAM model; it's not something that can be easily done. That would take a full update, and we, of course, did not have time to do that.

We were trying to think what else we might be able to provide you to give you some kind of information. What we came up with was a series of juvenile abundance indices that we

kind of collect and look at. They are from up and down the coast, and so that is what I'm going to show you in the next series of slides; just some graphs of abundance indices, and these are specific to young-of-the-year indices.

We ended up getting eight indices from six different states that were able to be updated in time for this meeting. These indices are presented in an attempt to provide the board with some information on the juvenile portion of the menhaden population. I'm going to click now through these indices, but then I've got some more TC fine print for you at the back end, so bear with me on that.

The first one is the Rhode Island Seine Survey. This is in the northern extent of the stock, and you can see that there is a period of low recruitment in the late eighties and a period of kind of higher, variable recruitment there as you got around the year 2000. Dropped back down again and then we had a couple of good years these past two years in particular, in 2015.

Information from Connecticut, this is also a seine survey. This is from the Connecticut River. Connecticut is not too far away from Rhode Island, so not shockingly, there is a similar trend there with 2014 and 2015 having some high recruitment numbers. Another Connecticut seine survey, this one in the Thames River, a little bit further to the east in Long Island Sound.

A little bit different information, a shorter time series as well though; so those kind of high years are coincident with the higher years from Rhode Island and the other Connecticut survey, and then it kind of drops down and then 2014 and 2015 are higher than it had been; although it didn't reach the peaks that you saw in the previous couple of slides.

One more from Connecticut, this is from the trawl survey. I believe this is truncated to just

the young-of-the-year information. Again, you can see at the tail end of the time series, which I think is what people are most interested in, one average and one above average recruitment numbers there.

Okay, New York seine survey, again a period of higher abundance and variability for juveniles in the New York area. I believe this is the Western Long Island Sound Seine Survey. Then it kind of drops down and then 2014 and 2015 you had some higher numbers. Delaware, so now we're moving a little further south.

What you see from Delaware is kind of a different signal, a lot of variability; pretty flat overall. You had a pretty big spike there in the early nineties, maybe another period of higher abundance, above average anyways towards 2000, but it's been basically oscillating around the average since about 2000.

Okay, the Maryland Seine Survey. This one goes back further. It has a longer time series than what I've been showing you, so far. This one goes back to 1959, so in the early part of the time series pretty low, and then you had this really productive high juvenile period in the seventies and the early eighties, and then it kind of tails off.

What you see is from about 1995 to present. It has been pretty low recruitment in the Maryland area. This is the Virginia Seine, so early on in the time series -- much shorter time series than we just looked at. You had some high catch-per-haul numbers, and then it kind of drops down. You had a little spike up there in 2010, but it has been pretty low relative to those higher years.

Okay, so that was all of the indices that we had available to us. We hope that that was helpful for you, gives you some information on at least the last couple of years. But a couple of things from the TC, we wanted to highlight that these indices do not provide a comprehensive picture

of juvenile abundance along the coast. They are very specific and particular seine surveys. If anyone is familiar, you kind of roll up to a beach and it's a very small sample in a very specific area.

I have to assume that most of them are all fixed station surveys. This is not a comprehensive picture of juvenile abundance. There is a reason why we do big complex stock assessments; you can kind of synthesize a lot more information to give you a clearer picture.

As a result of that, the TC is not able to provide a very direct statement on recruitment in 2015, nor are we able to predict the magnitude of the young-of-the-year population in 2015.

There were some blips up on 2014, 2015, but how that ends up translating into the population, you need to run a stock assessment to determine that. That is all I have on that, and I am happy to take any questions. I've got a couple other slides, but I can just pop them up if the information is asked for as the deliberations start.

CHAIRMAN BALLOU: Questions for Jason. Yes, in the back.

MR. ANDREW L. SHIELS: Yes, thanks, Jason, for your presentation. Did you graph all of those individual indices onto a single graph?

MR. McNAMEE: No, we did not.

MR. SHIELS: Could you draw any conclusions from any trends that you saw from those individual states indices?

MR. McNAMEE: Yes, as far as what the indices were doing, there is certainly a block to the north where you had kind of consistent signals in that early 2000 period, and then at the tail end you had what looked like a pretty healthy recruitment event. I will offer that the signal is from Connecticut and Rhode Island. While we

think they're great and the biggest states in the nation, they are in fact a very small area along the coast. There is a northern signal there in the most recent years, but when you go to the south, that signal was not as clear, or there at all.

DR. WILSON LANEY: Jason, does the Technical Committee -- have you all looked at the estuarine areas that constitute nursery area for menhaden; and can you give us a sense of where most of those lie geographically? I mean, you just referenced the fact that some of the areas up north where we're seeing a strong, positive signal or relatively small. I'm guessing that areas like Chesapeake Bay and Pamlico Sound, Albemarle Sound would be much larger in extent. Historically, where does most of the recruitment come from; geographically, I guess, is what I'm asking.

MR. McNAMEE: I would suggest that in general what is believed, it is sort of recorded in most of our stock assessment reports and things like that. The southern areas; Chesapeake Bay, North Carolina areas, those are, I believe to be, certainly spatially larger than the estuaries to the north. But those were areas that were believed to produce the most menhaden. That is kind of the answer to your question.

Just to offer a little more insight into what it looks like in the northern areas, so the Rhode Island survey, that is Narragansett Bay; small estuary in the north. Then you've got the estuaries of the Thames and the Connecticut River within Long Island Sound is where that other information was coming from.

New York, that Western Long Island Sound Seine Survey that is kind of tucked in, I think it sort of straddles that Hudson area both inside Long Island Sound and just outside. But again, when you put those in the context of something like Chesapeake Bay, they are all very small estuaries.

DR. LANEY: Follow up, so looking at the Chesapeake Bay Index that you showed for Maryland, I think, and looking back into the seventies and eighties, and seeing bars that appeared to be considerably taller than those that we have today; and trying to put that in context of statements to the effect that the stock is in really good shape.

It appears that, historically, there was a much higher level of recruitment. Does the TC have any thoughts on those historic levels of recruitment versus today's levels of recruitment versus the present SSB? Are we not seeing the positive signal that we should see in those much larger southern estuaries, relative to what the present spawning stock biomass is; and again trying to put that in some sort of historical context here.

MR. McNAMEE: I'm not going to go too far down that road. We had a lot of discussion on that during the stock assessment discussion. I think your observation that the recruitment in that very important estuary in the Mid-Atlantic has been low. That is certainly talked about a lot. But there are different signals in some of the other estuaries up and down the coast, and it depends on the year, as well.

MR. WILLIAM A. ADLER: It is curious that the northern ones are tending up. As you just said, they are not a big area like they are down further south. Further south, they all seem to be just sort of there, they are not going up at all. I wonder why. Are the northern statistics that you get that show that they're up in Connecticut and Rhode Island like a fluke (and I don't mean summer flounder). Is that like a fluke issue, because it wasn't there before? Any reason why it would be better up there than down Mid-Atlantic?

MR. McNAMEE: It's a great question, probably a million dollar question. We've seen this variability through time though where I can speak directly about Rhode Island where we get

these big pulses of peanuts in Narragansett Bay. It happens one year, two years and then they kind of disappear.

You actually see that in the information. Why that happens, the environmental conditions line up, and these environmental conditions can be all sorts of things; wind currents advecting eggs into the bays, temperature. Whatever it is -- a fish passing by at just the right time; there are probably a million variables there. But it is not an uncommon thing. It happens periodically, and you can sort of see that in the time series.

CHAIRMAN BALLOU: Any other questions for Jason? Yes, Rob O'Reilly.

MR. ROB O'REILLY: I certainly understand your last slide about the Technical Committee talking of being limited, and this dataset really is limited as well. I don't know the machinations of the Beaufort Assessment Model, but you do. My question is, based on what the benchmark did, how would you characterize these surveys that you just presented in terms of their impact on the status of the stock; and that might be a tough thing to think about without everything available to you? But nonetheless, I want to ask that question.

MR. McNAMEE: I appreciate the question; I'm going to dance around it a little bit. I hope you don't mind, because I don't know the answer. In fact, there is a multi-layered approach to how that information even goes into the stock assessment. We do a hierarchical model on all of the juvenile abundance indices.

Then they kind of go in as an aggregated index. There is no way to be able to predict just by looking at some information, some noisy information in some cases, how it's going to translate into population information out the end of the pipe. It is nothing I can even conjecture about.

CHAIRMAN BALLOU: Rob, quick follow up.

MR. O'REILLY: Very quick. In the BAM model, there is a weighting scheme as well for these indices.

MR. McNAMEE: That's correct; there is a Bayesian Hierarchical Approach that weights them based on their variability.

CHAIRMAN BALLOU: Any other questions? Seeing none; thank you, Jason, appreciate the report and the responses to what were a series of good questions.

CONSIDER POSTPONED MOTION TO SET THE 2017 TOTAL ALLOWABLE CATCH

CHAIRMAN BALLOU: Okay, now it is time to pick up where we left off on the setting of specifications for the 2017 fishery. Let me attempt to set the stage and go so far as to offer a recommended strategy forward.

From a parliamentary perspective, the board may proceed today as it sees fit. The board may propose amendments to the main motion and such amendments may be different than or identical to the amendments offered at the last meeting. That said, because this matter was vetted extensively at our last meeting, I suggest that it would behoove the board to avoid retreading the same bumpy ground that we covered in August, and focus instead on reaching a final decision tout suite, or at least touter and suiter than attempted in August.

Allow me to offer a recommended strategy that I think can get us to a final decision today, in a way that is both fair and direct. Fair in that it will enable all board members to cast votes that are generally consistent with their perspectives on what the 2017 TAC should be, and direct in that the final decision can be reached via three votes. My strategy is based on the recognition derived from the discussion, motions and votes taken at the August meeting that the board essentially has three options.

The first is a relatively large increase to the TAC, the second is a relatively modest increase to the TAC, and the third is status quo; that is maintaining the 2017 TAC at its current level. The distinction between a large and modest increase can be parsed ad infinitum, as revealed at our August meeting. But I sense that there is little interest in reengaging in such parsing today. I would like to proceed as follows:

We will start with the main motion, which I would like to ask staff to put back up on the screen, from our August meeting; that is the proposed 20 percent increase. Based on the discussion, motions and votes taken at that August meeting, it seems evident that the board views 20 percent as a relatively large increase.

I will reopen board deliberation on the issue momentarily, by entertaining a motion to amend. If anyone on the board wishes to move to amend, by proposing a relatively modest increase to the TAC that is something less than 20 percent, I would welcome that. If such a motion is made and receives a second, I will afford some brief, very brief discussion, and then we will vote on the motion.

That vote should be viewed solely as a vote on whether the board supports a relatively large increase, or a relatively modest increase to the TAC. If the motion passes it will become the main motion, if it fails the proposed 20 percent increase will remain as the main motion. Regardless of the outcome of that vote, I will then entertain another motion to amend.

If anyone on the board wishes to move to amend by proposing status quo; that is a zero increase to the TAC, I would welcome that. If such a motion is made and receives a second, I will allow for some additional brief discussion and then we will vote. That vote will be a straight up or down vote on whether the board supports increasing the TAC or not increasing the TAC.

If the motion passes, it will become the main motion. If it fails, the proposed 20 percent increase will remain as the main motion; and at that point, I will be very inclined to entertain a final vote on the main motion, whatever that may be, and then we will be done. I do not intend to provide for any additional public input, since we had extensive input on this same matter at our last meeting.

Now, if any board member wishes to pursue a different course of action, for example, by moving to amend in some other way; that can happen, and the process can go on, and on and on. But my hope is that the board will see fit to proceed in the manner just described. With that, and with the main motion up on the screen and back before the board, I will now entertain a motion to amend. Dr. Rhodes.

DR. MALCOLM RHODES: Thank you for all the information earlier. **I move to amend the motion to set the 2017 coastal total allowable catch for Atlantic menhaden at 200,000 metric tons**, and if I get a second, I would just like to speak briefly.

CHAIRMAN BALLOU: Moved by Dr. Rhodes and seconded by Terry Stockwell. Dr. Rhodes, let's make sure we have the motion up correctly, and I would be curious and I think it might be helpful to know what percent increase that 200,000 metric ton represents. I don't know if Megan has that immediately available. Maybe we'll get to that after you present your comments; Dr. Rhodes, to you.

DR. RHODES: Since we're in Maine, I will try to follow our late leader George Lapointe's brevity being next to cleanliness, being next to godliness remarks. At the last meeting we had very good discussion with the pros and cons of remaining at the status quo or raising this. This small tyrant fish obviously creates a lot of emotion in people. We went through a series, just to remind the board very quickly, of not

voting for status quo, 1 percent, 5 percent, 10 percent and 19 percent increases.

During the course of those actions between the 5 percent and the 10 percent there seemed to be a shift in several of the states, which made me believe that if we had a removal that was somewhere in that area; and 200,000 metric tons is 6.5 percent. That seems to be an area that most of the states could work at.

It is not going to be what some states want, and it's obviously not what other states want. But of necessity, we must create a TAC for this species. As Mr. Goldsborough very well pointed out at the last meeting where we got to this point, as we're trying to get to Amendment 3 and to get to the multispecies, we created a two-year TAC and we had no fallback position at that.

If we did not create a TAC at this meeting, it is undefined, which to me means unlimited. It's my hope that we can support this motion, go on to Amendment 3, and then as we were informed earlier, over the next two or three years be able to look at this, instead of a single species fishery, a multispecies fishery.

CHAIRMAN BALLOU: I'm game to take some very limited discussion on this. My preference would be two who are opposed to the motion, and another who would be in support. We just heard from the maker of the motion. I would not like to see by a show of hands, is there anyone who would like to speak in opposition to the motion? I would like to just take two. Who might be the lucky two? If not, I would be game to take another comment in support of the motion, and I would just like to take one additional comment. Terry, you were the seconder, so the floor is yours.

MR. TERRY STOCKWELL: I surely appreciate the approach that you've taken to the board today. I think we have a good chance of getting through the afternoon. But like most

everybody else around the table, I lost track of the number of motions we made in August. But my sense is that the motion on the board of 6.5 percent is a workable compromise to move us ahead in 2017.

While this percentage or any other increase in the quota does absolutely nothing for the state of Maine, it modestly acknowledges the current status of the stock while we focus our collective time on the development and implementation of the much needed reallocation of the menhaden stock in Amendment 3, so I strongly support the motion.

CHAIRMAN BALLOU: I'm inclined to take just a couple more comments on this. I did see Michelle's hand up and I saw one other hand up. That would be Rob. I'll take those two comments. I would then like to have this voted upon, and then there will be an additional opportunity for comment, if and when there is a subsequent motion, which I anticipate there will be; so for now, Dr. Duval.

DR. MICHELLE DUVAL: Thank you, Mr. Chairman, for allowing me the opportunity to speak. I will be brief. I am speaking in support of the motion. I will note that there has been a lot of conversation about this back home, and for the record, I would like to note that the department does support an increase of up to 10 percent for the 2017 TAC.

MR. O'REILLY: I would say the comments of Malcolm were very good, and Virginia is not alone, there are some states that are before now looking forward to having the baseline where it really was before the 20 percent reduction. However, I think there is an acute awareness of everyone looking down to Amendment 3 and that process. With that, Virginia does support the motion.

CHAIRMAN BALLOU: With that, I'm going to call for a vote on the motion to amend. It has been requested that every vote on these proposed

amendments shall be roll call votes, so I will be calling upon Megan momentarily to call the roll. Keep in mind that there will be an opportunity, I'm just reiterating now, immediately following this vote to offer a status quo proposal.

Therefore, this vote should be viewed solely as a reflection of the board's preference for either a relatively large increase to the TAC reflected by a no vote on the motion, or a relatively modest increase to the TAC reflected by a yes vote on the motion. I'll allow for a 30 second caucus. Okay, is the board ready? If so, I would like to have Megan call the roll, going south to north.

MS. WARE: Florida.

MR. ESTES: That surprised me. Yes.

MS. WARE: Georgia.

MR. PATRICK GEER: Okay, that threw us for a loop. Yes.

MS. WARE: South Carolina.

SENATOR RONNIE W. CROMER: Aye.

MS. WARE: North Carolina.

DR. MICHELLE DUVAL: Yes.

MS. WARE: Virginia.

MR. O'REILLY: Yes.

MS. WARE: Potomac River.

MR. KYLE SCHICK: Yes.

MS. WARE: Maryland.

MS. LYNN FEGLEY: Yes.

MS. WARE: Delaware.

MR. ROY W. MILLER: Yes.

MS. WARE: Pennsylvania.

MR. LOREN W. LUSTIG: Yes.

MS. WARE: New Jersey.

MR. RUSS ALLEN: Yes.

MS. WARE: New York.

MR. JAMES J. GILMORE: Yes.

MS. WARE: Connecticut.

MR. DAVID G. SIMPSON: Yes.

MS. WARE: Rhode Island.

MR. ERIC REID: Yes.

MS. WARE: Massachusetts.

MR. ADLER: Yes.

MS. WARE: New Hampshire.

MS. CHERI PATTERSON: Yes.

MR. STEPHEN TRAIN: Maine votes yes.

MS. WARE: NMFS.

MR. DEREK ORNER: Yes.

MS. WARE: U.S. Fish and Wildlife.

DR. LANEY: Yes.

CHAIRMAN BALLOU: **The motion passes unanimously; it now becomes the main motion.** Would anyone else on the board like to offer any other motions to amend? Bill Goldsborough.

MR. WILLIAM J. GOLDSBOROUGH: Anticipating this opportunity, I didn't raise my hand a

moment ago. I feel like maybe I should have. I **would like to, for consideration of the board, offer a motion to amend to set the 2017 coastal total allowable catch for Atlantic menhaden at the current level, which I believe is 187,000 metric tons.**

CHAIRMAN BALLOU: Yes, we'll put the exact number up, but I understand the nature of your motion is a motion to amend to keep the 2017 specification at status quo, the current level. Is there a second to that; seconded by Ritchie White. Bill, would you like to speak to your motion?

MR. GOLDSBOROUGH: Yes, thank you, Mr. Chairman. We should not be at this point, is the first thing I want to say. It was not our intent. The current science before us is the benchmark assessment reported to this board a year ago in the spring. At that time we deliberated long and hard, and we took action. We took two primary actions, the first one was we increased the quota for 2015 and 2016 by 10 percent. The second thing we did was we decided to develop a new plan, Amendment 3, to take effect in 2017.

There was a sequence in mind there. It had two major elements to it that addressed two major problems that we knew we had. The first one was the commitment that this commission made 15 years ago to account for menhaden's ecological role. That would be done through the development of ecological reference points, to be adopted in Amendment 3.

The second was to revisit allocation, because as we have experienced, since the quota was put in place in 2013, we either chose the wrong baseline period, we didn't have enough data in some states; or whatever the reason. We know that a number of states were shortchanged, and that caused a lot of problems.

Many states, we want to address those problems any way we can, I understand that.

But later last year, actually with that in mind, we considered that we had a socioeconomic study we were undertaking to inform that decision making in Amendment 3. We realized at the annual meeting a year ago that that was going to take us a year.

We decided that it would be better to have that in hand when we have the discussion of a new allocation framework, and so we pushed back the timeline for Amendment 3 by a year to 2018. That just by chance, opened up next year, 2017 as a year that we had not specified would be at the same quota level as we had set for 2015 and '16, and I think that was just by chance.

I think our intent all along was to keep the quota at that level after we had fully vetted that assessment and decided a 10 percent increase was appropriate; keep it at that level until we adopted Amendment 3. I think we should stay that course. I think that is good management. I know that we do want to address the shortfalls in the bait industry. To me, that is one of our highest priorities, especially in the small scale states; and that's most of us.

I don't think, by increasing under the current allocation framework, we're going to do much toward that end. I don't think we're going to make much difference. Instead, I think what we're going to do is preempt what progress we could really make under a more fair and balanced allocation framework in Amendment 3.

I would urge us to keep that in mind and wait; keep our powder dry. I would also like to say that a lot of people are distilling down the circumstance we're in right now as being one in which the science recommends an increase. One speaker earlier actually even said the TC recommended an increase, and I think that's in error.

The TC did projections for us to inform our decision making on an increase, and they are pretty compelling projections, I have to admit. But we need to keep in mind; they are based on that same assessment. They aren't new science, they're based on that assessment that we've already made a judgment on and the reference points in that assessment.

Those reference points are single species reference points. They do not take into account all the needs of the ecosystem the way we want to do in the ecological reference points. In fact, a year ago at the annual meeting, we considered a motion to divert from the course of Amendment 3, and undertake an addendum to make those reference points the ones we would use going forward. We voted that motion down. We decided to stay the course at that point, because we did believe that it was the best way to address those fundamental problems that we have.

Ecological reference points to deal fully with the issue we committed to 15 years ago, and a new allocation framework that would be fairer to all the states, especially the small-scale-bait states where there really is a need. At this point, this accidental circumstance we find ourselves in, in which there is a lot of talk about how there are more fish out there, and it seems like there are. But that is not science. That is not a survey that is verifying that; that is anecdote, very compelling, I would admit.

But this commission has always shied away from making management judgments based on anecdote; always. That goes way back. With respect to the needs of certain states, we've been trying to meet those over the last couple of years with some sharing of quota between the states, with the episodic event option. I would hope that we could just go one more year getting by doing that and have a real thorough resolution of these issues, the way we set out to do just last year, and not make a

decision now based on, to overstate it perhaps, anecdote and expediency.

CHAIRMAN BALLOU: A show of hands those with a burning desire to speak in opposition to the motion. I'll take those five comments. Actually, leave your hands up, Megan can you note those, please? Keep your hands up, I'm going to take those five, and then I'll take four others who would like to speak in support; Nicola, Andy, Wilson and Robert. Let me go back to in opposition. Who was in opposition? We'll start with Bill Adler.

MR. ADLER: I speak in opposition to this proposed amendment. I'm looking at a lot of issues here. First of all, the science basically has said there is no risk. Science says the stock is in good shape. Sometimes I find it difficult that we can deal with overfished, overfishing; we can do a very good job of cutting things down.

Then we have a success model and we don't know what to do with it. We can't deal with success, maybe. Now I agree that Amendment 3 is necessary and needed and should be done; but not until 2018. Meanwhile, what is being proposed here is a small increase, and I don't see the problem with the stock. I don't see the problem with bumping it up; similar like the 6.45 percent. I wouldn't go hog wild. I wouldn't go to 20.

But the 6.45 shows that the stock is okay, it's good. We have success. It won't help Massachusetts very much if we do go up, but still. In fairness to the entire menhaden system, I think that it deserves to be able to be bumped up a little and then when Amendment 3 comes through, we could do other types of changes. But waiting until 2018 to do anything, I don't think it's necessary for that. I'm in opposition to this particular motion to amend.

CHAIRMAN BALLOU: Next, I have Andy Shiels.

MR. SHIELDS: I'll be very brief. When you think about this as an investment in the environment, and as an investment in the ocean, it is the investment in the communities up and down the coast. It is an investment in the folks who have never seen menhaden in their waters at the extreme ends of the range. When you make investments, any wise investor has a nest egg or has a principal; you do not spend your dividends on your principal the first year they get dividends. Most people with a wise investment strategy take their time, they look at the long view, and they reinvest those dividends. I think all that's being asked here is to reinvest the dividends of what looks to be a year of some increased abundance of menhaden into the long term picture.

I wasn't here when you created the plan and the process you're working on now, which is a three-year plan in the process. You set forth on a process, what is the urgency to depart from that process all of a sudden so you can spend your dividend? I think we're talking about success. Your best chance of success of making that plan that you've put forward happen, is to ensure that you give it the time to build the stock; which is what you're doing right now.

You're going to have a good stock to work with to set your ecological reference points, and to reset your allocation process. You're going to have a bigger pie or a bigger pot when the reallocation discussions happen in a year or so than you will now. You won't have lost the ground that you've gained in the past year or two, when you get into that ERP process and the reallocation process. I guess to summarize, I would say have patience, you put together a good plan, stay the course and allow your investment to pay off when the time is right.

MR. ADAM NOWALSKY: I'm going to briefly speak in opposition to the motion to amend. I'll start by beginning with Mr. Goldsborough, our recent Hart Award recipient, in agreeing with him that we don't respond anecdotally, we

respond based on science. Going back to our last meeting, the question was asked of the TC Chair, can you let us know when the last time every run you did for a species generated a 0 percent chance of overfishing?

The answer from our Technical Chair was, I think the answer is I don't know that I've ever experienced that personally. Responding to the science here would be an increase. Now, I'm also going to have to take the opportunity to disagree with the assertion that we are debating between a moderate increase, because what we're really looking at here is a relatively small number.

A large increase would be the 40 percent number that still generates 0 percent probability of overfishing. A moderate increase would be the 20 percent number we started the discussion with; 6.45 percent is a very small number; and I encourage this body to vote against the motion to amend and vote in favor of the motion that is the original motion at this point.

MS. NICHOLA MESERVE: Consistent with the remarks of Dr. Pierce at the last board meeting, DMF continues to prefer status quo for the menhaden TAC for next year; a couple reasons: As already stated by Bill Goldsborough, we prefer to have the TAC reevaluated in light of the 2017 stock assessment and also paired with possible reallocation in 2018.

The 10 percent increase was already based on the 2015 assessment results at a terminal year of 2013. The Technical Committee hasn't been able to provide us with clear guidance on the juvenile recruitment since then. In Massachusetts, we see that menhaden are still regaining their full range.

While there were reports of menhaden being more abundant south of Cape Cod; that was not uniformly so north of Cape Cod, and only for one year. The TC may have demonstrated that

there is no coastwide risk of overfishing from the analyzed options, but there may be a regional cost in the northeast of increasing exploitation, given our geographical position in the species range. A wide age structure and a high population size promote the migration of menhaden to New England waters. Again, we prefer to stay the course for 2017 and wait until 2018.

CHAIRMAN BALLOU: Next, I have Kyle Schick.

MR. SCHICK: The history that was given earlier was a little brief. We need to really go back to where we needlessly cut 20 percent on bad science; on a kneejerk reaction that was motivated by politics. That is where it really starts, and then we get good science and we bring back 10 percent; which was still way lower than it could be.

The rumors of increased stock and juvenile increase, it is not being overfished. It never has been overfished. Overfishing has never occurred since we've been talking about this. No other stock have we ever talked about, have we had the luxury of complaining about trying to reduce mortality on a fish that is not being overfished and overfishing has not occurred.

We're arguing about something that doesn't occur here. Multispecies, hopefully we'll get that in 2018. We don't know what's going to come. We're going to put out two different multispecies scenarios, along with the single species scenario. We're going to put it out to public. To hear some people in this room, it is a foregone conclusion that we're going to have to decrease the TAC for multispecies approach. We don't know that.

We have no science that says that. TAC is what we can do today with the information we have today, which is the best information we've had on menhaden in the history of tracking it; and a 6.5 percent increase is miniscule. I agree, we should be up to 10 percent or 15 percent, and

we could solve everybody's problem. But we've come to the point where we'll hopefully be able to compromise on a 6.5 percent and help some folks out, get some more fish; and see how things go for next year. That is what we should be doing, and I am not in favor of this motion, for sure.

DR. LANEY: I certainly support the comments by Mr. Goldsborough, by Mr. Shiels and Ms. Meserve. I would encourage us to think about the fact that we're not just talking menhaden here, we're talking an entire ecosystem; and while we don't have all the insights we would like to have about the forage needs of the rest of the ecosystem for menhaden, I think we can all acknowledge that menhaden is one of the principal prey species that is used by other ASMFC and council managed species, such as striped bass; which is sort of our flag ship species, as well as weakfish, as well as bluefish.

If you think about that juvenile abundance series for the Bay that Jason projected awhile ago, and look at the 1970 and 1980 levels and note that there hasn't been an uptick in what is probably one of the principal menhaden nursery areas on the east coast, along with Pamlico Sound probably to the south. There have been some positive signals to the north, but we still don't see a positive signal in that southern area.

I also think about the fact that we have striped bass diseases that have manifested themselves in recent years; that we have striped bass that are showing lower condition factors than striped bass from a decade or two ago, and that we also have diet studies which show us that striped bass are now more reliant on smaller, less nutritious species like bay anchovies; as opposed to Atlantic menhaden. For all of those reasons, I think the prudent course of action is to maintain status quo until we get the results of the socioeconomic study, until we have generated some ecological reference points, until we get the results of multispecies

modeling; so we have more information in front of us before we issue any increase in the TAC.

CHAIRMAN BALLOU: David Bush.

DAVID E. BUSH JR: No disrespect to the folks that have spoken before me, and I apologize, I'm coming into this after having someone that I replaced from your last meeting. I would like to point out that 2014, 2018 strategic plan identified eight values to guide this bodies' operations and activities, and I'd like to point two of them out.

Timely response to new information through adaptive management, I mean, you hear that constantly from fishermen; and also balancing resource conservation with the economic success of coastal communities.

While I can certainly appreciate the perspective of those in the farther reaches of this species range, the effort in this fishery is and has been well below half, actually one quarter of its peak, for quite some time. I'm aware that it's a forage fish and not to imply that there was absolutely no impact by those peak levels of effort.

But we still have those that rely on it for forage, even after decades, almost a century even of a major reduction fishery. The stock appears to be expanding and that's a good thing for the ecosystem. I have however, not seen any scientific evidence presented at this point that even suggests that a reasonable increase would put this expansion in jeopardy.

What we do have is solid science that supports an increase of up to 40 percent. Of those that I have spoken to in order to better understand the viewpoints, it seems that there is substantial support for an increase; but it is the value of that increase that is in question. I feel that we should be discussing the scientifically supported impacts of a 20 percent increase.

But after having spoken to the fishermen and others in the industry, as well as those that generally do not support an increase, I think we could find a middle ground of sufficient support at the 10 percent level that accomplishes our goals. I understand that that is not your amended main motion up there.

But quibbling over the difference between 10 percent and 200,000 metric tons for the sake of having a round number is nonsense. We don't manage fisheries with a goal of having round numbers. That being said, we're still discussing a small percentage increase based on landings from a fishery that is a shadow of its former self, not a percentage of its peak harvest numbers; when dependent predators may have been impacted.

The best available science, which appears to be very solid, says an increase in this range is safe, and has a 0 percent chance of causing an overfishing situation. Why wait for it to be addressed in the next action in some respect in Amendment 3, which is not expected to be effective before sometime in 2018?

Our fishermen want stability tempered with some level of adaptability. An increase at this point is scientifically supported and would by no means be a kneejerk reaction. Otherwise, when would the science ever be good enough to support an increase? The other argument concerning allocation is a completely different discussion that will be addressed. Keep in mind that the TAC is the TAC regardless of who catches it. Having to fight for every single point of a justified increase is disappointing, considering the commission stated values I mentioned earlier.

CHAIRMAN BALLOU: Remaining in the queue I have Rob O'Reilly in opposition, Robert Boyles in support; and there was one other hand that I had recognized in support, but I didn't get the name down. Is there someone else in support that had raised their hand who hasn't yet

spoken? Then maybe I missed that. Let me go to Rob O'Reilly next.

MR. O'REILLY: I know we say we'll be brief, but I will be brief. It is my hope that we don't prolong this need for bait needlessly. It certainly should be all of our hopes that no one has been short changed. If you think about it, the actions of this board, which were very well intended back through 2010, 2011 leading up to 2012, certainly aren't at fault.

But everyone wants good science. We have good science. I contend that we brought this bait need onto ourselves with our actions, as well as the short change that is there. My desire is that we get back to the true baseline, the 212 plus thousand metric tons; and that really that is the status quo to me. That is really all I have, Mr. Chairman.

MR. ROBERT H. BOYLES, JR.: Many of you spoke to the board in making the original motion back in August. I will do my best not to repeat my interest in a status quo, and my support of a status quo motion. I will say this is extraordinarily difficult. Mr. Chairman, thank you for the order within which you've brought us to these very deliberate discussions and conversations. I am going to go back to something that was said early on.

Clearly, a lot of people interested in this fishery, a lot of people interested in this resource, a lot of communities dependent upon this resource. My support for a status quo for 2017 really stems from a hopeful vision; if you will, Mr. Chairman. With Amendment 3 that we can have a fishery that satisfies bait needs, satisfies the important reduction fishery that satisfies the important ecosystem components of this fishery, and that has spillover effects to satisfy other species that are important to this commission.

I am a little concerned, I guess I'm risk averse in my interest in maintaining status quo for the

moment, because I'm concerned that we, with a long view towards a final adoption of Amendment 3, that we may potentially find ourselves inadvertently into a game of regulatory whiplash. That's a phrase that has been used around this table more than once. I think status quo is a precautionary approach. I think it leaves us an ability to smooth out the bumps long term and the future of this fishery. For that reason I support the motion.

CHAIRMAN BALLOU: With that, I'm going to call for a vote on this motion. I'll allow for a one minute caucus. Okay, is the board ready to vote? Let's be ready to vote, and let me call for Megan to call the role moving north to south.

MS. WARE: Changing it up here. Maine.

MR. TRAIN: Maine votes no.

MS. WARE: New Hampshire.

MS. PATTERSON: Yes.

MS. WARE: Massachusetts.

MS. MESERVE: Yes.

MS. WARE: Rhode Island.

MR. REID: No.

MS. WARE: Connecticut.

MR. SIMPSON: Yes.

MS. WARE: New York.

MR. STEPHEN HEINS: No.

MS. WARE: New Jersey.

MR. ALLEN: No.

MS. WARE: Pennsylvania.

MR. LUSTIG: Yes.

MS. WARE: Delaware.

MR STEWART MICHAELS: No.

MS. WARE: Maryland.

MS. FEGLEY: No.

MS. WARE: Potomac River.

MR. SCHICK: No.

MS. WARE: Virginia.

MR. O'REILLY: No.

MS. WARE: North Carolina.

DR. DUVAL: No.

MS. WARE: South Carolina.

MR. BOYLES: Yes.

MS. WARE: Georgia.

MR. GEER: Yes.

MS. WARE: Florida.

MR. ESTES: Yes.

MS. WARE: NMFS

MR. ORNER: No.

MS. WARE: U.S. Fish and Wildlife.

DR. LANEY: Yes.

CHAIRMAN BALLOU: **The motion fails, 8 in favor, 10 opposed.** Therefore, the motion on the board remains the main motion. I am prepared to now call for a final vote on this main motion. If the board is comfortable with

that, I would like to go right to that vote. I don't know if there is any need to caucus. **This would be the final vote on the main motion to set the 2017 fishery specifications for menhaden.** With that, I'll ask Megan to call the role and we'll go north to south again.

MS. WARE: Maine.

MR. TRAIN: Maine votes yes.

MS. WARE: New Hampshire.

MS. PATTERSON: Yes.

MS. WARE: Massachusetts.

MR. ADLER: Yes.

MS. WARE: Rhode Island.

MR. REID: Yes.

MS. WARE: Connecticut.

MR. SIMPSON: Yes.

MS. WARE: New York.

MR. GILMORE: Yes.

MS. WARE: New Jersey.

MR. ALLEN: Yes.

MS. WARE: Pennsylvania.

MR. LUSTIG: No.

MS. WARE: Delaware.

MR. JOHN CLARK: Yes.

MS. WARE: Maryland

MS. FEGLEY: Yes.

MS. WARE: Potomac River.

MR. SCHICK: Yes.

MS. WARE: Virginia.

MR. O'REILLY: Yes.

MS. WARE: North Carolina.

DR. DUVAL: Yes.

MS. WARE: South Carolina.

DR. RHODES: Yes.

MS. WARE: Georgia.

MR. GEER: Yes.

MS. WARE: Florida.

MR. ESTES: Yes.

MS. WARE: NMFS.

MR. ORNER: Yes.

MS. WARE: U.S. Fish and Wildlife.

DR. LANEY: No.

CHAIRMAN BALLOU: **The motion passes 16 to 2**; thank you very much. Good work on that, and I think we covered that issue well over the course of two meetings. Let's just take a two minute break to stretch, and then we'll come back and take on the Draft Amendment 3 PID; back in three minutes.

(Whereupon a recess was taken.)

**CONSIDER DRAFT AMENDMENT 3
PUBLIC INFORMATION DOCUMENT FOR
PUBLIC COMMENT**

CHAIRMAN BALLOU: I'm going to call the meeting back to order. We are on to Item 6 on

These minutes are draft and subject to approval by the Atlantic Menhaden Management Board 20
The Board will review the minutes during its next meeting

our agenda, which is the Draft Amendment 3 Public Information Document, or PID. This is an action item. As Megan noted earlier, during her review of the timeline, the board is poised today to formally launch the Amendment 3 process via approval of this PID.

The board briefly discussed an initial outline of the document at our August meeting, and offered some preliminary comments. Additionally, the Menhaden Advisory Panel reviewed and commented on an early draft of the document, and some changes were made in response to those comments.

The Plan Development Team has done an excellent job pulling everything together, resulting in the draft that is now before us. Our mission this afternoon is to work through the draft and finalize it, so it can go out to public hearing over the next couple of months. For those members, who may not be familiar with the amendment process, the PID represents the first formal step in the process.

It is essentially a scoping document informing the development of the draft amendment, via public input on the options to be considered in the draft amendment. In keeping with the purpose of Amendment 3, the PID essentially does two things; first it scopes a suite of potential tools to manage the menhaden resource; using ecological reference points or ERPs.

Second, it scopes a suite of potential options for reconfiguring the methodology used to allocate the coastwide TAC. Here is how we plan to proceed on this agenda item. Megan will first give a presentation, and answer any questions. It is about a 20 minute presentation, it runs through the entire document.

Jeff Kaelin will then summarize the AP report and answer any questions. I will then lead the board through the process of considering changes to the document. When we get to that

point, I have some guidelines on the process I would like to follow for considering and approving changes. We have a lot to get through. We've got an hour and 20 minutes set aside to get through this, so with that lead in, Megan, the floor is yours.

REVIEW OF MANAGEMENT OPTIONS

MS. WARE: I will be going through the management options in the PID for Amendment 3. The Chairman actually did a really good job of going over what my first slide is here, but I'll just reiterate that the public information document is supposed to be a broad scoping document. The purpose of this is to announce the commission's intent to gather information concerning Atlantic menhaden, and to provide the public with an opportunity to identify major issues or management alternatives.

This is in contrast to the draft amendment, which is a bit more narrow and specific. I just wanted to kind of put that out there when we talk about how we got to where we are today on this PID. This is the timeline for the draft amendment. Again, I've already been through a timeline today, so I'm going to be pretty brief here. But we are considering this for public comments. If that is approved, our public comment period would be from November, 2016 through January, 2017. Again, looking long term we're hoping to take final action on Amendment 3 a year from now.

Before you is a list of the issues currently included in the PID. Some of the names have changed, but the actual issues are still the same ones that were presented in August. My plan for today's presentation is to go through each one of these issues, kind of give a brief overview of why it's included in the PID, and then I'll go through the management options or public comment questions that are associated with that issue.

We'll start with reference points. The stock is currently managed by single species reference

points from the 2015 stock assessment; and those were intended to provide a better measure of sustainability in the fishery. The board has expressed an interest in managing the Atlantic menhaden stock with ERPs; and currently the BERP Working Group is developing menhaden-specific ERPs, which will be peer reviewed in 2019.

There are also existing guidelines for managing forage fish species that the board can look to in their consideration here. We have the 75 percent rule of thumb, which recommends that forage fish populations be maintained at three-fourths of their unfished biomass levels. We also have the Lenfest Proposal by Pikitch et al. which recommends that F does not exceed one-half of natural mortality; and that fishing is prohibited when biomass falls below 40 percent unfished biomass.

We also have a third ERP that is included here. Between Jeff and I, we'll, hopefully, be able to provide a bit of context as to how this was added. But this was recommended on the advisory panel call for inclusion in the PID. The actual reference point is an F target to achieve a 75 percent unfished biomass, and that fishing is prohibited when biomass falls below 40 percent unfished biomass.

We'll put some more language up there to further clarify that. But in the PDTs discussion of this, they decided to include it in the PID as another example of how forage fish can be managed. They also felt somewhere in the realm of the 75 percent rule of thumb and the Lenfest Proposal, so it was kind of in the range of where we were speaking.

Both Jeff and I will continue to discuss this, and we'll be able to answer questions by the board to provide a little more context on that. These are the current options for reference points. Option A is the single species reference points from the 2015 stock assessment. If the board decides to use this option, the board will direct

the BERP to stop work on menhaden-specific ERPs.

Option B is to use existing guidelines for forage fish species. This could include something like the 75 percent rule of thumb or the Lenfest Proposal. Again, if this is chosen the board will direct the BERP to stop work on menhaden-specific ERPs. Option C and D are the board agreeing to follow the BERP in their menhaden-specific ERPs.

Option C is saying we're going to continue to use the single species reference points until those ERPs are developed by the BERP, and then Option D says we're going to instead implement existing guidelines for forage fish species; until those BERP ERPs are developed. Again, those existing guidelines can include the 75 percent rule of thumb, the Lenfest Proposal, or that new harvest control rule. Our second issue is quota allocation. Amendment 2 established a TAC for menhaden and divided this among the states.

In revisiting this allocation there are a couple of concerns that have come up. The first concern is that the current TAC may not strike a balance between gear types and regions. This has posed a problem as we increase the TAC. This seems to have limited benefit for small scale fisheries. Another concern is as the stock continues to expand and grow, especially in the northeast; historical catch could limit states with minimum quota from participating in this growing fishery.

As a result, the board has stated an interest in exploring other allocation strategies, and in May, 2015 there was an allocation working group established to try and address some of these issues. The allocation options currently included in the document are from that workgroup. We have quite a few quota allocation options. The first is jurisdictional allocation, which would be our status quo.

Option B is jurisdictional allocation with fixed minimum quota, so an example here might be that each state gets 1 percent of the coastwide TAC, and then the rest is distributed. Option C is a coastwide quota. Option D is a seasonal quota, Option E is regional quotas, and we have sub options for a 2, 3, or 4 region split.

Option F is disposition quota, so that would be between the bait and the reduction fisheries. Option G is a fleet capacity quota, and again here we have sub options for a two-fleet or three-fleet option. I'll note here for the small fleets there is an option for a soft quota to try and provide a bit more flexibility to those small scale fisheries.

Intricately tied with the allocation method is the allocation timeframe. The question here is whether the current timeframe represents a fair and equitable picture of coastwide menhaden catch. We have three options here. Option A is our status quo, so that is 2009 to 2011. Option B would be to expand that to a longer time series.

That can include adding 2012 catch information or it can mean going back further in time to 2005 or 1985, so there is a large umbrella there of what that could mean. Option C is weighted allocations. This tries to consider long term trends, as well as recent changes in harvest. Allocation would be weighted over two time periods.

Our next issue is quota transfers and overage payback. Amendment 2 allows for quota transfers among jurisdictions. Just as a practical matter, transfers are a very useful way to address overages in the fishery. However, the timing of some states may disadvantage them from being able to fully participate in this transfer process.

There are also no guidelines to what a state should do if they receive multiple requests at the same time. We can try and look to other

FMPs to see what they do for these issues. If we look at some such as the black sea bass FMP, it allows for quota reconciliation; where if the coastwide TAC is not exceeded, state specific overages are forgiven. It also provides examples of what to do when the coastwide TAC is exceeded, and in that case if at least one state has an underage, then that state could transfer their unused quota to a common pool, and then that could be distributed to states with an overage. For this issue we have public comment questions, so I'm going to just read those off here. The four questions are, should the process for quota transfers be further defined or replaced with quota reconciliation? Should state specific overages be forgiven in years when the coastwide TAC is not exceeded?

If the coastwide TAC is exceeded, but at least one jurisdiction has an underage, should unused quota be pooled and distributed to states with an overage? Should there be accountability measures for a state which exceeds its quota by a certain percentage, or repeatedly participates in quota reconciliation?

Our next issue is quota rollovers. Amendment 2 does allow for unused quota to be rolled over into the subsequent year, if the stock is not overfished and overfishing is not occurring. However, the specifics of that program were not defined in Amendment 2, and at the time of final action we weren't meeting those criteria.

However, from the 2015 stock assessment we now do meet that criteria, and so quota rollovers are allowed. However, those specifics were never defined. The board agreed to tackle this issue in Amendment 3. Again here we have public comment questions. We have three of them. Should unused quota be rolled over into the subsequent year?

If yes, should the amount rolled over be limited to a percent of quota? Should all sectors of the fishery be allowed to rollover quota? Our next issue is incidental catch in small scale fisheries.

In August when I presented this, this was called bycatch. The PDT decided to make a conscious choice to try and use incidental catch instead of bycatch; and there were a couple of reasons for that.

The first is we felt that there were a bunch of different definitions of bycatch, and so we were getting a bit confused as to what we were actually talking about. Really the intent of this is for incidental catch, and so we wanted to try and represent that in the PID. That is why you may see incidental catch more frequently in this document.

Currently, under Amendment 2, all catch goes towards the quota before a state reaches that quota; but once you reach that quota, your directed fishery shuts down and we move into a bycatch fishery. Amendment 2 established a bycatch allowance of 6,000 pounds per vessel per trip for these non-directed fisheries.

There are a couple of concerns that have come up with this allowance. The first concern is that bycatch under this allowance does not count towards the quota, and so there is some concern that this could undermine the coastwide TAC that we set each year. There is also no definition of bycatch or non-directed fisheries provided; and so there are some questions of who should actually be allowed to participate in this allowance.

It has also raised concerns that the bycatch allowance may be supporting a small scale fishery rather than incidental catch. There is also concern that the bycatch provision dissuades cooperative fishing. We tried to address this with Addendum 1, where we allowed two permitted individuals to land 12,000 pounds of menhaden.

However, there may be other ways to address this in a more holistic view through Amendment 3. Again here we're back to management options. Option A would be our status quo, so

that is a catch limit per vessel. Option B is an incidental catch limit per permitted individual. The idea here is that this would try and solve the issue about cooperative fishing, because the catch limit would be per person rather than per vessel.

Option C is to have the incidental catch included in the quota, so incidental catch would count towards the quota, and once that quota is met no landings would be allowed. Again, the idea here is to try and account for our incidental catch in the coastwide TAC; so we're not undermining that value.

Option D is an incidental catch cap and trigger. There would be a harvest cap for incidental catch, and if that is exceeded by a certain percentage in one year or two consecutive years, then management action would be triggered to reduce incidental catch. Option E is that incidental catch be defined by a percent composition.

The amount you could land would depend on what else you're catching at that time. Then Option F is for a small scale fishery set-aside, so here a portion of the TAC would be set aside for gears participating in small scale fisheries. This is very similar to an option in the quota allocation issue.

But the reason it's also included under this issue is that regardless of what allocation method the board chooses, there is still an option for a small scale fishery set-aside to deal with some of the issues we're seeing in the bycatch fishery. Our next issue here is episodic events. Amendment 2 sets aside 1 percent of the TAC for episodic events.

Then we had Technical Addendum I, which outlined the specifics of this program and specified that participation in this program was for the New England states. Since 2013, we've seen an increasing amount of menhaden landed

under this program, as well as increased participation from the states.

In 2014 only 8 percent of the set-aside was used. This year so far 92 percent of the set-aside has been used; also this year we had New York request and be approved, to harvest under the episodic event program, even though they are not technically considered a New England state. This has prompted questions about the size and the geographic spread of the program. We're back to public comment questions for episodic events. Our questions are, should a percentage of TAC be set aside for episodic events?

If yes, what percentage of the annual TAC should be set aside? If yes, which jurisdictions should be allowed to participate in this program? Does the episodic event program need to be reconsidered as the distribution of menhaden changes? How should states demonstrate that an episodic event is occurring in state waters?

Our final issue here is the Chesapeake Bay Reduction Cap. Currently, the Chesapeake Bay reduction fishery is limited by a harvest cap; and the intent of this harvest cap is to prevent all of the reduction fishery from occurring in the Chesapeake Bay, which is an important nursery ground for menhaden. However, the reduction fishery consistently underperforms this cap, and so it has raised questions to whether this is really a vital tool to the management of menhaden. Our two questions are, should the Chesapeake Bay reduction fishery cap be maintained? Is it an important tool for management of Atlantic menhaden? With that, I'll take questions.

CHAIRMAN BALLOU: We're open to questions now, but if your questions have even a hint of a suggested change, I would ask you to hold the thought, because what we're going to do immediately following this question Q & A portion, is go back through the document

section by section, and entertain any suggested changes.

ADVISORY PANEL REPORT

CHAIRMAN BALLOU: Right now, does anyone have any questions for Megan on her presentation, with the understanding that we're going to go back over this document thoroughly in a moment? Seeing no hands, we will move to the AP report on the PID; and I think Jeff Kaelin is ready to offer that.

MR. JEFF KAELIN: Good afternoon members of the Menhaden Board. I'm Jeff Kaelin; I work with Lund's Fisheries in Cape May, New Jersey. We are in the purse seine fishery for bait in New Jersey. Megan has done an excellent job of providing you with a written overview of the AP call that we had in October, actually I guess it was in September.

But she has also provided some slides, which I'm going to go through quickly; as quickly as possible, because some of the issues that were raised by the AP have already been addressed in the document. I'll try to blow through this quickly. We did have 14 AP members on the call, so we had a very robust discussion of a whole variety of issues that I think are captured in our report.

There was no discussion about preferred management alternatives at this time, and I believe that there will be another AP call prior to your February meeting; when the AP will have an opportunity to review the PID hearing results, and provide another update to you. On the next slide, the stock status information, human use of menhaden, the balance of the discussion has already been addressed by Megan.

I think the scale of the fishery issue probably will be addressed with the socioeconomic report, which also will be before you in February, and probably with an opportunity for the AP to comment on that prior to your

February meeting. The standards by which ASMFC manages the species are going to be included.

The next slide is on reference points. As Megan mentioned, there were at least two AP members who brought forward this additional option for consideration as one of the alternatives as an interim reference point. I believe it was Mr. Hinman and Mr. Paquette who advocated for this additional option.

The AP felt that it was appropriate to ask the PDT to evaluate its inclusion in the document. The reference for that option is included, Smith et al. There was some discussion about a manuscript in process by Hilborn et al, alternative to Pikitch that focuses more on the environmental linkages to recruitment for Atlantic menhaden or the forage fish.

Hopefully, that will be published before this process ends. On the quota allocation slide, both of these have been addressed in the PID. There were some language changes relative to the language concerning equitable balance between gear types and regions, which Megan commented on earlier; and the seasonal quota option is in the document. There was some discussion about the winter quotas value, and allowing sampling of the adult population perhaps. Then on allocation timeframe, there was a pretty good discussion about perhaps using a longer time series for the reallocation or the weighted reallocation down the road; and there were two periods that were suggested, 2006 to 2012, and '85 to 2012 for analysis.

Hopefully, the board could agree to have the technical people look at those options. On quota transfers and overage payback, I think both of the issues on this slide have been addressed by the staff; and are reflected in the document. We appreciate that I think as an AP generally. Next slide on episodic events, similarly the first two bullets I think have been addressed by staff.

The third bullet was that perhaps a specific increase in the episodic event allowance of 2, 5, or 10 percent could be performed to determine whether the small scale fisheries needs could be addressed in that way. There is a similar option in the PID; I think that looks at things in that way. On the Chesapeake Bay reduction cap piece, what does this say? There has been an underperformance and some history of landings has been requested, although this is difficult because of the confidential nature of the data.

As far as other comments go, these are relatively minor. There were a couple AP members who thought a research program and priority portion should be a part of the PID. As the AP Chair, I would hope that you might add that; because I think we need to look down the road, so that the public and everybody has a better idea of what's going on out there, the best idea possible.

Then the second bullet has to do with an appendix table. I think the staff has addressed that as well. That is my report, and thank you, Megan very much for your summary. It has been very good working with her. Our AP is being reconstituted. I think you have several AP members to consider later. We appreciate that very much. That ends my report, Mr. Chairman.

CHAIRMAN BALLOU: Questions for Jeff on the AP report? Seeing none; I just want to say, I know I speak for everyone on the board in thanking the AP for their engagement and very helpful contributions to the process; which I know are going to be continuing as we move through the Amendment 3 process, and thank you for your leadership, Jeff.

We are now about to open the floor to suggested changes to the document. To save time, if members have suggestions for clarifying language changes that are not substantive in nature, you do not need to get those on the record this afternoon. You can simply convey

those to Megan, provided you do so by the close of business on Friday.

That's her deadline. She really needs to get this document finalized. If you just have editorial suggestions, non-substantive in nature; please get those to Megan. You don't need to get those on the record today. But you do need to get those to her by Friday. I'll just note that I have already availed myself of that option, by providing Megan with some suggested edits last week.

With regard to substantive changes, which we are now about to consider, Amy has been kind enough to offer to itemize the suggestions as they are made; by putting them up on the board. We'll seek to develop the list by consensus. If anyone is uncomfortable with a suggestion or has a different angle, weigh in and we'll work through it.

Once everyone on the board has had the opportunity to offer suggested changes, I'll take some public comment. Actually, I think I'll offer two opportunities for public comment. I think it might be easier to do it this way, one on the issue of reference points and then another on the various issues associated with allocation. At the very end I'll come back to the board for a motion and a vote. That is how I plan to proceed.

First, so we'll go section by section, we'll open up the floor to comments and suggested changes; and then move right through the document in the order that Megan had presented. First, with regard to the introductory sections of the document, does anyone have any comments or suggested changes pertaining to the document up through Page 5; that is up to Issue 1, Reference Points, which we're about to take up?

Does anyone have anything that they would like to offer on anything up to the very first issue, so that would be up through Page 5? Seeing no

hands, we'll move to Issue 1, Reference Points; suggested changes on that, Lynn Fegley.

MS. FEGLEY: I admit that I hesitate with menhaden. I'm not sure what qualifies as substantive. I hope this does, but if it doesn't, please stop me. In the option that involves the 40 percent unfished biomass, there is language in there that states that references the Pacific Fishery Management Council in sardines.

It says in parens, although it's not set at 40 percent of the unfished biomass level in that fishery, for the sake of the public, and if it were me reading this, what is that sardine fishery set at; and why are we choosing 40 percent? I just wonder if it wouldn't be helpful for the public to know. The way it's worded to me, may make that 40 percent seem arbitrary.

Unless it's in that Smith et al paper that's referenced, which it might be. I'm just looking for a little help for the public in understanding where that particular number came from, and how it might compare to the Pacific number; also, and maybe not necessary but interesting, how it compares to the menhaden stock status.

MS. WARE: I'll try and tackle that, Lynn. To the first question of what the sardine council is using, I don't know it off the top of my head, but I do know it's lower. I can add that to the document if you feel that would answer some questions that you think might be posed by the public. I'm happy to do that. In terms of where the 40 percent came from, it came from the Lenfest proposal. That is why that paragraph there is kind of talking about a combination of the Lenfest proposal and the 75 percent rule of thumb.

MR. CLARK: Just kind of a follow up on Lynn's point. I was just wondering if, in the options themselves, it might be possible just to put in there what F we're looking at under some of these other guidelines, as compared to what

our current single species guidelines are. I know you discuss it in the big intro to it.

But like a lot of people, I just started looking at the options. It would be hard for the public to tell by looking at the options what the F would be for going to the 75 percent rule of thumb. Just to have what the actual F would be in there, I think, would be helpful.

CHAIRMAN BALLOU: Duly noted, thank you. Additional comments suggested changes on the reference point portion of the PID. As you're thinking, or perhaps as we near a conclusion, I'll just note a thought that I had; and that is on Page 7, there is a fairly hefty paragraph that summarizes the BERP Working Group's review of the Lenfest related ERPs proposed by Pikitch et al. It is the response to the BERP Working Group offered by the Lenfest Forage Fish Task Force.

If the board is comfortable with that, I think there should be a very decent attempt to summarize the back and forth on the issue; so be it. But as food for thought, it occurred to me that the document could just say that the BERP Working Group issued a memo highlighting several concerns with the approach, and then site that memo that is in the appendix.

It is in now, and it would remain in. Then say that the Lenfest Task Force subsequently responded to the TC memo, and then site that response in the appendix; where it currently is, and leave it at that. In lieu of attempting to summarize the issues and the positions of the TC and the Task Force relative to them, just essentially let the memos speak for themselves. Again, just a thought, I don't feel particularly strongly about the issue one way or the other, but I just wanted to float the thought, for what it's worth.

It just sort of struck me that it was a decent attempt to summarize an important issue. If the board is comfortable with it as proposed, fine, I just wanted to let you know that had

been something that occurred to me. I'm not offering it as a suggested change. I'm just offering it as a thought that I had when I read through the document.

Are there other thoughts, either in response to that comment or on any other issues under reference points? If not, I'll go to the public now. Does anyone from the public wish to comment on any of the issues in the PID that relate to reference points? This is going well.

Back to the board, and we'll move on to Issue 2, and that is Quota Allocation. We'll go through these one by one. Well, Quota Allocation is Issue 2, so I'm sorry, I got ahead of myself. Does anyone have any suggested changes pertaining to that issue? Yes. Terry Stockwell.

MR. STOCKWELL: First, a question and then a suggestion. Has there been any discussion about an RSA with the working group under the quota allocation section?

MS. WARE: As far as my knowledge on the working group's discussions, I didn't see one on that; and the PDT did not discuss one.

MR. STOCKWELL: Well, pending discussion of the board, I would be interested in consideration of an RSA option. The second issue is under the fleet size composition and the fleet capacity quotas. I want to note in Maine that Maine has several small capacity purse seiners; they are not large capacity, so you have a list of smaller gears. There are at least two of them here today. I would request that small capacity purse seiners be considered as an option, as well.

CHAIRMAN BALLOU: Duly noted. Yes, Dr. Duval.

DR. DUVAL: Just in the preamble to the quota allocation issues, it is the last paragraph on the bottom of Page 9; where it's giving some examples of different types of allocation. It notes the golden tilefish fishery being allocated

by gear type. That is specific to the South Atlantic, and it might be good to just note that; because it is an IFQ program in the Mid-Atlantic.

CHAIRMAN BALLOU: I'm sorry, what page were you on there?

DR. DUVAL: It's just at the bottom of Page 9; that paragraph that talks about the examples, just noting that for golden tilefish that is specific to the South Atlantic and Mid-Atlantic and is an IFQ.

CHAIRMAN BALLOU: Duly noted; additional, yes, David Simpson.

MR. SIMPSON: Just clarification on what Terry said. The notes I'm looking at, the small capacity gear is to be considered as an option. You were speaking particularly of small capacity purse seiners, right? We need that clarification.

MR. STOCKWELL: To that point, yes. On the three-fleet-capacity allocation, the small capacity fleet not limited to cast net, trawl, trap pot, haul seine, fyke net, hook and line. There are small capacity 35, 40 foot purse seiners as well.

MR. SIMPSON: Okay, that's great, and the added clarity of it being a 35 to 40 foot boat helps me a lot to understand it as a small capacity gear.

MR. STOCKWELL: Not necessarily limited to that, but 40 foot range, yes.

CHAIRMAN BALLOU: Dave, do you want to offer a thought on what you would like to see in terms of maybe some clarification?

MR. SIMPSON: Yes, it would be helpful to me to understand what is meant by a small capacity purse seine, because it is sort of, with my limited background in that fishery, a contradiction in terms. But I understand in Maine those exist. Maybe you could put some

sideboards on it, whether it was now or later. But a tonnage capacity or something of that nature, I think would help the PID a lot.

MR. STOCKWELL: I feel more comfortable about talking with our industry and getting back to Megan with an answer to that, and the board can review it at our upcoming meeting. Likewise, a medium capacity fleet, we do have some large seiners, but they are not on the scale of the reduction vessels.

CHAIRMAN BALLOU: Additional comments, thoughts. Yes, Rob O'Reilly.

MR. O'REILLY: I provided Megan with what may be an additional quota allocation option. But of course, we need to talk about it, if Megan can place that up there for everyone to look at, that would be great.

CHAIRMAN BALLOU: I think she's working on that as we speak.

MR. O'REILLY: In the meantime, I'll just say that when you look through the allocation options, they are all mechanistic. Option F, disposition quotas talks about the split between bait and reduction a little bit; Option G, the fleet capacity quota speaks to the idea that it can be used to allocate to different sectors, but there is not really an indication of what triggers these allocation changes.

What I have up there is the idea that there has to be some variable allocation issue included. In other words, it's based on the quota itself. As you heard me earlier, I hope it is not just my thought, but the 212,500 metric tons really is looked at as the starting point. The reason for that is that when allocation came about and was passed, along with the 20 percent reduction, it was in a manner different than some other allocation schemes.

Usually, when you have an allocation situation, you have at least time for states to start limited

entry proposals. Of course, with menhaden some states do already, some states don't. What that did was it really induced the short changing effect that was mentioned earlier, and in another sense it also didn't really look at the capacity down the road.

In general, what this item will show is that there is a way that, depending on the strength of the quota, the magnitude of the TAC that the allocation to different sectors, whether it be bait or reduction or regional or in whatever manner, should be influenced by that magnitude of reallocation. I think the public at least needs to see an idea of where this quota is possibly going to go? Where is the TAC possibly going to be distributed?

Now, granted, there may not be consensus on the middle there that you have to get back to where we were in 2012, before the 20 percent reduction to consider allocation, but I have to tell you when we had those numerous calls led by Robert Boyles on allocation, I think there were seven, he might tell me eight; I don't know. But the first call was involved with everyone trying to figure out the difference between allocation and reallocation.

I think Bill Goldsborough, who was on the call as part of the public, said let's not play with semantics, it is reallocation. But realistically, given the background of how this allocation came about, I think that probably we should build some biomass here, which we have, and from that we should build our TAC; which we have incrementally.

But not even to get back to where we have a slate that existed before all these reductions. Definitely take some comments on that; but I think there is some good information here about the public being able to see the various ways that the TAC can be distributed, and it is a little less vague than perhaps Options F and G.

CHAIRMAN BALLOU: Thank you; let's leave that up on the screen. Does anyone from the board have any comments or concerns regarding the recommendation to add a new Option H, as indicated? I'll give you a minute to just make sure you've digested it. My understanding, Rob, is that this would be added to the document as presented here. This would be the actual language that would be inserted. It would be a new option, and that would be the clarifying language as indicated on the screen, in terms of what the option seeks to do.

MR. O'REILLY: That is correct; Mr. Chairman, and also Megan gave a little helping hand, because the original quota allocation scenario was confusing maybe to the public; in that it mixed up TAC and quotas, and I think that's been straightened out. This would be what is proposed, and again, it is a little different in that it talks about the magnitude of the quota and actions that might happen after that.

CHAIRMAN BALLOU: I don't see any hands going up, so we can come back to this, but for now, I'm going to ask Amy to pull this back and just add, as a bullet, a new Option H with the title that it had; and I actually forget what it said. But that will be a proposed addition; other thoughts, comments, Lynn?

MS. FEGLEY: Just going back to Terry's comment about the small capacity purse seines. There are a couple things that might be worth doing with that. One of them is in the document; Table 3 breaks down the landings by gear. I think one of the points of that table is to illustrate to the public the magnitude of the specific gears; you know, how much of the harvest that they are proportionately catching.

The purse seines are at 94 percent. Clearly, I would imagine that the Maine small capacity purse seiners would be lumped into that purse seine category, which makes it very hard. I think it's going to be confusing. One thing,

there are two ways, I think, that maybe could make this easier and get the board better input. In the description of the fleet capacity allocation option, it talks about the idea that you could define your small capacity fleet through trip limits. In other words, if you're a small capacity fleet boat, you're not harvesting more than 20,000 pounds at a shot; and I'm making that number up.

But one of the things maybe we could do is add into the public comment questions, what would be a suitable small capacity trip limit, in order to make sure that we are doing a good job defining that capacity; because I worry when we start overlapping these gears. I'm not arguing with Terry's point, I think it is going to start to get confusing. Maybe one way to get at that is just crystal clear, asking what we are talking about here for a trip limit.

CHAIRMAN BALLOU: That sounds like a good suggestion to me. Terry, does that work for you?

MR. STOCKWELL: I'm not sure yet. I don't want to lose sight of the fact that we have an effort that I don't feel is fully recognized in the draft document at this point.

CHAIRMAN BALLOU: Okay. Working through these issues, any other thoughts or comments either on what has already been discussed, or anything new under this issue? I'll just note that under the public comment questions, it struck me that we might have been jumping the gun a little bit in the way they were teed up.

If you move to those comments, I'm wondering if the board has any opposition to adding two additional questions, one at the very beginning, which would be should the board maintain or revise the allocation formula currently used to manage the commercial Atlantic menhaden fishery. It seems to me that is the first sort of open ended question, but it tees up well what follows.

Then as the last question, are there other options besides those offered in this document that the board should consider. Again, just really trying to make sure we've rounded out this very important issue. If there are no objections, I would like to suggest adding those two questions under the public comment questions portion of Issue 2. Is there anything else on Issue 2? Dave.

MR. SIMPSON: Following up on Lynn's suggestion, I thought that was a good one actually, just asking questions. When we say small scale, what do we mean? What is the public's perception of what is small, what is medium, what's large; so we get that out on the table and understand.

I think it is good to consider another type of gear that we haven't thought about, but I would need to know myself, is that a small scale gear that is capable of taking 100,000 pounds or 10,000 pounds? Does it meet my definition of small scale and my perception? I think they would be very helpful comments to add, or questions to add, rather.

CHAIRMAN BALLOU: Anything else? If not let's move on to Issue 3, Allocation Timeframe; comments, recommended changes to that? Yes, Jim Gilmore.

MR. GILMORE: As I was looking through these, in some respects it's hard to figure out if they're going to fix the problem or not. As I went through B and C, it kind of reminded me, for all you folks around, when we were doing spiny dogfish. We took different time series and we got into this little bit of a quandary.

Because some folks liked the early eighties, some folks liked the late seventies; because it all came down to what was giving them a better deal. The suggestion I have, and I'm not sure if there are problems with it to add an Option D, is why we couldn't use the most recent five

years. I mean, we're looking backwards, and I think where we want to go is to use most recent data.

Why we couldn't put in an option that we would use the landings from 2013 through 2017? Actually, I think part of the problem, at least for New York, was we weren't recording landings. We fixed that probably in 2011/2012, and I think the other states probably ramped up too, so that might give us a more accurate picture of what the actual distribution is.

MS. WARE: Jim, just a quick comment on that. We won't have 2017 landings finalized by the time we take final action on this. My guess would be the board would want to know what each states allocation would be; depending on which time series or method we use. We wouldn't be able to do that analysis for that option. Maybe 2012 to 2016, would that be okay?

MR. GILMORE: Yes, that would be fine. Whatever most recent previous five years we would look at which is the most recent data.

CHAIRMAN BALLOU: Just to state the obvious, those landings have been constrained by the state quotas. It is what it is, but I think as long as that's clearly stated in characterizing that option, I think it makes sense to me to offer it.

MR. GILMORE: Yes, I understand that Bob, but remember with the transfers we had you could probably get, even though you're constrained by those quotas, there still is a better picture of how much transferring was going on. It is just another option to give us maybe a better way to get out of the box, so we don't get back to spiny dogfish again.

CHAIRMAN BALLOU: I think it is a good suggestion, and I just think as long as that clarifying or explanatory language is added to help the public understand the context; that seems fine.

MR. MILLER: Just to add to that; by using that recent period it would also factor in the bycatch landings, which really should be considered in any quota reallocation.

CHAIRMAN BALLOU: Good point. I like that idea; yes, Emerson.

MR. HASBROUCK: To add to what Jim and Roy had said, I would say and in the bycatch numbers as well as the episodic event landings as well.

CHAIRMAN BALLOU: Yes, all duly noted. I actually don't see what's going on up on the screen, but I know Megan is writing everything down, and I know Amy is doing her best to capture the thought. But it all makes sense to me, so far.

MR. NOWASKY: Just as a general comment, I think that there are some great minds getting information out, and certainly, the public consumption element of it is important. But we're starting to add an awful lot that almost looks like the draft itself. I think one of the important things we want to make sure we do is leave open general comments, as we put in all these specific issues, options.

Sometimes it gets the public to key in, latch on to one of those options, and it doesn't generate the free thought that sometimes we can get out of these. I don't know how we encompass that. Again, I certainly don't want to dismiss the thoughtfulness that's going around, but I hear and see all these options that are being generated; and it's almost starting to look like the amendment itself to me. I just wanted to put that forward.

CHAIRMAN BALLOU: Sure, we could do a PID that just asks, what do you think we should do with menhaden? But no, I take your point. I think it is a point well taken, Adam. I didn't mean to be too facetious. I think the open

ended questions are in here, but I take your point that they are followed by a bunch of specific options. We need to be careful about making sure we've got the right balance between open ended questions that we really want to solicit good thinking and good brainstorming on, versus here is the limited number of options that you have to consider.

We don't want to do that. We want to make sure the public gives us all their thoughts on the full range of issues that they would like us to consider. I think it is a point well taken. If anyone has any specific suggestions for -- Adam, I'm not sure if that was just sort of a general comment, or whether you had a specific request to change something. I think your point is well taken. I'll just leave it at that. Jim.

MR. GILMORE: Just a quick clarification for Amy. It is actually adding Option D to that issue.

MS. FEGLEY: I still sometimes wake up in a cold sweat remembering the allocation conversation that we had in 2012, when we talked about the various reference periods that we could use. In that conversation in 2012, the reference period that we ultimately chose was justified in part by the quality of the data.

There was a lot of conversation about the fact that the data quality from earlier time periods just wasn't there. I just wonder if the document should speak to that a little bit, so the public isn't working under the assumption that all of those years are created equal in terms of the data quality. I mean, clearly, that was an issue for New York. It concerns me a little, but I just don't want to lose sight of that; because we did use it as justification for a reference period.

CHAIRMAN BALLOU: Good point, well taken. I would like to revisit just a quick Q & A which I had with Megan, just on the record. I'll make sure she's listening to me. I had asked her at

the end of the first paragraph under Issue 3, there is a sentence that reads; regardless of the allocation scheme chosen in Issue 2, historic landings will be used to allocate the TAC. I think my point blank question to her was what exactly does that mean? I would like to give her a chance on the record to answer; in terms of her interpretation, and then make sure the board is comfortable with that language.

MS. WARE: The question was added following the advisory panel call, during our call with the PDT. On the AP call there were some questions going back to the allocation method, there was a sentence that said there is concern that this is not a fair and equitable allocation method that we're currently using. There was some consternation over that sentence; especially the fair and equitable part.

Noting that we're using historic landings to allocate, how could that not be fair and equitable. We tried to reword that. But I think also try and address some confusion on what else would we use besides historic landings. At that point we were just trying to clarify that we are still using historic landings to set the TAC, regardless of the method chosen. It is just what method and what years we use.

CHAIRMAN BALLOU: I guess I'll just say that I'm trying to think that through and make sure it is reconciled with the ERP section of this. If the board is comfortable, fine. If not, I was just struck by the potential awkwardness of that sentence.

MR. G. RITCHIE WHITE: I guess I have a problem with that wording. I guess I would rather have maybe used something like in part, historic landings will be used in part, so it doesn't tie us to this process. If we figure out some new method we decide on, we shouldn't be locked in with that.

CHAIRMAN BALLOU: Ritchie has offered a suggestion that we amend that sentence to

read, in part. We'll add that up as a suggested change.

MR. SIMPSON: Where is this exactly, so I can catch up with it.

CHAIRMAN BALLOU: I don't know if I have the right page. For me, I have Page 15, it is Issue 3. It is Page 13, Issue 3; Allocation Timeframe Background. There is a paragraph there, and the last sentence in that paragraph reads, regardless of the allocation scheme chosen. Do you see that now?

MR. SIMPSON: There were alternatives that would not require any historical basis. In other words, I think, in particular, the size of the fishery, small scale fisheries, medium scale fisheries, large scale fisheries, would not necessarily have to be history based. You could argue that a small scale fishery there is a cap at 2 percent. That is what we're picking and that is what will be allocated, and it will be shared among all the states that have small scale fisheries. It will get us out from under the concern that this or that state with their small scale fisheries didn't have proper accounting of landings. I would like to remove that sentence, because I think there are clear alternatives that don't require any look into history. I think we can do it without that.

CHAIRMAN BALLOU: We have a couple of suggestions, one would be to remove that sentence entirely; the other would be to amend it to insert in part.

MR. DAVID V. BORDEN: I would just like to go on record as supporting the comment that both David and Ritchie made. It may be more accurate if we said something like; historic landings may be used, depending upon the alternatives selected.

CHAIRMAN BALLOU: That sounds fine too. I find myself starting to wonder, what are we really trying to say, if anything, that isn't already

evident in the document? I mean is there really a need to say anything? I'm leaning toward the sentence doesn't really need to be there. That is my sense.

Is there any strong objection to just removing that sentence, with the understanding that the options speak for themselves; in terms of whether they rely upon historic landings or not. It doesn't seem like there is any objection, so we'll remove that sentence. Other thoughts or any other suggested changes on Issue 3? I want to make sure I covered my own comments here. Yes that was the only one I had, so we're on to Issue 4; Quota Transfers and Overage Payback. Anything on that? Ritchie.

MR. WHITE: I don't have the document in front of me, because I don't have web coverage. The rollover provision, I would like to see something in there that a state would have the option to not have their unused quota rolled over; in other words, if a state wanted to be more conservative, and I would give the example of striped bass.

New Hampshire has a small commercial striped bass quota. New Hampshire chooses not to use it. We could allocate that to recreational fishing if we so desired, but we choose to not harvest it as a conservation measure. I think there ought to be that opportunity for the public to weigh in on that in this instance.

MS. WARE: Ritchie, maybe we could formulate that into a question, so if it were something like, should states be required to transfer unused quota to a common pool or could that be voluntary? Something along that line, would that be okay? Okay.

CHAIRMAN BALLOU: Other suggestions on this issue? Seeing none; we move to the next issue, which is Quota Rollovers. Any changes to the document on the issue of quota rollovers, seeing none; and if anyone thinks of something as we get closer to the end here and they want to go back, that would be fine. But we'll just

continue on to Issue 6; Incidental Catch and Small Scale Fishery Allowance.

I'll just note right up front that I think it might be misleading to say that the intent of the bycatch allowance is to account for incidental catch. That is the wording currently used. Since that implies that bycatch is accounted for as part of the TAC and since that is not the case, I think it might be more accurate to say that the intent of the allowance is to accommodate and track incidental catch; really just a sort of subtlety there.

But I think it's more accurate to say that we account and track incidental catch via the bycatch. We don't account, because it just, again, suggests that it is accounted for as part of the TAC. That was one thought I had. Then I just wondered whether Option A should be characterized as status quo, since it reflects the current state of affairs under Addendum I. Megan and I have gone back and forth on this. You can either look at Addendum I currently as status quo, because it has been adopted and is, indeed, a part of our program under Amendment 2.

On the other hand, is it more of an interim measure until we tackle it again under Amendment 3? Again, a subtlety there, but I just was wondering if the board had any thoughts on whether we want to. We sort of do that throughout the document where we offer options. Option A tends to be status quo, so I just found myself wondering whether we should do that here. Those were just the two thoughts I had; additional thoughts from the board? Yes, John.

MR. CLARK: I agree with you. I would like to see status quo in there, so states where this is an important part of the fishery would understand that's what it is. I just found in the whole description here, it is a little confusing. I understand wanting to go to incidental catch from bycatch; but the two terms are used

throughout the description, and it does get a little confusing.

I think, if we're going to change it to incidental catch, explain that in the first paragraph, define it, and then use it consistently; because I said, it goes back and forth. Even when we get to the statement of the problem, it says incidental bycatch limit. Then when you go to the options, it is incidental catch. Consistency here would really help the public, I think.

CHAIRMAN BALLOU: Very good point, I think; yes, Lynn.

MS. FEGLEY: I am still struggling with this one a little bit. With Amendment 2, when this came up, really the crux of the issue here was, there is a difference between a fishing gear that is completely passive that only encounters what swims through it, as compared to something that you can actually go out and seek out menhaden to set on.

The problem with the stationary gear is really, initially when we were going through Amendment 2, is that call it targeted or call it bycatch or call it incidental, call it what you will. These gears, they don't move and the end result of shutting them down for a menhaden quota, might be shutting down the other fisheries that those fish harvest or really ugly discards of dead menhaden.

I guess I am throwing it out to the board for conversation. I don't know if it would be helpful to have a clear explanation of sort of the issue here, why bycatch was identified as what it is. I'm not sure I'm making sense, and I might just have to think about it; and maybe Megan sends you some stuff. I feel like we're confusing bycatch and we're confusing the gear issue. There are sort of two separate conflating issues going on here; for what it's worth.

CHAIRMAN BALLOU: Rob.

MR. O'REILLY: It seems that we all participated in characterizing our bycatch, and ASMFC staff has that. Maybe next time that we meet, or whenever, we can go over that and sort of delineate exactly what Lynn is talking about, in terms of the passive gears versus others. The ASMFC staff has the characterization of the bycatch, by gear type. That is something we can look at and there could be a determination that certain gears might be under a cap, which is one of the options here, Option D; incidental catch and trigger, and other gears may not. But since we just left an issue where we're thinking that if we try and change the timeframe from 2009 to '11 to anything else; that we would include the bycatch, you know the 6,000 pound allowance in that. We'll have to sort all that out.

CHAIRMAN BALLOU: I think I followed you. Are you just commenting on the challenge of addressing this issue, or do you have any suggested changes for the document?

MR. O'REILLY: The change I think would be under D, there is a cap. But there are gears that are stationary, and it may be that those gears are treated differently than those that aren't stationary. I don't know how you would word that; because it is really a combination of D and C.

CHAIRMAN BALLOU: I know Megan is scribbling down everything you're saying, and I think she is going to give it her best shot to try to take your suggestion. She's nodding yes, so I think she is going to put her brain to work on that one. Is that good with you for now?

MR. O'REILLY: I think that's fine. I think what the intent here is that we know there has been growth in unexpected fisheries, and we know that in a lot of areas there aren't limited entry, so that growth is going to be there; but how do we address that? One way we already talked about is to include the bycatch as part of the total jurisdiction or state landings.

The second idea is that perhaps there is a cap for those gears that are not stationary, and that the stationary gears really have a situation where they are status quo to the Amendment 2, where you have that 6,000 or 12,000 pounds with two licensees. I think we can work that out later, but that is the gist of it.

MR. THOMAS P. FOTE: Are we overcomplicating this? I mean we're getting into the nuts and bolts altogether. I thought this was a draft amendment to go out for public information. We're sitting here trying to go through all the nuts and bolts that we basically can think of. We're going out to find out what the public thinks we should add to this document, and then we'll sit around and do this.

We could sit here and micromanage what we're going to send out to a public information document. But we're really looking for the comments from the public. As long as we give them a general idea of what we're doing, but we shouldn't be this specific.

CHAIRMAN BALLOU: That is certainly consistent with Adam's comment, and it is a tough balance here. You want to provide open ended questions, but you want to give the public something to go on; in terms of thinking through the various options. It is a balance, and I appreciate the comments on both sides of the table; Tom, a follow up?

MR. FOTE: Is the public going to read that 87 page document it looks like we're putting together here? It is like when Kirby sent out the stuff on summer flounder, it was concise, it was easy to read. I even understood all of it. It was not that badly written, but we get too complicated, too many pages, we're going to basically scare the people from actually opening their mouths. I would like to get a shorter document so the public can read it and get the answers of what they want.

MR. CLARK: Sorry to complicate things further, but I was just wondering under what Rob was just talking about, if that could be changed to active and passive gears; because I know a lot of our bycatch comes from drift gillnets, which are not stationary.

CHAIRMAN BALLOU: Any objection, Rob, to active and passive?

MR. O'REILLY: I'll come back to your simplification under the quotas, and there may just be a question. Does stationary fixed gear need to have their incidental catch counted against the states landings or states quota? Maybe that is just a question then, and that would be the easiest thing for people to respond to.

CHAIRMAN BALLOU: I like that thought. Roy.

MR. MILLER: Mr. Chairman, I need your opinion on this. It seems to me that we have to keep our goals in mind here. A problem in our particular state has been that more than 100 percent of our landings have been bycatch. In other words, our total landings have been averaging around 150,000 pounds, yet our quota allocation is, let's say 50,000 pounds; just to round the numbers off. We've got to avoid that. Is what we've outlined in Issue 6 a way to get out of that conundrum, in your view?

CHAIRMAN BALLOU: Well, I appreciate the question. I think you hit the nail on the head, in terms of we are trying to address what has been a very confusing issue in our management program, and that is how we're handling bycatch. I think absolutely, positively, Issue 6 is intended to get at this issue. Again, this is really, I'm not sure I'm prepared to offer a yes or no answer. It is our goal. It is our goal, Roy.

Yes, that is the goal or this issue, is to ensure that we have given the public an opportunity to comment on how we can better address the issue that you just spoke to, in terms of what is

a very important one for Delaware, and frankly up and down the coast. I look to the board for thoughts on whether this is perfectly presented, or whether we can do anything to better present it. But the goal is, indeed, to try to fix the bycatch issue. I'll just leave it at that for now.

MR. SIMPSON: I was going to say, Roy, this is the section I am hoping resolves a lot of this and a lot of the issues of state-by-state allocation; and that's Option F in particular is what I was looking to, to get us out from under that. There is a coastwide set-aside for a subset of gears that we define in this amendment.

Whatever they catch under some determined trip limit, 6,000 pounds or whatever it is. That counts toward this overall set-aside. It is accounted for, but you're not having two-thirds of your catch outside of your quota. Clearly it is part of this coastwide set-aside, and the states are relieved from having to monitor a menhaden quota.

CHAIRMAN BALLOU: Thank you, I think that helped a lot. Other thoughts on this issue, I think we've got two more; the next being Episodic Events Set-Aside Program. Thoughts on that issue as currently presented in the PID. Any suggested changes? I think there is a fairly good range of options offered. Well, actually a fairly good number of questions offered; in terms of it could be better configured. Has the issue been adequately addressed? Seeing no hands; I'm going to assume the answer is yes, and we'll move on to the last issue and that is the Chesapeake Bay Reduction Fishery Cap; any requests or comments regarding that? Seeing none; why don't we pause the board discussion and see if anyone from the public has any comments that they would like to offer to the board on any of the issues as set forth in the PID. Yes in the back.

MS. BICHREST: Hi, Jennie Bichrest from Maine, and I'm also on the AP. I guess I just want to

make sure before we leave this meeting today that there are going to be other options back in the allocation, because you have not been that specific. I understand this is just the draft, but I also don't want to leave here today not knowing that there is going to be an option that includes historical landings; because we are one of those states who, we don't have a fishery all the time, but we had huge landings back in the eighties. They were very significant.

I just want to make sure that those years that there is going to be an option in the document that includes those. You've mentioned it in here. But I don't want to leave here today not knowing that the board is at least in agreement that that should definitely be an option provided to the public, because we really got hurt in this. If you don't include some of those years, if you include the most recent years, which I heard somebody suggest, yes those are very still inhibited by the quota reduction and the allocations the way it came out.

We could have had a lot of fish this year, but we thank God, had the episodic event that we could work on. But we could have caught a heck of a lot more fish if we had a quota to begin with. To go with the most recent catch numbers is a joke too, we're still not going to get any quota. I would please encourage you to make sure you've included some that includes some historical landings.

CHAIRMAN BALLOU: I would represent that under Issue 2, Option B, it is called longer time series average. It is an open ended option that would allow for comments on what a longer time series might be. My take is that the document does indeed invite that sort of comment and input on that issue. Thank you for that and I feel comfortable that the document covers it, but that's just my own opinion. If any board member has a different opinion, I'll let them speak to it.

MR. STOCKWELL: I share your level of comfort and want to point out to Jennie that Option C, the weight allocation, also offers two different time periods; one more distant, one more recent. I think we have the options in here to look at alternatives other than at the status quo.

CHAIRMAN BALLOU: Other comments from the public? Seeing none; we'll come back to the board. At this point, well let me just ask, are there any other comments from the board on any other issues in the PID or aspects? Yes, Wilson.

DR. LANEY: I would just ask that we do take the AP recommendation that we add a section on research programs and priorities. I think those, Megan, are already available; or did we already do that? If we haven't done it, you know the AP suggested it, and I certainly would support that. I think we already have those, Megan, you know we do the compilation every two years, I think, of all the research needs; and then we prioritize those for each species. I think that is just a matter of cut and paste from what we already have on that particular topic.

MS. WARE: Wilson, I hadn't looked back at those research recommendations for menhaden, but what I'm hearing just conferring at the table is those might be a bit old for menhaden. But we do have the 2015 stock assessment that had research recommendations. If you're comfortable with that we'll put those in.

DR. LANEY: Yes Ma'am, I am fine with that. Perhaps we might just run those by the TC real quickly, just to see if they have any suggested updates to those.

MS. WARE: I can try and do that, Wilson. Just so the board knows, we're on a pretty tight turnaround time to get this out. The PID does have to be out for 30 days before we can hold a public hearing, and 14 days after. With the

holidays that really does put some crunch on this document. The goal is to get it out Monday or Tuesday of next week. I will send an e-mail to the TC, and see if there are any comments, Wilson.

CHAIRMAN BALLOU: Again, this is a PID; this is not the draft amendment. I don't think it's so vital that we capture all the research recommendations; that would be a draft amendment issue. For the PID it is really, should the amendment include research recommendations, and perhaps reference those that have already been offered through the stock assessment and leave it at that. I don't think we necessarily need to have an updated list before the PID goes out, because we're really just scoping the issues, not trying to resolve them as has been noted here today.

MS. MESERVE: Perhaps that section could also address Terry's suggestion, with a question about should part of the quota be set aside for research.

CHAIRMAN BALLOU: I like that combo approach, thank you, good suggestion; anything else? If not, I know Amy, I haven't been looking over my shoulder, but I have full faith and confidence that Amy has been doing a yeoman's job capturing the comments as they've been offered.

What I'm going to ask for is a motion that would be a motion to approve the Public Information Document for Amendment 3 to the FMP for Atlantic Menhaden, including the changes agreed to by the board at its October, 2016 meeting or we could say, with the following changes and list everything that is up on the board.

It is really your preference, in terms of how you want to handle it. I know when we did Amendment 2 I went back and the motion included all of the changes. Whether we just reference the changes and use the record of

this meeting, or whether the motion includes all the changes; that's your call. Robert.

MR. BOYLES: I'm going to take up my colleague, Dr. Rhodes, and suggest that brevity, what is it brevity is the soul of the wit or something. **I would move to approve the Atlantic Menhaden PID, with the additions suggested and discussed by the board here today; and approve it for public hearing.**

CHAIRMAN BALLOU: Is there a second to that? Seconded by Jim Gilmore; so moved by Robert Boyles, seconded by Jim Gilmore to approve the public information document for Amendment 3 to the FMP for Atlantic menhaden, including the changes agreed to by the board at its October, 2016 meeting; comments on the motion. Cheri.

MS. PATTERSON: I would just like to recommend that we add to that that not just these suggested changes, but also editorial changes that you have allowed to continue until Friday.

CHAIRMAN BALLOU: Would you like the motion amended to reflect that?

MS. PATTERSON: Yes, I would.

CHAIRMAN BALLOU: Robert, are you comfortable amending the motion to include editorial changes submitted to the FMP coordinator by the close of business Friday. That's a wordy motion, but I think that is what I just heard recommended.

MR. BOYLES: Absolutely I would be more comfortable with a substitute, no – that's fine. Yes, I'm comfortable.

CHAIRMAN BALLOU: Jim, as the seconder are you comfortable? Okay, so let's amend that motion accordingly. I like that because it puts a date certain on when the changes need to be into Megan, anything after Friday, close of

business too late, too late; other comments on the motion.

Is the board ready to vote on the motion? If so, is there any objection to the motion? Seeing none; the motion passes unanimously by consent. Thank you very much, I thought that was an awesome job working through the document, and away we go with the Amendment 3 process.

TECHNICAL COMMITTEE REPORT REVIEW OF "THE FATE OF AN ATLANTIC MENHADEN YEAR CLASS"

CHAIRMAN BALLOU: We're on to Item 7, the Technical Committee Report on the paper titled "The Fate of an Atlantic Menhaden Year Class," and for that I will go to our TC Chair, Jason McNamee.

MR. McNAMEE: Hello, so I have a brief presentation here, I'll try to go real quick. We had a Menhaden Technical Committee Conference Call, and that is what this is in reference to. We reviewed the updated analysis for the paper, The Fate of an Atlantic Menhaden Year Class by Peter Himchak. We had originally reviewed this analysis that Mr. Himchak did back in June.

We gave him some feedback, we also offered that feedback to the board, and then in August you all requested that we catch back up with Pete, he had worked on the feedback, incorporated I think a lot of it, and so we re-reviewed it. The Technical Committee commended Mr. Himchak's efforts to analyze impacts of fishing mortality on the menhaden stock.

We also appreciated the fact that in this, one of the things we had offered him was, it was important to include natural mortality in the updated analysis, which he did. We're just going to offer a couple of additional thoughts. It is important to understand that this analysis

provides one perspective on how a hypothetical year class erodes over time.

But it would be helpful to provide a parallel calculation, which focuses on the mature portion of the population. Just to get into a little more detail on that. Menhaden reach 50 percent maturity at Age 2. The roughly 13 billion fish, which are removed from the population, due to natural mortality, before they mature; never really contribute to the recruitment of the stock. They are not involved in that part of the population dynamics.

We felt it was more appropriate to understand the harvest as a percent of the mature population and not the entire population, including the juveniles, the young-of-the-year in those earliest years. Additionally, given selectivity, a focus on the ages 2 and older, this would address our previous recommendation of evaluating the impact on the harvestable portion of the population. That was a piece of feedback that we had given Pete before as well. The analysis highlights the large impact that natural mortality has on the juvenile portion on the menhaden stock. You can see that in the analysis that Mr. Himchak did.

But it is important to put that in context, and so while the estimate of M at age from the 2015 benchmark assessment is the best available science, that is why we used it. There is still a lot of uncertainty in this calculation, in fact its time and varying in a way that we used it, and we know that is not the case.

As a result, the calculation of M in the analysis is only as good as the estimates from the assessment. These calculations of M, thinking kind of down the road a little bit, could be improved, and hopefully, we'll have some better information on natural mortality; based on the work being conducted by the biological and ecological reference point working group.

Just a final slide here, and as I kind of reread this, it sounds kind of finger waggy, and that is actually not how we meant it, it was actually more of a constructive comment from the TC. I'm not going to read any of these, but I'll offer you what we actually meant. We received this analysis kind of without much context, and so what we were struggling with was how to approach our comments.

We certainly offered feedback back to Mr. Himchak that was obvious enough. But if there had been some larger context, if the board was thinking about this analysis, they wanted to, I don't know, just to offer an example, use it as a model external type of analysis that you wanted to look at. That could have focused our comments a little better. In the end what we want to provide you is what you want to know from our review, and so that's what those bullets mean there. With that I'm happy to take any questions anyone has.

CHAIRMAN BALLOU: I know Mr. Himchak is here, and I would like to invite him up to the microphone to just offer some brief comments. Pete.

MR. PETER HIMCHAK: Thank the Commission and the Technical Committee for affording me the opportunity to get grilled during two webinars by the Technical Committee. It is not something I would like to do on a regular basis. But this product came out in February; I did it for the Menhaden Fisheries Coalition.

Basically, I mean I set at this board for seven or eight years, and the numbers are mind boggling; the numbers of fish in the population at each age, the harvest at each age. It is all in the assessment document. What I was trying to do is put some context in 1 percent or a metric ton. How many fish is that and what does that represent in the overall scheme of the population?

I took the assessment document, you can follow any year class, and I recommend you do this. You take the SEDAR 40 document, you follow a year class from 0 to 6 plus, and you look up the reduction landings from 0 to 6 plus, and you'll come up with some analyses like this. You'll see, well we started out with 15.4 billion zeros that were recruited to the fishery, and we ended up with 171 million six year old fish.

Well, what happened to all the other fish? There were just under a billion, just under a billion were harvested from primarily 2, 3, 4, and 5s. Where did all the other fish go? I agree with the Technical Committee. You want to look at fishing pressure. Certainly the two to four year old fish, that is where the Fs are calculated, that is most appropriate. But my message was more to define what the ecosystem is taking out of a year class.

If you look, and again I welcome you to just take the assessment document, it is not complicated math, by any means, and track a year class. You'll find that you lose 10 billion or so going from 0s to 1s. Well, where do they go? Natural mortality, and yes the data are only as good as what's in the assessment document. But I mean that is what exists.

In essence I agree with the Technical Committee on their first bullet. My responses are in a six page document that is in the supplemental materials. I welcome you to read that. Yes the TC was reining me in on exploitation rates. I didn't want to go there. Basically we came to an understanding, I think. My message was a little more based on the year class and not on the fishery. As far as assessing fishing impact, all I did was measure what occurred over a ten year period, from 2004 to 2013. That's all I did. I'll take any questions.

CHAIRMAN BALLOU: Thank you, any questions for either Jason or Peter? Seeing none; is there any further tasking that the board would like the TC to undertake on this issue? Emerson.

MR. HASBROUCK: Not directly related to this issue, but someone tangential to it. I don't know if the request is better directed to the Technical Committee or to the committee looking at the biological, ecological reference points; that working group. I'll raise it now. You can direct it wherever you feel it most appropriate, if you feel it's appropriate.

Something I've been thinking about relative to an ecological approach to menhaden is, how do we explore the impact that menhaden has on other species? We know that menhaden are filter feeders, and they graze on plankton. But some percentage of that diet is ichthyoplankton. They are being distributed further and further along the coast now.

What I keep thinking about – and I've tried to look into this and haven't gotten very far – is what is the impact on other species, things like striped bass, weakfish, maybe tautog; other species as well? What is the impact of grazing on ichthyoplankton, of another species, of a larger and larger biomass of menhaden? How do we get at that and how is it relative to this ecological approach discussion?

CHAIRMAN BALLOU: Jason.

MR. McNAMEE: I appreciate the thought. I'll say a couple of things. There is some information on what menhaden are filtering by way of particle size and things like that. I don't know if it gets down into species specific stuff, but folks like Kevin Friedland and other researchers have looked at this.

It is certainly something we can look at. I think in a very, not as a specific way as you're thinking about, Emerson, but one of the things that we're working on with the BERP group is feedback. As prey populations decline there is often believed to be a feedback that will then have the predator population decline. I think we mainly think about it by way of constraining growth and that. But there may be something

we can think about there; all of that being said, it's very interesting. It is really not an element of what we currently have on our plate that we're analyzing for this current push. I'll just offer there is potentially something there; we're not working on that specifically right now. If that were something that people wanted to look at, I would suggest you might want to let us get through this first sluggo work before we add in new elements. But it is up to the board.

MR. HASBROUCK: Yes, I realize that it's not something that the Technical Committee is currently working on. It is just something that I've been thinking about in terms of the grazing potential, if you will, of menhaden on ichthyoplankton and how that may affect other species. It is part of an ecological approach. How we get at that and how we utilize that I am not sure. I guess the first step might be for the Technical Committee to provide some guidance back to the board on how we can do that.

CHAIRMAN BALLOU: Does the board wish to task the TC with following up on Emerson's suggestion? I would like to get some comments on that. Bill.

MR. GOLDSBOROUGH: This issue was brought up several years ago, was looked at, and was, if I'm not mistaken, considered to be not a significant problem. But if it is going to be looked at, I guess I would suggest that we look back at the record of that deliberation and whatever analyses did take place at the time. I probably have some of that in my file, so I could take a look too. But it was not considered to be a big issue when all that work was done. I did have another comment on Mr. Himchak's paper when it's appropriate.

CHAIRMAN BALLOU: I'm going to come right back to you on that. My sense, Emerson, whatever Bill was just referencing will be pulled out, provided to the board and then we'll circle back to this issue after we've had a chance to digest what's already been done; and then we'll

sort of see how that looks, and whether we feel like it is something that we want to pursue.

Does that make sense as a short term response? Okay, I see a nod yes. Bill, if you don't mind, if you could provide Megan with what you have or what you know of. We'll do our best to circulate that to the board and we'll revisit this at a subsequent meeting. If anyone has any objection to that approach, let me know. If not, I would like to proceed in that way. Bill, you had another comment?

MR. GOLDSBOROURH: Yes. I just wanted to comment that I think there is value in looking at menhaden abundance, as Mr. Himchak's analysis did, and note that that is something that the conservation community has advocated for many years, because it is the general view that numbers of prey is really the most important variable for predators.

One option would be to evaluate the degree to which reference points could be constructed around abundance, but we've never seen an avenue toward that; so maybe it's not really feasible. But I did want to note though that if we look at the results of the last assessment, the terminal value for abundance is near the all-time low. Our current state, as it were, is not good in terms of numbers of menhaden. The ecosystem does feel that effect.

CHAIRMAN BALLOU: Rob.

MR. O'REILLY: I just wanted to, if I may, Mr. Chairman, ask Jay a question. One of the slides, Jay, indicated that the biological and ecological group will be working towards a better understanding of natural mortality. With the work that was done by Mr. Himchak, is it your take from the Technical Committee process that there is a stimulus provided by that paper that Mr. Himchak did?

MR. McNAMEE: How to answer this. I guess what I'll offer, Rob, is what Mr. Himchak did

was use the natural mortality that was already in the assessment. That is what he applied to it. I don't mean to denigrate what he did by any means, I'm just saying it's sort of, he took that from the assessment, he said that himself. He didn't offer anything new with regard to natural mortality, I guess. Maybe I could say it that way.

CHAIRMAN BALLOU: Additional comments, seeing none; I think we'll move on. There is one more comment? Oh, David, sorry I didn't see your hand.

MR. BUSH: No worries. Quick question for you, I remember in one of your earlier portions of the earlier presentation. You had mentioned the potential for an allocation shift if we were to deal with it in the future that selectivity that leads to a stable recruitment event might be changed. I don't know if you've put anything out on that already, and I apologize if I haven't caught it yet, but maybe that might be something for folks to take into consideration when considering an allocation change as well. That might be a little off the beaten path, but I figured I better ask.

CHAIRMAN BALLOU: Okay, thanks, duly noted. Before we move on to the next item, I failed to sort of do my little quick wrap up on the PID. Pardon me for jumping back one item, but I'm not jumping back to the PID item. I just want to make sure the board is clear on where we go from here. Megan will aim to finalize the document by next week. I will seek the assistance of our Vice-Chair Russ Allen in reviewing the final document, to ensure that it accurately reflects all of the changes agreed to by the board today. Megan will then need to quickly coordinate with state directors on hearings.

If you wish to hold a hearing on the PID in your state, please let Megan know ASAP, ideally by the end of this week, if not sooner. Within the next week or so, a public notice will be issued

with a link to the final document, and listing the dates, times and locations of all the public hearings. This is going to roll pretty quickly, and Megan does need to know as soon as possible.

She wasn't suggesting we do a show of hands now, she just was asking that you please contact her within the next day or two, if possible, to let her know whether you would like to have a public hearing on the PID in your state. Again, I wanted to let you know that Russ has agreed to assist me in reviewing the final document to make sure that it's good. We're going to roll with this thing. I think the goal is to have all the public hearings completed by the end of the calendar year, is that accurate?

MS. WARE: Yes, I'm hoping by before Christmas. That will give us enough time to enjoy Christmas, and then also for the public comment period to wrap up and be able to summarize the written comments we received.

BERP WORKING GROUP PROGRESS REPORT

CHAIRMAN BALLOU: Thank you, and again, my apologies for forgetting to wrap that into the end of our items; back to the order of the agenda. We are now onto Item 8, which is a Progress Report on the status of the BERP Working Group's efforts to develop ERPs for Atlantic menhaden. Shanna.

MS. SHANNA MADSEN: I see we're all saving the best for last here. To start off with, I just want to put a slide up, kind of reminding everyone of the BERP Work Group's timeline over these next few years; and this coincides with the timeline that Megan had given you earlier. As a reminder, last year we had reported out on the outcome of the Ecosystem Management Objectives Workshop, which established management objectives moving forward for menhaden.

After that point, the BERP had a meeting where we kind of identified the intersection of those goals and objectives, and the actual modeling

approaches that we were considering. From there we kind of honed down those modeling approaches, selected a few, and we presented those to the board.

The board did recommend that the BERP move forward with those modeling approaches, so we actually met this past March to put together a general timeline that I presented to you during spring meeting week. The first thing that I have up there is kind of a big, red reminder that this is the first time that we're really attempting to do this level of multispecies modeling to generate ERPs.

The timeline that we have up there is a very ambitious one. We're essentially doing multiple models with multiple species in the same timeframe that you typically do a single species assessment. I just really want to take the time to kind of point out that the group that I'm working with is an amazing group of people.

They're working really hard. We understand how imperative it is for the board to have these answers, and we're trying to go as quickly as we possibly can. If you want to make people go faster, I suggest maybe we give everybody raises; but that's beside the point. I am very cautiously confident in our ability to get this done by 2019, and have it wrapped up and go to peer-review with a BAM model.

To start off with what we decided to do, is that we're going to hold modeling workshops. Essentially, this is a way to give the committee some time to get to know these new modeling approaches. They're very novel. We have some that are being externally developed, so it gives us some time to sit down, understand the back end of these models and kind of tear them apart and provide some suggestions.

We started that off this year in 2016 with the Steele-Henderson Workshop, which was completed back in July; and I'll talk about that in just a second. I have two more scheduled for

next year. One is our multispecies statistical catch-at-age model. That one is being developed by none other than Jason McNamee.

We have another production model in development externally that we'll also be reviewing in 2017; that is the TVR workshop that you see up there. In 2018 we anticipate probably having about two data workshops. Again, I know this is a little bit different than what you're used to seeing, reason being that we'll need probably two data workshops, because we're compiling data for so many different species, not just one. That's going to take some time and some vetting. Then in 2019 we anticipate being able to get through our assessment workshops, and eventually put that all through to the peer review with the BAM model at the end of 2019.

A brief update on what happened at our July modeling workshop. As I mentioned earlier, we were focusing in on our Steele-Henderson Production Model. We had a subcommittee that was essentially trying to convert this modeling approach to a format that was a little bit more easily accessible to the rest of our committee, so they could take the time to really sit down and look at the model and understand it.

We vetted that model very thoroughly. I have to say it took some time. I know, Bob, you sat in and listened in on that one. We tested the stability of the model and made some suggestions for the model set up. At the end of that meeting the group decided that we wanted to try and shift that model into another framework, and some of our other leads are working on doing that right now.

We heard a couple of updates from some of our external models that are being developed, as well as had an update from some of our other modeling leads. From there, we had a call in October, and we ran through modeling

simulations with that external production model that Dr. Jenny Nessler is working on.

Our near future plans, we will be having a call; I think I set that one for December now. I wrote this before I set that call. We have a call in December to discuss further progress on that Steele-Henderson Model. From there, moving into next year, we hope to hold our next modeling workshop to review Jason's model; obviously once he's all wrapped up with his dissertation, so no pressure, Jay.

As we previously outlined before, we're going to try to make sure that we keep you guys completely informed of the situation each May, meeting week, and each meeting week that we have during annual meeting; just letting you know where we're at and keeping you in the loop on everything that we've been working on. With that, I would be happy to take any questions.

CHAIRMAN BALLOU: Questions for Shanna? I think it is hopefully abundantly clear that we have a process going on that does not sync with the Amendment 3 process. We just have to ensure that we're going forward with eyes wide open, and I think these regular updates help remind the board as to where this process is, and what the timeline is associated with it.

I appreciate the update; any questions for Shanna? Seeing none; we're on to our last agenda item.

REVIEW AND POPULATE ADVISORY PANEL MEMBERSHIP

Maybe if one of you guys wants to allow Tina Berger to come up, I would like to have her joint us up front for this last item, AP Membership. There are two issues to be addressed by the board; one is nominations to fill current vacancies on the AP. I believe there are eight nominees being recommended to fill existing vacancies.

Then there is a request from Virginia to add a third seat; that being a nontraditional stakeholder with experience in all sectors of the fishing industry, recreational, for-hire and commercial. That request requires the board to evaluate the current configuration of the advisory panel, and decide how it wants to proceed. We may need two motions on these two separate but related issues. But I just first want to take a quick step back and review where we are with regard to the configuration of the Menhaden AP. I actually did a little work here on looking at how it's currently configured. If the eight nominees pending before the board are all approved, the AP will have a total of 24 members; 11 commercial, 10 recreational, 2 what I would call sort of hybrids, they are both commercial and recreational, sort of a combo there, and 1 conservation.

One state will have three members. Seven states will have two members. Seven states will have one member, and one state will have no membership on the panel. That's the current configuration. My read is that that represents a pretty good balance on the AP with regard to recreational and commercial representation, but there are some obvious differences in the number of panelists from each state.

What is the pleasure of the board? Is the board comfortable with the current configuration? Is the board comfortable with the eight nominees? How does the board want to handle the request from Virginia to add a seat? I am intending those to be thoughtful questions, because I think we need to kind of come to terms with sort of the two pieces there.

One is the current nominees that have been put forward. By the way, I failed to note, I think, the excellent job that Tina did with her memo that essentially addresses these same issues, and offers the board some ways forward. Now is the time to offer thoughts on a way forward. Robert.

MR. BOYLES: I don't have the benefit of having done work, and I appreciate your laying that out for us. My reaction is 24 members on the advisory panel is a very, very large advisory panel; to say nothing of who is on the panel or who is potentially going to be appointed. It makes me go mmm, we have that many folks. I'm grateful again for as much interest, but I wonder is that a good number? It seems high to me.

CHAIRMAN BALLOU: Of course, this being a coastwide resource that we're managing, it seems no surprise that this might be one of the larger APs. But I take your point. Other thoughts on the issue, and I'm happy to take this in the form of two separate motions, one being a motion on the eight nominees that are before the board for consideration, and then a second motion or discussion on the Virginia request. Actually, let me go to Dr. Duval, and then I'll come back to you, Bill.

DR. DUVAL: I am prepared to make a motion with regard to the eight nominees. I did just want to, before I do that, quickly say that North Carolina, we are one of the states that has two seats; but if these nominees are approved, we will have only one appointee to the advisory panel. Our open seat would be a commercial seat.

Given the interest, I would still want the opportunity to be able to fill that. **With that; my motion is move to approve Bob Hannah, Patrick Paquette, Dave Monti, Meghan Lapp, Paul Eidman, Leonard Voss, Peter Himchak and Scott Williams to the Atlantic Menhaden Advisory Panel.**

CHAIRMAN BALLOU: Is there a second to that motion? Seconded by Bill Adler, moved by Dr. Duval and seconded by Bill Adler to add the eight nominees, whose names are up on the board right now? Discussion on that motion, Nichola.

MS. MESERVE: If this motion is approved, then it looks like Virginia will have two commercial representatives, and I was just looking for some staff input on what the recommended split is, if there are guidelines for that.

MS. TINA BERGER: Yes, I will note that of their representatives, Jimmy Kellum represents both, even though it is not specified here, the purse seine industry, so it is reduction and he also is bait industry. He represents sort of two sectors. Then one Peter Himchak obviously would represent the reduction fishery. Then Jeff Deem is a recreational. There is a difference in representation based on those three, and it is up to the board's pleasure how they want to proceed on that.

MS. MESERVE: Just to follow up, from the paperwork it looks like Jeff Deem is being appointed as a nontraditional stakeholder, but it sounds more like Virginia is looking to add a third seat that would be more of a recreational for-hire seat, which I'm more comfortable with, given Mr. Deem's background. It doesn't seem to fit the nontraditional role, in my opinion.

MS. BERGER: Yes, as staff explored and really looked at where Jeff Deem best fit, it was our initial thought that it would go under a nontraditional, but as we thought about it, other recreational fishermen are represented on the panel and he fits into that pretty well, so that's why our recommendation at a later point was that Virginia include him as a third representative.

CHAIRMAN BALLOU: Cheri, did you have a comment?

MS. PATTERSON: Yes, my comment was going to refer to Jeff being a recreational person and not a nontraditional. I think we should just call a spade a spade, and make sure that they're placed in the appropriate category.

CHAIRMAN BALLOU: I just want to remind the board that that issue is going to follow. The motion currently up on the board does not address that Virginia issue. That is going to follow with a subsequent motion. Bill Adler.

MR. ADLER: Speaking of Jeff Deem, he is not on that thing. Is that deliberate? He is not on that motion.

CHAIRMAN BALLOU: No, we're going to vote on two issues. The first is eight nominees to fill eight existing vacancies, and then a second motion to create an additional position on Virginia for Jeff Deem. On the motion that is up on the board, John.

MR. CLARK: Sorry to delay this further. I just wanted a clarification. I noticed that most of these applications only have one signature from commissioners on it, and the form requests all three commissioners to sign on that. That is not something you're requiring, you just want to get that?

MS. BERGER: You know procedurally it is difficult to get all three commissioners to literally sign the document. What we ask is that the submitting person, with their signature they have spoken to the other commissioners and have the consent of them in the signing of that document.

CHAIRMAN BALLOU: I'm sorry, to that point I'll note that two nominees from Rhode Island were both agreed to by all members of the Rhode Island delegation. I don't think we signed the sheet, so our bad, but it is to Tina's point that that is the expectation. It was fulfilled in spirit, not in letter in our case. Other comments on the motion, Adam.

MR. NOWALSKY: I'll offer the same comment with regard to New Jersey's nominee. The same happened there.

CHAIRMAN BALLOU: It sounds like all the nominees have been advanced with the full support of the state delegations that have nominated them. Any further discussion on this motion? **Is the board ready for the question? Is there any objection to the motion? Seeing none; the motion is approved by consent** and we now need a second motion on, I see Rob O'Reilly's hand up.

MR. O'REILLY: Yes, I think Jeff Deem being a for-hire guy; he would be very surprised about that. Let me tell you a little bit about Jeff Deem. Jeff Deem has served two different three-year terms on the Mid-Atlantic Council. He has also been the Chairman of our Finfish Advisory Committee at VMRC for about six years.

He was an instrumental force with the wind energy development that didn't happen, but a lot of work was done there. He is involved in a lot of environmental issues. What happened, there was a bit of confusion on my part when I received the roster from Tina and I saw all these different names. I even thought, well Ken Hinman is a Virginian, so he is one of our members.

Obviously, in terms of what we had in the past, we've always had one from the reduction fishery and one from the bait fishery; although Mr. James Kellum does do a little bit of both, but primarily has the bait interest. I thought with us moving forward with Amendment 3, I really would like to see Jeff Deem involved, because we're going to be going to areas that we haven't been before; in terms of the biological and ecological reference points.

Mr. Deem is very savvy about a lot of those issues, so that is where the third nominee came from. At first I didn't know it was going to be a third nominee, but working with Tina, I finally straightened that out. **That is a little bit about Mr. Deem, and I would certainly move to add him as a third member for Virginia.**

CHAIRMAN BALLOU: Do we need to clarify the nature of that position, Tina?

MS. BERGER: I think your discussion is clear.

CHAIRMAN BALLOU: **A motion has been made to appoint Jeff Deem, from Virginia, as a third member from Virginia to the Atlantic Menhaden Advisory Panel. Is there a second to that motion? Seconded by Nichola Meserve; any discussion on the motion? This would be creating a third AP position for Virginia and filling it.** It is doing two things, creating the third position and filling it with Jeff Deem. That is the two upshots of this motion, if I understand it correctly; discussion on the motion, Dave.

MR. SIMPSON: He certainly sounds like a good individual to add. I'm just wondering in terms of policy and for other boards, I thought our policy or rule was that there were a maximum of two per state, but Tina is saying no. If this doesn't create a president for other boards then I am fine with it.

MS. BERGER: Actually, when the AP was created, there was a different number of seats per state based on the needs of those states. It's not always a standard two per state.

CHAIRMAN BALLOU: Any further discussion on this motion? **Is there any objection to the motion? Seeing none; the motion is approved by consent, and I believe we have reached the end of our meeting.**

ADJOURNMENT

CHAIRMAN BALLOU: Is there any other business to be brought before the board? Seeing none; is there any objection to adjourning? Seeing none; we are adjourned. Thank you very much.

(Whereupon the meeting adjourned at 6:01 o'clock p.m. on October 26, 2016.)

Socioeconomic Analysis of the Atlantic Menhaden Commercial Bait and Reduction Fishery

EXECUTIVE SUMMARY

January 2017

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1. Overview

This document summarizes the primary findings from a study to characterize the socioeconomic dimensions of Atlantic menhaden fisheries stakeholders. Collection and analysis of primary and secondary data, both quantitative and qualitative, are used to describe the Atlantic menhaden commercial and recreational markets. All data were collected in 2016. The study addresses the distributional consequences of management change on the Atlantic menhaden commercial bait and reduction fisheries. Outputs include analysis of industry economic impacts, industry composition and salient themes, and public opinion surveys.

2. Industry Economic Impacts

Given data limitations and the focus on menhaden quota during 2015 we direct our analysis to the economic impacts of alternative menhaden quotas. Economic impacts are the changes in income that arise from changes in economic activity. In this draft summary we are only reporting direct expenditures (i.e., impacts).

We analyze several secondary data sets that were provided by ACCSP and NMFS Beaufort Lab. The ACCSP provided three data sets. The first data set contains county level annual landings (pounds, dollars, trips) from 1985 to 2015. The second data set contains county level annual landings (pounds, dollars, trips) and disposition (bait, reduction) from 2000 to 2015. The third data set contains state level annual landings (pounds, dollars, trips) and disposition (bait, reduction) from 1950 to 2015. Value data is not available from 1950 to 1961.¹

The economic analysis that can be supported by these data is limited, relative to that described in the proposal, due to missing variables. The data can be used to assess trends in landings, ex-vessel prices, effort, technology (i.e., catch per unit effort) and their interrelationships.

¹ There are two other data sets available for analysis. The NMFS Beaufort Lab provided data on the reduction fishery from 1985 to 2015. ACCSP provided effort in the bait fishery for Virginia. While analysis of these data can potentially provide information on production and technological change, these data are of limited use for this project since they do not contain any economic variables (price, cost) or identifiers for linking with the other data sets.

Given that the second data set includes disposition of landings and covers the time period over which data is considered most reliable, we have focused most of our attention here. The sample size is 1546 county/year combinations. Sixty-one percent of these are for bait, 14% are for food and 21% are unknown. The remaining 4% include personal use (n=28), reduction (n=21), kept (n=5), no catch (n=3) canned pet (n=1), animal food (n=1) and aquarium (n=1). For the entire sample there are 3.6 million tons of menhaden landed. The bait and reduction fisheries account for 16% and 74% of the total landings. The unknown disposition accounts for 8% of the landings. The remaining 2% include personal use, kept, no catch, canned pet, animal food and aquarium landings.

Given that the reduction fishery is a vertically integrated industry, we focus our analysis of the determinants of ex-vessel price on the bait fishery. In order to analyze the data as a panel (i.e., cross-section, time-series) we exclude any county that appears in the data only once (n = 25 counties) and several that are coded “unknown”.

We delete a number of outliers in order to improve the analysis. First, we delete one observation with a catch per unit effort (CPUE = pounds/trips) that is greater than two times (2.1 million pounds) the next largest (0.9 million pounds) CPUE. Second, we observe that there are a number of cases with high ex-vessel value per pound. The ex-vessel price per pound is approximated by dividing ex-vessel revenue by pounds landed. We adjust for inflation by the consumer price index so that all values are expressed in 2015 dollars. The mean price over 840 observations is \$706 per ton with a range from \$0.10 to \$22,000. In order to trim outliers we consider the state level annual distribution of prices from the third data set. We delete all of the county level observations in the 1% tails of the distribution. Fifty four cases are deleted with a price per ton greater than \$1478 and 5 cases are deleted with a price per ton less than \$79.

The sample size available for analysis is 777. The number of counties with menhaden bait landings varies from 41 (year 2004) to 55 (year 2015) by year. The mean price is \$265 per ton with a range from \$82 to \$1476. The mean tons landed is 673 with a range of 0.001 to 29,626. Considering the reduction fishery (n=21), the mean price reported in the ACCSP data is \$172 per ton with a range from \$135 to \$234. The mean tons landed is 128 thousand with a range of 5942 to 222 thousand.

We estimate an inverse demand ex-vessel menhaden bait price function of the form: $P_M = f(Q_M, P_H, Y)$, where P_M is the menhaden ex-vessel bait price per ton, Q_M is menhaden landings (in tons), P_H is the herring ex-vessel price and Y is income. The menhaden price is the annual price per county. The herring price is the annual price for all Atlantic Coast landings and obtained from the National Marine Fisheries Service commercial fishery statistics. Income is measured as U.S. Gross Domestic Product.

Since market price is determined by both demand and supply we estimate the model as two-stage least squares with menhaden landings corrected for endogeneity. The predictive equation for landings is $Q_M = f(P_H, Y, T_M, G)$ where the instrumental variables are menhaden bait trips, T_M , and gear, G . We approximate gear by coding a dummy variable equal to 1 if the catch per unit effort is greater than the 90% percentile (15,507.25 pounds) in an attempt to capture purse seine trips.

Each of the models are estimated using the unbalanced panel data. We include county level fixed effects to account omitted variables. The functional form is log-linear which allows the regression coefficients to be interpreted as elasticities. The regression model is:

$$\ln Q_{Mit} = \alpha_i + \alpha_1 \ln P_{Hit} + \alpha_2 \ln Y + \alpha_3 \ln T_M + \alpha_4 G + e_{it}$$

$$\ln P_{Mit} = \beta_i + \beta_1 \ln P_{Hit} + \beta_2 \ln Y + \beta_3 \widehat{\ln Q_M} + u_{it}$$

where the hat (^) indicates the variable is predicted from the landings model.

In the landings model, the coefficient on the herring price is negative and statistically significant. This indicates that as herring prices rise (fall), menhaden landings decrease (increase).² The coefficient on income is not statistically different from zero. Each of the instrumental variables are statistically significant in the landings model but statistically insignificant in the price model. Landings are positively related to the number of trips and gear.

In the price model the coefficient on the predicted landings is statistically significant. The coefficient indicates that a 10% increase in landings leads to a 0.4% decrease in price. The coefficient on the herring price is negative and statistically significant indicating that an increase in the herring price leads to a decrease in the menhaden price (and vice versa).

These results will be used to estimate the economic impacts. We initially assume that reduction fishery ex-vessel price is also insensitive to landings since there is little variation in price, relative to the bait fishery, and too few observations to estimate a model. The National Marine Fisheries Service reports menhaden landings of 442.8 million pounds and \$41 million ex-vessel revenue in 2015. The average price per pound is \$0.0926. Considering a stylistic 10% quota increase would lead to 44.28 million additional pounds landed and a price of \$0.0889; the direct economic impact would be an additional \$3.94 million in ex-vessel revenue on the Atlantic Coast. Type I and II RIMS multipliers have been ordered from the Bureau of Economic Analysis. These will be calibrated with the economic impact analysis in Kirkley et al. (2011), which uses an IMPLAN model developed for the commercial fisheries of the United States (Kirkley, 2009). Once calibrated, the additional ex-vessel revenue at various menhaden quotas will be multiplied by the sector specific Type I and II multipliers to estimate the direct, indirect and induced economic impacts.

3. Industry Composition and Salient Themes

Primary data, both quantitative and qualitative, were collected to characterize the socioeconomic dimensions of Atlantic menhaden industry members. Interview and survey data were collected in order to describe industry vessel and gear characteristics, sources of employment, level of participation in the menhaden fishery, subsidies, exits, and substitute products. The survey and interview instruments also were designed to collect information on recent market changes, 2013 state quota impacts, and industry members' fishing communities. It should be noted that interviewees and survey respondents represent those currently in the industry; data were not collected on anyone who may have exited the industry.

3.1. Industry Interview Data

Semi-structured interviews were conducted with 43 Atlantic menhaden commercial fishermen, bait dealers, and bait users in seven states – Maine, Maryland, New Jersey, New York, North Carolina, Rhode Island, and Virginia. Ten additional interviews were conducted with management personnel from Atlantic menhaden fishing and processing facilities (bait and reduction fisheries), as well as with purchasers of reduction oil and meal products. The interviews were summarized by coding the data into salient themes. Themes were primarily related to three topics: market changes, 2013 state quota impacts, and the fishing community.

² This result is counterintuitive. We are currently investigating the relationship between herring prices and changes in the menhaden total allowable catch.

3.1.1 Characteristics of Interviewees

Interviewees were categorized as working in small-, medium-, or large-scale operations according to the number of employees and vessel crew. Operations employees may be full or part time; many are seasonal. Small-scale operations (0-2 employees) characterized 14 interviewees, medium-scale operations (3-9 employees) characterized 10 interviewees, and large-scale operations (10+ employees) characterized 19 interviewees. Large-scale fishing operations generally use purse seines, while small- and medium-scale fishing operations rely on gill and pound nets.

3.1.2 Market Changes & 2013 State Quota Impacts

On the topic of market changes and 2013 state quota impacts, interviewees noted six salient themes: 1) *Increased Stock*, 2) *Increase in Bait Demand*, 3) *Increase in Oil & Meal Demand*, 4) *No Personal Impact due to State Quotas*, 5) *Disparate State Impacts due to State Quotas*, and 6) *Decreased Landings & Depressed Incomes due to State Quotas*. What follows are interviewees' observations on each theme.

Increased Stock

Interviewees noted increased stocks of Atlantic menhaden over the past few years. A Maryland fisherman explained, "I turn more loose than I can keep." Sizeable schools reach Maine waters, which was not the case just a few years ago. Fishermen attributed various factors to the stock increase, including the cyclical nature of most fisheries, warming waters, and state quota decreases -- a 20% reduction of the Total Allowable Catch (TAC) from the 2009-2011 catch average -- instituted in 2013. Many attested that the increased stocks are evidence that the Atlantic menhaden fishery is healthy and not overfished. They described fish kills that have occurred as a result of the preponderance of menhaden schools and lack of oxygen when they come inshore to avoid predators. New York and Rhode Island fishermen reported using the episodic event allowance to catch more than their initial quota allocation and harvest fish when a fish kill is occurring or eminent.

Increase in Bait Demand

Fishermen and bait dealers attributed increased demand for menhaden bait to shortages of other forms of bait, primarily herring. Accordingly, they were developing new markets for menhaden bait. Increased demand for menhaden bait frequently was associated with Maine lobster fishermen and the bait dealers who supply them. A New York fishermen/bait dealer explained how he spent time developing new markets saying, "I spend more time selling than fishing." Concerns over bait market saturation were raised by some interviewees: What is the ceiling on bait market demand? The increase in demand for menhaden bait corresponded with quality and cost concerns, as bait buyers in the New England states purchase bait primarily from New Jersey and other Mid-Atlantic states. Bait had to be stored, flash-frozen and refrigerated or salted, leading to product inconsistencies. Trucking costs were also significant according to interviewees, doubling bait cost depending on the distance. Fishermen and bait dealers believed that higher demand and the decrease in menhaden bait supply due to state quota decreases have led to increases in the price of menhaden bait.

Increase in Oil and Meal Demand

Menhaden oil and meal producers and purchasers cited growth of global aquaculture, animal feed, pet food, and human supplement industries as the key factors in stimulating reduction product demand. They stated that demand for healthy sources of protein will only increase with global population growth. They contended that the only suitable alternatives to menhaden oil and meal for these industries is oil and meal from another fish species, typically anchovies from Peru and Chile. Most non-fish oils (e.g. rapeseed, flaxseed) were considered poor substitutes due to lower protein and omega-3 fatty acids contents; their lower prices reflect this. Algal oil was suggested as a viable substitute but current production costs are too high to be competitive. Purchasers noted increasing prices for menhaden oil and meal in the past ten

years. A menhaden meal purchaser who supplies animal and aquaculture feed companies explained, “It [meal price] adjusts according to major trends. In 2008, there were a lot of meals on the market, so the price was lower.” Some menhaden meal purchasers reported price increases in the range of 70 to 150 percent since that time. Menhaden oil and meal purchasers explained that U.S. menhaden is considered a stable market compared to products available in other countries. Consistent product availability and quality has made menhaden oil and meal desirable products.

No Personal Impact due to State Quotas

Fishermen satisfied by the bycatch allowance -- 6,000 pounds of menhaden per day -- often had not experienced any personal impact after state quotas decreased in 2013. These small-scale fishermen relied on gill and pound nets and often fished for multiple species. Commercial bait dealers who buy and sell a more diverse mix of species also reported not being impacted by the state quotas. A North Carolina recreational bait dealer explained how he deals with many species, “I sell such a small percentage [of menhaden].” Fishermen not impacted by the quota often fish for menhaden to use as crab and fish bait; menhaden was not the ultimate species they target. Some fishermen not impacted did sell menhaden for commercial bait markets. Those selling to bait markets even saw some financial gain as bait prices increased since the 2013 state quota decreases.

Disparate State Impacts Due to State Quotas

When the new state quotas were instituted in 2013, some states lost a disproportionate amount of their TAC according to interviewees. The quota decrease resulted in overall trust lost in the fishery regulatory process by fishermen and bait dealers alike. A Virginia fisherman described his perspective saying, “They’re cutting you, and for what reason? Where’s your science? No science. It was very unjust.” Due to past-underreported landings, some states suffered in the allocation process because their TAC was based on reported historic landings. A relaxed reporting environment and fears of regulatory intrusion had contributed to a culture of underreporting according to small-scale fishermen in New York, Maryland, and New Jersey. A New Jersey fisherman gave an example saying, “You’ve got a lot of little guys in the [Delaware] Bay that catch their own bait for crabs and they weren’t required to report that.” The bycatch allowance ameliorated some initial concerns, as long as the fisherman did not require more than 6,000 pounds of menhaden per day for his operations. Menhaden bait dealers and users from states with a small proportion of the TAC and increased menhaden bait demand in recent years felt especially economically disadvantaged by the quota decreases. A Maine fisherman said, “It doesn’t make sense to be trucking them [menhaden] all the way up and paying all that added expense when they’re right in our backyard.”

Decreased Landings and Depressed Incomes Due to State Quotas

Fishermen and bait dealers in medium- and large-scale enterprises noted decreased landings and depressed incomes due to the state quotas instituted in 2013. Fishermen described income losses as high as 20 to 50 percent of their previous salaries, as well as layoffs for their peers. A Rhode Island fisherman discussed challenges in retaining crew members with the income losses they incurred. They were fishing shorter periods of the year he explained, adding, “The quota has made it very difficult to pay [crew members] by salary.” Some large-scale enterprises cut down by as many as 30 crew members, in addition to layoffs in associated processing and distribution facilities. A Virginia fisherman recalled how the 2015 fishing season ended early recalling, “We could have fished another one and a half months...which is a lot of money at the end of the year. You feel like you’re being punished.” Managers of large-scale operations described significant fixed costs; for their businesses, losses from quota decreases cannot be managed simply by a reduction in the labor force. Finally, bait dealers attributed declining menhaden bait sales and lost revenue to the new state quotas. Interviewees stated that ancillary businesses, both fishing related (e.g. welding, net repair) and others, like grocery and hardware stores, were impacted as well.

3.1.3 Fishing Community

Fishing community themes were related to two topics: 1) *Commercial Fishing Key* and 2) *Commercial Fishing Decline*. What follows are interviewees' observations on each theme.

Commercial Fishing Key

For many interviewees, particularly for those working in large-scale operations, commercial fishing represented the primary source of well-paying jobs in their community. In their communities, they noted thriving commercial fishing ports with a mix of species landed and sold (e.g. Maryland crabs, Maine lobsters, New Jersey scallops and squid, North Carolina shrimp, Virginia flounder). Interviewees in Virginia, in particular, emphasized the outsized role and economic impacts of commercial fishing where they live. A Virginia fisherman explained, "Outside of fishing, you make eight dollars an hour." Fishing is an intergenerational occupation; the majority of menhaden fishermen and bait dealers interviewed have family ties to the industry. They also viewed their co-workers as being like family, noting strong social bonds. Another Virginia fisherman described his relationship to his crew, "Those men on my boat are my family. They depend on me in the off season. A crew is like a foundation on a house. You're only as good what you have underneath you." Many fishermen stated they were their family's majority income earner, and often, they supported multiple families including aging parents and adult children. They considered the fishing industry critical to non-fishing community businesses and livelihoods as well. A Virginia fisherman pointed out, "Two-hundred and fifty jobs branch out to 2,000 jobs where I live. There are a lot of people counting on us, in this community." In some cases, they saw commercial fishing revenue as significant to the overall state's economy. Local seafood was considered a tourist draw and key export in some states. A Maine bait dealer discussed the importance of lobster and fishing industry and their multiplier effects to his state. "We're [the commercial fishing industry] critical to Maine's well-being, no question about it," he described. "Most of our lobsters are exported. That brings money into Maine and then you know the trail. The lobsterman buys equipment and that makes jobs, and they pay us and we have 25 to 40 people working, and then they go to restaurants and so on and so forth, and we all pay taxes on it."

Commercial Fishing Decline

Many interviewees noted a decline in commercial fishing and fishing culture in their communities. Generally, interviewees in small-scale operations discussed industry decline more frequently than those in large-scale operations. A Maine fisherman lamented, "The fishing community is ruled by the loss of business." High fixed costs on items like boats, trucks, and fishing equipment have made it difficult for some to continue fishing if traditional species are unavailable or not permitted to catch. Some fishermen were so discouraged by the regulatory restrictions on fishing that they didn't believe the industry would exist at all in the future. A New Jersey fisherman said, "It's a tough business. If somebody was just getting into it young now, I wouldn't want to be there." The decline in the commercial fishery sector was rarely associated with an increase in other types of well-paying jobs. Other available jobs noted were in economic sectors like service and retail, farming, and tourism, primarily, as well as the retirement industry, military, and boat building in some places. Fishermen and bait dealers reported high levels of unemployment, underemployment and drug use among the labor force. A Rhode Island bait dealer described the decline in the lobster industry, "The commercial fishing port is not as large as it used to be. Used to be 150 lobster boats, now there are 35."

3.2 Industry Survey Data

Online surveys were completed by 106 menhaden fishermen and bait dealers in seven states: Maine, Maryland, New Jersey, New York, North Carolina, Rhode Island, and Virginia (Table 1). Surveys were sent to approximately 2,000 potential fishermen and bait dealers, relying on contact databases from state environmental and fisheries agencies, which resulted in 255 surveys initiated. However, only 106

completed the majority of questions. We reported on those respondents. Survey data were primarily used to validate the interview data and other publically available data sources.

Table 1. Total respondents by state.

State	Dealers	Fishermen
Maryland	2	8
Maine	5	1
North Carolina	7	12
New Jersey	11	23
New York	3	7
Rhode Island	3	5
Virginia	5	14
SubTotal	36	70
Total Respondents	106	

The majority of fishermen who responded to the survey landed less than 10,000 pounds of Atlantic menhaden in 2015. They appeared to represent small-scale operations. Alternatively, bait dealers who responded were bifurcated, in that about as many (12) sold less than 25,000 pounds as those (10) who sold one million pounds or more in 2015.

Table 2. Pounds of menhaden sold (by bait dealers) and landed (by fishermen) in 2015.

Amount	Sold	Landed
1 - 9,999 pounds	8	29
10,000 - 24,999 pounds	4	9
25,000 - 49,999 pounds	3	7
50,000 - 99,999 pounds	1	4
100,000 - 249,999 pounds	3	5
250,000 - 499,999 pounds	3	3
500,000 - 999,999 pounds	2	1
1,000,000 - 4,999,999 pounds	6	2
5,000,000 pounds or more	4	3

Fishermen and bait dealers were asked whether they considered various issues important to them. Respondents ranked the issues on a scale of one to five, with one being extremely important and five being not at all important. *Health of menhaden and habitat* was considered extremely to very important (mean=1.84) and *quotas* was considered very to moderately important (mean=2.13). In contract, both *crew or labor issues* and *competition among local fishermen* were considered moderately to slightly important, with means of 3.65 and 3.77, respectively.

Table 3. Importance of issues to menhaden fishermen and bait dealers.

	Extremely Important 1	Very Important 2	Moderately Important 3	Slightly Important 4	Not at all Important 5	Mean
Health of menhaden and habitat	45	26	9	2	6	1.84
Quotas	48	12	9	7	12	2.13
Gear Restrictions	36	14	11	7	19	2.53
Overfishing	32	17	13	5	22	2.64
Cost of licensing and taxes	23	20	17	9	17	2.73
Record keeping (trip tickets, tax purposes)	17	15	25	13	16	2.95
Fuel Prices	21	16	13	12	26	3.07
Competition among fishermen from other states	16	13	18	5	37	3.38
Crew or labor issues	9	14	16	9	40	3.65
Competition among local fishermen	7	8	21	13	38	3.77

Fishermen and bait dealers indicated whether they had experienced a significant change of 25 percent or more in landings or fish sold from one year to the next during the time period 2010 to 2015. Increases in landings or fish sold were noted somewhat uniformly throughout all six years, whereas decreases were noted more frequently in years 2013, 2014, and 2015. Respondents attributed reason(s) for a change in a given year. The most frequently cited reason for a significant increase in sales or landings was availability of stock, followed by weather (e.g. recovery from Sandy) and market price of menhaden. The most frequently cited reasons for a significant decrease in sales or landings were availability of stock, change in state regulations (e.g. 2013 state quotas), and weather.

Table 4. Significant change in menhaden sales or landings since 2010.

	2010	2011	2012	2013	2014	2015
No Change	58	61	56	40	38	32
Increase	22	19	20	26	27	30
Decrease	5	3	7	19	17	20

4. Public Opinion Survey

The stated preference survey was fielded online in October using the SurveyMonkey platform and Survey Sampling International online panel. We received 2253 responses from eight Atlantic Coast states. We oversampled New Jersey and Virginia and received 495 and 475 responses from each, respectively. We receive 227, 217, 216, 236, 229 and 158 responses from Florida, Maine, Maryland, New York, North Carolina and Rhode Island. The samples are balanced by gender and ethnicity in each state except for Maine. The survey data was weighted by state population in our analysis. We will develop gender and ethnicity weights for Maine before the final analysis is conducted.

The stated preference survey consisted of three parts. The first part informed the respondent of issues pertaining to the menhaden fishery and its industry and the goals of the ASMFC. Here, information about the respondents' prior knowledge about the menhaden and the ASMFC were gathered, as well as opinions about various related matters via Likert scales.

The second section was comprised of the discrete choice questions. The respondent either received a set of 3 increase scenario questions or 3 decrease scenario questions, with varying levels of environmental and economic trade-offs. Respondents were presented a hypothetical quota change (10%, 20%, 30%) with corresponding revenue changes (dependent on the randomly assigned ex-vessel market price/pound) and were given information about whether there would be a change in four other attributes. The four attributes are: jobs (250, 500, 750), water quality (binary for whether water quality is improved/worsened), fish population (binary for increase/decrease), and water-bird population (binary for increase/decrease). In each scenario, voting against the quota change equates to choosing the status quo. To account for the heterogeneity in which scenario respondents were exposed to first, order effects were considered in the analysis.

The final section included debriefing questions to assess which attributes they claimed to care about most and how seriously they took the voting exercise. Also, some socioeconomic characteristics and information about their fishing experiences were gathered.

This survey resulted in a rich data set from which we were able to gather trends and preferences. After removing individuals who explicitly stated that they did not read the survey directions, we had 2022 respondents, and 12,132 total observations since they each answered 6 choice questions.

We estimate random parameters logit models (RPL) which capture the mean and standard deviation of each coefficient. The coefficients are not directly interpretable but are useful for determining tradeoffs among economic and ecosystem variables. Willingness-to-pay (WTP) and willingness-to-accept (WTA) values are computed by taking the absolute value of the ratio of the coefficient of the attribute of interest and dividing by the coefficient of a cost variable. Traditionally, the cost variable is an individual monetary cost (e.g., income tax increase), however in our analysis we focus on the trade-off between ex-vessel revenue and commercial fishing jobs gained/lost in the economy. In this context, WTP is a willingness to forgo additional ex-vessel revenue and jobs that would result from increased quotas.

Across the three quota increase scenarios, forty-four percent of respondents voted to increase the menhaden quota by 10%, 20% or 30% ("for"). Fifteen percent are "undecided" and 41% of the votes are "against" the quota increases. Excluding undecided votes, a majority vote in favor of quota increases. In the regression analysis we code the undecided votes as a "against." We find that increases in ex-vessel revenue and commercial fishing jobs increases the probability of a "for" vote. Increased quotas that make water quality worse and negatively affect gamefish and waterbird populations lead to a decrease in the probability of a "for" vote. While we informed respondents that increased quotas would not lead to overfishing, respondents who still expressed concern about overfishing are less likely to vote "for" a quota increase. Respondents are willing to pay \$15 million, \$7 million and \$9 million in ex-vessel revenue to avoid negative impacts on water quality, gamefish and waterbirds, respectively. Respondents are willing to pay 969, 439 and 574 additional commercial fishing jobs to avoid negative impacts on water quality, gamefish and waterbirds, respectively.

Across the three quota decrease scenarios, forty-one percent of respondents voted to decrease the menhaden quota by 10%, 20% or 30% ("for"). Eighteen percent are "undecided" and 41% of the votes are "against" the quota increases. Excluding undecided votes, a slim majority vote against quota decreases. In the regression analysis we again code the undecided votes as a "against." We find that decreases in ex-

vessel revenue and commercial fishing jobs decreases the probability of a vote “for” the decreased quota. Decreased quotas that improve water quality and positively affect gamefish and waterbird populations lead to a decrease in the probability of a “for” vote. Respondents are willing to accept \$22 million, \$12 million and \$9 million in ex-vessel revenue to gain positive impacts on water quality, gamefish and waterbirds, respectively. Respondents are willing to accept 365, 202 and 141 commercial fishing job losses to gain positive impacts on water quality, gamefish and waterbirds, respectively.

The RPL models are limited in their ability to incorporate “time invariant” variables (i.e., those that do not change across the three choice scenarios such as respondent socioeconomic characteristics and attitudes). In other models, the data shows that support for a policy, whether increase or decrease, is derived from more than just environment and economic trade-offs. Prior knowledge of menhaden, and actual beliefs about the contribution menhaden have to various sectors of the economy and the ecosystem play a big role in influencing tendencies to vote for or against a quota change. Also, societal involvement in the fishing industry, both in the commercially and recreationally, effect voting propensities as well.

Further analysis will be aimed at assessing attribute non-attendance (ANA). For the most salient results, the models depend on respondents taking account all the information provided in the choice set. However, respondents often employ strategies such as focusing on one attribute which can skew results. Econometric methods will be applied to identify such trends to potentially clean the data and arrive at more precise results.

Atlantic States Marine Fisheries Commission

PUBLIC INFORMATION DOCUMENT

**For Amendment 3 to the
Interstate Fishery Management Plan For**

ATLANTIC MENHADEN



November 2016



Vision: Sustainably Managing Atlantic Coastal Fisheries

**The Atlantic States Marine Fisheries Commission seeks your input on the initiation of
Amendment 3 to the Atlantic Menhaden Fishery Management Plan**

The public is encouraged to submit comments regarding this document during the public comment period. Comments must be received by **5:00 PM (EST) on January 4, 2017**. Regardless of when they were sent, comments received after that time will not be included in the official record. The Atlantic Menhaden Management Board will consider public comment on this document when developing the first draft of Amendment 3.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction, if applicable.
2. Refer comments to your state's members on the Atlantic Menhaden Board or Atlantic Menhaden Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

Megan Ware
Fishery Management Plan Coordinator
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200A-N
Arlington, Virginia 22201
Fax: (703) 842-0741
comments@asmfc.org (subject line: Menhaden PID)

If your organization is planning to release an action alert in response to the Amendment 3 PID, or if you have questions, please contact Megan Ware at (703) 842-0740.

**YOUR
COMMENTS
ARE INVITED**

The Atlantic States Marine Fisheries Commission (Commission) is developing an amendment to revise the Interstate Fishery Management Plan (FMP) for Atlantic Menhaden. The Commission, under the Atlantic Coastal Fisheries Cooperative Management Act, is charged with developing fishery management plans for Atlantic menhaden which are based on the best available science and promote the conservation of the stock throughout its range. The states of Maine through Florida participate in the management of this species via the Commission's Atlantic Menhaden Management Board (Board).

This is your opportunity to inform the Commission about changes observed in the fishery, actions you feel should or should not be taken in terms of management, regulation, enforcement, and research, and any other concerns you have about the resource or the fishery, as well as the reasons for your concerns.

**WHY IS THE
ASMFC
PROPOSING
THIS ACTION?**

At the May 2015 meeting, the Menhaden Board initiated the development of Amendment 3 to the Atlantic Menhaden FMP to pursue the development of ecological reference points (ERPs) and revisit allocation methods.

The 2015 Atlantic Menhaden Benchmark Stock Assessment and Peer Review Report categorized the development of ERPs as a high priority for Atlantic menhaden management. Currently, the stock is assessed with single-species biological reference points, which were defined in the 2015 stock assessment. Using these reference points, the assessment found the stock is not overfished and overfishing is not occurring. While the stock assessment accounts for natural mortality, that factor alone may not adequately account for the unique and significant ecological services that menhaden provide, or how changes in the population of predator species may impact the abundance of menhaden. ERPs are intended to consider the multiple roles that menhaden play, both in supporting fisheries for human use and the marine ecosystem. Thus, they are viewed as a tool that could improve the management of menhaden.

Additionally, Amendment 2 (implemented in 2013) requires quota allocations to be revisited every three years. The Atlantic menhaden quota is currently allocated to fifteen of the sixteen Atlantic coast states and jurisdictions based on each jurisdiction's three-year average landings between 2009 and 2011. In revisiting the allocations, the Board decided to investigate different allocation methods and timeframes given concerns that the current allocation method does not strike a balance between gear types and regions, as well as current and future harvest opportunities. Some states have also expressed concerns about unreported landings during the baseline years and the administrative burden of managing small allocations, the cost of which may outweigh the value of the fishery they are allocated.

The adoption of ERPs as well as changes to the current quota allocations would require changes in the management tools used to regulate the fishery. This document proposes a suite of management tools involving different types of reference points and allocation methods.

**WHAT IS THE
PROCESS FOR
DEVELOPING
AN
AMENDMENT?**

The publication of this document and announcement of the Commission’s intent to amend the existing FMP for Atlantic menhaden is the first step of the formal amendment process. Following the initial phase of information gathering and public comment, triggered by this Public Information Document (PID), the Commission will evaluate potential management alternatives and the impacts of those alternatives. The Board will also seek to narrow the number of proposed management options, especially in regard to quota allocation and incidental catch. The Commission will then develop Draft Amendment 3, incorporating the identified management options, for public review and comment. Following consideration of public comment, the Commission will specify the management measures to be included in Amendment 3, as well as a timeline for implementation. In addition to issues identified in this PID, the Draft Amendment may include other issues identified during the public comment period for this PID.

The timeline for completion of Amendment 3 is as follows:

	Oct 2016	Nov 2016 – Jan 2017	Feb 2017	Mar – July 2017	Aug 2017	Sept – Oct 2017	Nov 2017
Approval of Draft PID by Board	X						
Public review and comment on PID <i>Current step</i>		X					
Board review of public comment; Board direction on what to include in Draft Amendment 3			X				
Preparation of Draft Amendment 3				X			
Review and approval of Draft Amendment 3 by Board for public comment					X		
Public review and comment on Draft Amendment 3						X	
Board review of public comment on Draft Amendment 3							X
Review and approval of the final Amendment 3 by the Board, Policy Board and Commission							X

WHAT IS THE PURPOSE OF THIS DOCUMENT?

The purpose of this document is to inform the public of the Commission’s intent to gather information concerning Atlantic menhaden and to provide an opportunity for the public to identify major issues and alternatives relative to the management of this species. Input received at the start of the amendment development process can have a major influence in the final outcome of the amendment. This document is intended to solicit observations and suggestions from fishermen, the public, and other interested parties, as well as any supporting documentation and additional data sources.

To facilitate public input, this document provides a broad overview of the issues already identified for consideration in the amendment; background information on the Atlantic menhaden population, fisheries, and management; and a series of questions for the public to consider about the management of the species. In general, the primary question on which the Commission is seeking public comment is: **“How would you like management of the Atlantic menhaden fishery to look in the future?”**

WHAT ISSUES WILL BE ADDRESSED?

The primary issues considered in the PID are:

- Reference Points for Determining Stock Status
- Quota Allocation
- Allocation Timeframe
- Quota Transfers and Overage Payback
- Quota Rollovers
- Incidental Catch and Small Scale Fishery Allowance
- Episodic Events Set Aside Program
- Chesapeake Bay Reduction Fishery Cap
- Research Programs and Priorities

ISSUE 1: Reference Points

Background: Amendment 2 established single-species reference points to manage the menhaden stock. These reference points were based on maximum spawning potential (MSP) and included a measure of fishing mortality (F) and spawning stock biomass (SSB) to determine an overfishing and overfished status. Overfishing occurs when fishing is negatively affecting the stock through reduced abundance and recruitment. A stock is overfished if abundance or biomass is critically low. Per Amendment 2, overfishing was defined by a target and threshold of $F_{30\%MSP}$ and $F_{15\%MSP}$, respectively, while an overfished stock was defined by a target and threshold of $SSB_{30\%MSP}$ and $SSB_{15\%MSP}$, respectively.

In 2015, the Board approved a new Atlantic Menhaden Benchmark Stock Assessment, producing the reference points in use today. A key goal of these reference points is to provide a better measure of sustainability. As a result, the overfishing target and threshold were changed to $F_{57\%MSP}$ (0.38) and $F_{26\%MSP}$ (1.26), respectively, to provide a more conservative approach to menhaden management until multi-species reference points could be developed. Additionally, an overfished

target and threshold based on fecundity (FEC) were established at $FEC_{57\%MSP}$ (189,270 billion eggs) and $FEC_{26\%MSP}$ (86,821 billion eggs), respectively. As of 2013, the terminal year used for the 2015 assessment, the stock is not overfished ($FEC=170,536$ billion eggs) and overfishing is not occurring ($F=0.22$).

Given the crucial ecological role that menhaden play as forage fish, the Board has expressed interest in developing ecological reference points (ERPs) to manage the menhaden stock. Menhaden serve an important role in the marine ecosystem as they convert phytoplankton into protein and in turn provide a food source to a variety of species including larger fish (e.g., weakfish, striped bass, bluefish, cod), birds (e.g., bald eagles, osprey), and marine mammals (e.g., humpback whales, bottlenose dolphin). As a result, changes in the abundance of menhaden may have implications for the marine ecosystem. ERPs provide a method to assess the status of menhaden not only with regard to their own sustainability, but also with regard to their interactions with predators and the status of other prey species. This method accounts for changes in the abundance of several species when setting an overfished and overfishing threshold for menhaden. The benefit of this approach is that it allows fishery managers to consider the harvest of menhaden within a broad ecosystem context. Of course, people also extract and utilize marine resources, and are thus considered part of the marine ecosystem as well.

In May 2015, the Board tasked the Commission's Biological and Ecological Reference Point (BERP) Workgroup with developing ERPs for Atlantic menhaden. To begin this process, the Board identified fundamental objectives for the development of ERPs, including sustaining menhaden to provide for fisheries and predators. The BERP Workgroup subsequently identified four multi-species modeling approaches that could be used to successfully calculate ERPs for menhaden. These models can combine information on the abundance of menhaden and its predators to quantitatively assess ecosystem needs and set appropriate harvest targets and thresholds. Given the complexity of these models and the large amounts of data required, the BERP Workgroup does not expect to finish developing these menhaden-specific ERPs before Amendment 3 is finalized. The BERP Workgroup will be having several data, assessment, and modeling workshops over the next few years in order to complete the ERPs and have them peer reviewed by 2019.

In addition to the menhaden-specific reference points being developed by the BERP Workgroup, the Board is aware of other precautionary guidelines on developing ERPs for forage fish in general. For example, several organizations and scientific papers, such as Smith et al. (2011), support the use of a 75% rule-of-thumb, which recommends forage fish populations be maintained at three-fourths of their unfished biomass levels in order to lower impacts on marine ecosystems. This rule has been implemented by the Convention for the Conservation of Antarctic Marine Living Resources, which manages krill to maintain 75% of the unfished biomass in the water to account for the needs of predators.

The Lenfest Ocean Program, a grant-making program managed by The Pew Charitable Trusts, has also developed guidelines for the development of ERPs for forage fish. In their 2012 report by Pikitch et al., Lenfest describes how they applied a suite of 10 published models to develop a general equation to predict predator responses to specific levels of forage fish abundance. This equation proposes a control rule in which fishing mortality does not exceed half of the forage species natural mortality rate (for menhaden, $1/2 M = 0.29$) and that, when biomass falls below 40% of unfished biomass, fishing is prohibited.

Another ERP option could combine these guidelines, such that the 75% rule-of-thumb is combined with a fishing mortality target consistent with achieving 75% unfished biomass, and if biomass falls below 40% of unfished biomass, fishing is prohibited. The concept of a fishing mortality cutoff for forage species is used by the Pacific Fishery Management Council in conserving sardine (although the cutoff is set at 150,000 metric tons, or roughly 10% of the average unfished population size)¹.

In 2015, as a part of an initial effort to evaluate existing ERP guidelines, the Board asked the BERP Workgroup to review the ERPs proposed by Pikitch et al. (2012). In response, the BERP Workgroup noted several concerns, namely that the Lenfest equation was developed for forage species that are a main component (> 50%) of a predator's overall diet. Although menhaden are important forage for a number of species, and may be a main food source for some species during certain seasons, they do not account for more than 20% of the overall diet for any of the finfish predators currently considered in the multispecies models being used by the BERP Workgroup. The BERP Workgroup also raised concerns that the Pikitch et al. (2012) equation assumes a stock-recruit relationship can be defined for the forage species. Available data indicate recruitment of menhaden is driven primarily by environmental factors rather than stock size. For these reasons, the BERP Workgroup advised the Board that the Lenfest equation is not an appropriate method for developing ERPs for menhaden (See Appendix 2 for BERP Workgroup Memo dated April 20, 2015). Members of the Lenfest Forage Fish Task Force responded to the concerns raised by the BERP Workgroup, stating it is not necessary for predators to be highly dependent on menhaden (>50% of diet) for the report's management recommendations to apply and that the report's reference points can be applied without a specific stock-recruit relationship. The Lenfest Forage Fish Task Force also emphasized that the reference points in Pikitch et al. (2012) offer a precautionary approach to prevent stock collapse and maintain high levels of forage fish biomass in the water (See Appendix 3 for Lenfest Forage Fish Task Force memo date May 4, 2015).

¹ Oceana. April 12, 2016. The Role of Fishing in the Pacific Sardine Collapse. <http://usa.oceana.org/blog/role-fishing-pacific-sardine-collapse>

Moving forward, there are several options for the Board to consider.

- Continue use of the single-species reference points approved in the 2015 stock assessment.
- Adopt ERPs based on existing guidelines for forage fish in general.
- Adopt, upon completion, menhaden-specific ERPs developed by the BERP Workgroup. Since the BERP Workgroup's ERPs will not be completed before 2019, the Board would have to identify interim reference points to manage the stock. These could include the current single-species reference points or existing guidelines for forage fish species.

Importantly, the Board is interested in considering all viable approaches for developing ERPs and invites the public to submit information on other ERPs that have been peer-reviewed and could be proposed in draft Amendment 3. In order to be considered by the Board, submissions should include information on how the ERP was developed, what species it can be applied to, if it has been previously implemented, and how it has been peer-reviewed.

Statement of the Problem: Given the ecological importance of menhaden as a forage fish, the Board is interested in developing ERPs for the stock. Current options for ERPs include existing guidelines for forage fish species and those currently being developed by the BERP Workgroup. If the Board opts to pursue the ERPs developed by the BERP Workgroup, interim reference points could to be adopted, since this modeling work will not be completed until 2019.

Option A: Single Species Reference Points

The Atlantic menhaden stock continues to be managed with the single-species biological reference points developed in the 2015 benchmark stock assessment. These set an F target and threshold of $F_{57\%MSP}$ (0.38) and $F_{26\%MSP}$ (1.26), respectively, and a fecundity target and threshold of $FEC_{57\%MSP}$ (189,270 billion eggs) and $FEC_{26\%MSP}$ (86,821 billion eggs), respectively. Under this option, the Board would direct the BERP Workgroup to stop work on the development of menhaden-specific ERPs.

Option B: Existing Guidelines for Forage Fish Species

The Atlantic menhaden stock is managed with ERPs based on existing guidelines for forage fish species (e.g., the 75% rule-of-thumb, Pikitch et al. (2012) with $F_{64\%MSP}=0.29$, or some other peer-reviewed ERP). Under this option, the Board would direct the BERP Workgroup to stop work on the development of menhaden-specific ERPs.

Option C: Single-Species Reference Points Until ERPs are Developed by the BERP Workgroup

The Atlantic menhaden stock is managed with the current single-species reference points ($F_{57\%MSP}=0.38$, $F_{26\%MSP}=1.26$; $FEC_{57\%MSP}=189,270$ billion eggs, $F_{26\%MSP}=86,821$ billion eggs) until menhaden-specific ERPs are developed by the BERP Workgroup and adopted by the Board. It is expected that the BERP Workgroup will complete its analysis in 2019.

Option D: Existing Guidelines for Forage Fish Species Until ERPs are Developed by the BERP Workgroup

The Atlantic menhaden stock is managed with ERPs based on existing guidelines for forage fish species (e.g., the 75% rule-of-thumb, Pikitch et al. (2012) with $F_{64\%MSP}=0.29$, or a combination of these guidelines) until menhaden-specific ERPs are developed by the BERP Workgroup and adopted by the Board. It is expected that the BERP Workgroup will complete its analysis in 2019.

Public Comment Questions: Should the Board manage the Atlantic menhaden stock with single-species biological reference points or multi-species ERPs? Do you support the use of simpler, readily available ERPs until menhaden-specific ERPs are developed by the BERP Workgroup? Do you know of other approaches for establishing ERPs for menhaden that could be implemented through Amendment 3?

***ISSUE 2:
Quota
Allocation***

Background: Amendment 2 established a first-ever commercial total allowable catch (TAC) for Atlantic menhaden and divided this catch into commercial quotas for participating jurisdictions from Maine through Florida. The TAC and quota system were adopted in response to the 2011 benchmark stock assessment which found that the stock was experiencing overfishing. Since it was implemented in 2013, the quota system has maintained the harvest of menhaden below the coastwide limits set by the Board.

For 2013 and 2014, the Board set the TAC at 170,800 metric tons (mt), a 20% reduction from the average 2009-2011 coastwide landings. The 2015 benchmark stock assessment found the Atlantic menhaden stock is not overfished and overfishing is not occurring. In response, the Board raised the 2015 and 2016 TACs by 10% to 187,880 mt. The 2017 TAC was further raised to 200,000 mt after stock projections showed the increase would result in a 0% chance of overfishing. The state allocation formula established by Amendment 2 assigns each state a percentage of the TAC based on each state's average landings between 2009 and 2011. (See Table 1 in Appendix 1 for the state allocations and yearly quotas.)

Amendment 2 requires allocation to be revisited every three years. In revisiting allocations, via Amendment 3, the Board has decided to investigate different allocation methods and timelines given concerns that the approach does not strike a balance between gear types and regions, as well as the present needs of the fishery

versus future growth opportunities. For example, because 85% of the quota is allocated to Virginia, where the last remaining menhaden reduction fishery takes place, increases in the TAC provide limited benefit to the small-scale bait fisheries along the coast. Additionally, given improvements in the condition of the Atlantic menhaden stock, the process of determining allocation based on a narrow period of historical catch limits states who currently have minimal quota from participating in the growing fishery. Some states have also found evidence of un-reported landings during the reference period, meaning the quota system may have reduced their fisheries to a greater extent than originally intended.

Recognizing these concerns, the Board is interested in exploring alternative allocation strategies. Many fisheries use quotas and allocation formulas to limit harvest, offering examples of how catch can be allocated. Some fisheries are managed in a manner similar to the current system for menhaden. For example, the commercial summer flounder TAC is allocated to states via individual state percentages based on each state's average landings during a historical reference period. Others are managed differently. The Atlantic herring quota is currently allocated by season in the inshore management area. None of the quota is allocated between January and May due to spring spawning and interactions with other fisheries; 72.8% of the quota is available from June through September and 27.2% from October through December. In the South Atlantic, quota for golden tilefish is allocated by gear-type with the annual catch limit divided between the longline and hook-and-line fisheries. This was done to ensure continued participation by hook-and-line fishermen since the commercial quota was being rapidly harvested by the longline sector. Spiny dogfish uses both a regional and state allocation system with the northern region (ME-CT) receiving 58% of the quota and the states of NY through NC receiving individual state shares. This allocation system was used to allow southern states the ability to participate in the fishery before the total allowable catch is caught by the northern states.

In May 2015, the Menhaden Board established an Allocation Working Group to initiate the process of revisiting menhaden quota allocation. The Allocation Working Group considered landings history, the performance of state fisheries, and the challenges associated with the current management plan. As a result, the group created a broad range of allocation options which are presented below (Options A through G). Information on menhaden landings by jurisdiction, gear type, and disposition can be found in Tables 2 and 3 and Figure 1 of Appendix 1.

Statement of the Problem: Amendment 2 requires menhaden allocation to be revisited every three years. The Board is exploring different allocation strategies due to several concerns with the current state-by-state quotas, including inequitable access to quota among gear types and the inability for some states to participate in the growing fishery.

Option A. Jurisdictional Quotas (Status Quo)

Quotas are allocated to each state/jurisdiction in the management unit based on its landings during a selected reference period. (See Table 2 in Appendix 1 for commercial landings by jurisdiction.) The current reference period is 2009-2011. (Note that Issue 3 (pg 13) considers potential changes to this time period.)

Option B. State-Specific Quotas with Fixed Minimum

Quotas are allocated to each state/jurisdiction in the management unit based on its landings during a selected reference period; however, no state/jurisdiction receives less than a minimum fixed percent quota (e.g., 1% of the coastwide TAC). A minimum fixed-quota allocation provides growth opportunity for states that have small quotas. For example, in the American eel fishery, each state is allocated a minimum 2,000 pound quota in order to increase equity in the distribution of quota.

Option C. Coastwide Quota

There is one coastwide quota that applies to the entire Atlantic menhaden fishery.

Option D. Seasonal Quotas

The TAC is divided into designated seasons, such as a winter, spring, summer, and fall. Under this option, it may be possible to consider further allocation (e.g., regional, state by state) of the season-specific quotas to provide equitable access to the fishery. (See Figure 2 in Appendix 1 for a breakdown of commercial landings by month).

Option E. Regional Quotas

Quotas are allocated to designated regions. The intent of these geographic delineations would be to capture the spatial dynamics of the fishery. Specific regional options could include:

1. Two region split: (1) North, defined as waters north of Machipongo Inlet, VA, on the Delmarva Peninsula; and (2) South, defined as waters south of Machipongo Inlet, including the Chesapeake Bay. These regions match those used for stock assessment purposes in the 2015 Benchmark Stock Assessment.
2. Two region split: (1) Chesapeake Bay; and (2) Coast.
3. Three region split: (1) New England, defined as ME–CT; (2) Mid-Atlantic, defined as NY–DE; and (3) Chesapeake Bay South, defined as MD–FL.
4. Four region split: (1) New England, defined as ME–CT; (2) Mid-Atlantic, defined as NY–DE; (3) Chesapeake Bay, defined as MD–VA; and (4) South Atlantic, defined as NC–FL.

Option F. Disposition Quotas

Quotas are allocated to the bait and reduction fisheries separately. The intent of this option would be to capture the different dynamics that exist between the bait and reduction fisheries. Under this option, it may be possible to consider further

allocation (e.g., regional, state-by-state) of the disposition-specific quotas to provide equitable access to the fishery.

Option G. Fleet Capacity Quotas

Quotas are allocated to various fleets based on their harvest capacity, as determined by gear type. The intent of this option would be to capture the different scales of operation that exist in the fishery and their dynamics. It may be possible to consider further allocation (e.g., regional, state-by-state, disposition) of the capacity-specific quotas to provide equitable access to the fishery. Some of the specific fleet capacity options below include a “soft quota” concept, which sets a target quota but does not subject the fleet to a fishery closure. The intent of a soft quota would be to restrict the retention of menhaden but add flexibility for additional catch in years when fish are abundant.

Specific fleet options could include:

1. Two Fleet Capacity Allocation

Small Capacity Fleets:

Types of gears in the small-capacity fleet include, but are not limited to, cast net, trawl, trap/pot, haul seine, fyke net, hook and line, pound nets and gill nets. Total coastwide landings for these small-capacity gears are approximately 22 million pounds annually or 5% of coastwide landings from 2009–2012. The small-capacity fleet could be defined by a trip limit such that a vessel must land less than a certain poundage of menhaden to fish in the small-capacity fleet; otherwise they would move to the large-capacity fleet. Alternatively (or additionally), a trip limit could be established if the small-capacity fleet harvest grows to an unacceptable level. Given the small capacity of these gear types, this fleet could be managed with a soft quota, whereby harvest is allowed to fluctuate above the quota in years when fish are available (Figure 1). Flexibility in the quota would minimize menhaden discards from this fleet.

Large-Capacity Fleet:

Types of gears in the large-capacity fleet include, but are not limited to, purse seines and pair trawls. Total coastwide landings for these large-capacity gears are approximately 436.2 million pounds annually or approximately 95% of coastwide landings from 2009–2012, and include both bait and reduction fishery harvest. Given the large capacity of these gear types, this fleet would be managed with a hard quota.

2. Three Fleet Capacity Allocation

Small-Capacity Fleet:

Types of gears in the small-capacity fleet include, but are not limited to, cast net, trawl, trap/pot, haul seine, fyke net, and hook and line. Total coastwide landings for these small-capacity gears are approximately 3.14 million pounds annually or roughly 1% of coastwide landings from 2009–2012. Given the small capacity of these gear types, this fleet could be managed with a soft quota.

Medium-Capacity Fleet:

Types of gears in the medium-capacity fleet include, but are not limited to, pound nets and gill nets. Total coastwide landings for these gear types are approximately 18.92 million pounds annually or 4% of coastwide landings from 2009–2012. Given the medium capacity of these gear types, this fleet could be managed with a soft or hard quota.

Large-Capacity Fleet:

Types of gears in the large-capacity fleet include, but are not limited to, purse seines and pair trawls. Total coastwide landings for these gears are approximately 436.2 million pounds annually or 95% of coastwide landings from 2009–2012, and include both bait and reduction fishery harvest. Given the large capacity of these gear types, this fleet would be managed with a hard quota.

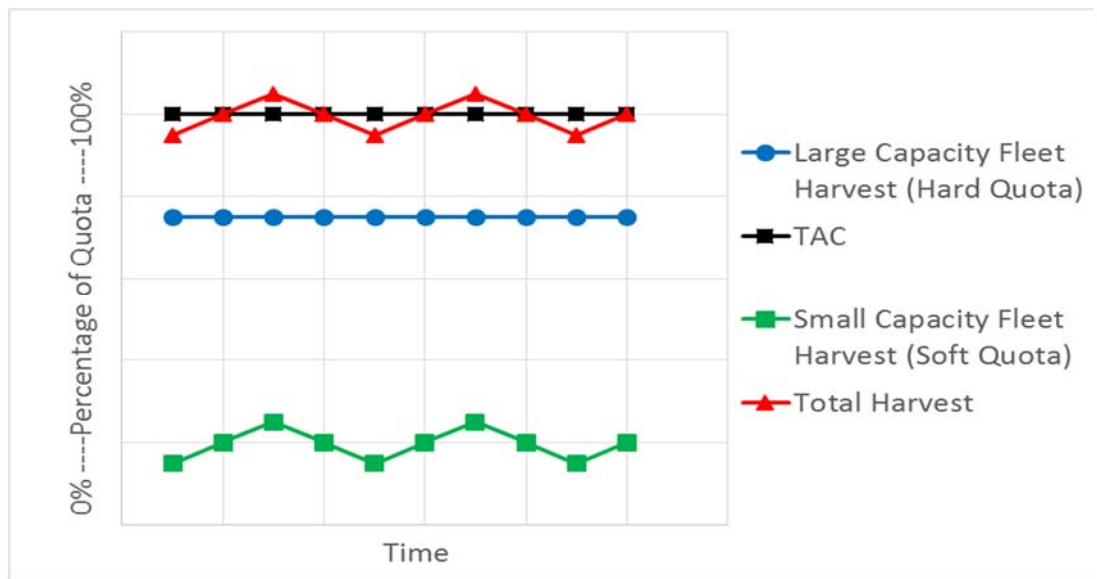


Figure 1. A graphical representation of the two fleet capacity allocation showing the fluctuating small capacity bait harvest and its impact on total harvest relative to the quota.

Option H. Allocation Strategy Based on TAC Level

The quota allocation strategy would vary depending on the amount of TAC available in each fishing year. The average landings for the years 2009–2011 (212,500 mt), from which a 20% reduction was taken in Amendment 2, would serve as the baseline. When the annual, coastwide TAC is at or below 212,500 mt, it would be allocated to jurisdictions based on average landings during 2009–2011 (i.e., the current allocation strategy). When the TAC exceeds 212,500 mt, the amount above 212,500 mt would be reallocated based upon an alternative allocation strategy, such as any of the other options presented in this section, or added to the episodic events set aside, or distributed to jurisdictions based on need or another agreement.

The intent of this option would be to ensure that each jurisdiction equally contributes to the conservation of the menhaden resource the Board determined

was necessary in adopting Amendment 2 and prevent the entire burden from being borne solely by high-quota jurisdictions. Once the TAC exceeds the baseline, however, additional harvest opportunities can be redistributed to other jurisdictions in order to address concerns expressed by proponents of reallocation.

Public Comment Questions: Should the Board maintain, or revise, the allocation formula currently used to manage the commercial Atlantic menhaden fishery? Which allocation option(s) provides for the fairest and most equitable distribution of coastwide total allowable catch? Which allocation option(s) strikes the best balance between current needs and future growth opportunities? Do you support the use of soft quotas for some user groups? What is a suitable small-capacity trip limit in Option G? How should a small-capacity gear be defined? Are there any other options, besides those offered in this document, that the Board should consider?

**ISSUE 3:
Allocation
Timeframe**

Background: As part of its required review of menhaden allocation, the Board is also considering changes to the reference period upon which the quotas are based. Amendment 2 divides the total allowable catch into jurisdictional quotas based on average landings between 2009 and 2011. A key question facing the Board is whether this timeframe represents a fair and equitable representation of coastwide menhaden catch – past, present, and future. It is important to note that the data quality of catch landings improves with time, with the most reliable bait landings available since 1985 and quota monitoring systems implemented in 2013.

Statement of the Problem: The reference period established by Amendment 2 does not consider history prior to 2009, nor recent changes in the fishery. In addition, some states have expressed concerns about underreported harvest during 2009–2011. In revisiting state-by-state quotas, the Board must decide if these three years are the most appropriate timeframe on which to base allocation.

Option A: 2009–2011 Average (Status Quo)

Quota allocation is based on the three-year average of landings between 2009 and 2011.

Option B: 2012-2016 Average

Quota allocation is based on the five-year average of total landings between 2012 and 2016. This timeframe includes the five most recent years of data and encompasses years prior to and after the implementation of a quota system. Total landings include transfers, bycatch, and landings under the episodic events program.

Option C: Longer Time-Series Average

Quota allocation is based on a longer time series average of landings. For example, quota allocation could be based on a four-year average of landings between 2009 and 2012, with 2012 being the last year before implementation of Amendment 2. Or

the allocation timeframe could be extended to include years prior to 2009, such as 2005 when the Beaufort, North Carolina reduction plant closed, or 1985 when more accurate bait landings data become available.

Option D: Weighted Allocation

Allocation is weighted over two time periods: a more distant period and a more recent period. For example, 50% of the allocation could be based on average landings between 2009 and 2012 while the other 50% of the allocation could be based on average landings between 2013 and 2015. Or, a portion of allocation could be based on landings in the 1980's while another portion of allocation could be based on landings in the 2000's. Weighting is intended to balance prior trends in the fishery with recent changes in catch.

Public Comment Questions: Should the Board consider changes to the reference period on which menhaden allocation is based? Should allocation consider prior trends as well as recent changes in the fishery? What years would you recommend as the basis for allocation?

***ISSUE 4:
Quota
Transfers
and Overage
Payback***

Background: Amendment 2 allows for two or more states to transfer (or combine) their Atlantic menhaden quota. Transfers often occur when a jurisdiction has exceeded its allocation for the year; rather than reduce its subsequent-year quota by the amount of the overage, as required by Amendment 2, a state can receive quota from another state that did not harvest its entire allocation. These transfers do not permanently affect a state's quota allocation. All states participating in a transfer (i.e., the donor states and the receiving states) must individually submit signed letters to the Commission, requesting approval for the transfer of a specified poundage of menhaden. Transfers are not final until written approval is granted by the ASMFC Executive Director.

As a practical matter, fisheries routinely, yet inadvertently, exceed or under perform their quota due to the challenges of quota monitoring, including delays in reporting and unanticipated changes in catch rates. Transfers are a useful technique to address these occurrences. However, some regions may be disadvantaged by the quota transfer system due to the timing of their fishery relative to other fisheries along the coast, meaning they may not know they've had an overage until late in the year when available quota has already been donated. Furthermore, there is no ASMFC guidance on how to apportion unused quota if there are multiple transfer requests at the same time.

Other FMPs allow for quota transfers and provide examples of potential management tools. The black sea bass FMP allows for quota reconciliation such that, in a year where the coastwide quota is not exceeded, any state-specific overage is forgiven in its entirety. This streamlines the transfer process and avoids the need for written approval from the individual states and the ASMFC Executive Director. This

could potentially be a viable option for the menhaden fishery given that states' harvest did not exceed the annual TAC from 2013-2015.

The black sea bass FMP also provides examples of what to do in years when the coastwide TAC is exceeded. Specifically, states that did not meet their allocation may transfer their unused quota to a common pool. This common pool quota is then redistributed to states that exceeded their quota based on the proportion of the state's overage. Any overage that remains after the redistribution of unused quota is deducted from a state's quota the subsequent year. It is important to note that quota reconciliation may not be compatible with quota rollovers (see Issue 5 on pg 15) as unused quota is used to offset overages.

Statement of the Problem: Amendment 2's procedure for quota transfers may not benefit states evenly, lacks specific guidance, and can be an administrative burden on donor and receiving states. Consequently, the Board is considering a quota reconciliation process to address quota overages, as a replacement for quota transfers for this purpose. Quota transfers could still occur for other reasons (e.g., a state grants a vessel safe harbor with catch destined for another state that is then unloaded there). In the case of the fleet capacity quota allocation options, reconciliation would not be necessary for any fleet assigned a soft quota.

Public Comment Questions: Should the process for quota transfers be further defined or replaced by an automatic reconciliation process? Should state-specific quota overages be forgiven in years when the coastwide TAC is not exceeded? When the coastwide TAC is exceeded but at least one jurisdiction has an underage, should unused quota be pooled and redistributed through a specified transfer process to states with an overage? Should states be required to contribute unused quota to a common pool or should this be voluntary? Should there be accountability measures for a state that exceeds its quota by a certain percentage or repeatedly participates in quota reconciliation?

ISSUE 5:
Quota Rollovers

Background: Amendment 2 allows for unused quota to be rolled over for use in the subsequent fishing year only when the stock is not overfished and overfishing is not occurring. At the time of implementation (2013), the Atlantic menhaden stock was considered not overfished but overfishing was occurring. As a result, the amendment deferred defining the specifics of the rollover program until overfishing was no longer occurring.

In 2015, a new benchmark stock assessment was approved for management use which found the stock is not overfished and overfishing is not occurring. As a result, the stock, since 2015, has met the qualifications for quota rollovers; however, the amount of quota that can be carried into the next year has not been established. In August 2015, the Board agreed to consider the details of quota rollovers in Amendment 3. Other species, including spiny dogfish and Atlantic herring, allow for a percentage (5%

and 10%, respectively) of unused quota to be rolled over from one year to the next. For example, in the spiny dogfish fishery, if a state's annual quota is 1 million pounds, a maximum of 50,000 pounds (5%) of unused quota can be rolled over into the subsequent year.

It is important to note that the issues of quota reconciliation and quota rollover may not be compatible, such that it may not be possible to have quota overages automatically forgiven via reconciliation and unused quota roll over into the subsequent fishing year. Any unused soft quota would also not be eligible for quota rollover into the subsequent fishing year.

Statement of the Problem: The Atlantic menhaden stock is not overfished and overfishing is not occurring, thereby qualifying the stock for quota rollovers per Amendment 2. However, because the details of a quota rollover program were not specified in Amendment 2, no quota rollovers have taken place. The Board is looking to readdress and clarify the provisions via Amendment 3.

Public Comment Questions Should unused quota be rolled over into the subsequent year? Should the amount rolled over be limited to a percent of quota? Should all sectors of the fishery be allowed to roll over quota? Should quota rollover be mandatory or voluntary?

**ISSUE 6:
Incidental Catch
& Small Scale
Fishery
Allowance**

Background: Upon a state reaching its individual quota and closing its directed fishery, Amendment 2 provides a bycatch allowance of up to 6,000 pounds of Atlantic menhaden per vessel per trip for non-directed fisheries. The intent of this allowance is to accommodate and track incidental catch, i.e. catch that is not targeted but is harvested. As specified in Amendment 2, all landings that occur during a state-designated open season count towards a state's quota; however, menhaden caught after the closure of a state's directed fishery are considered bycatch and do not count towards the quota, nor the coastwide TAC.

Coastwide, the vast majority of menhaden harvested under the bycatch allowance is taken with stationary multi-species gears. Table 4 in Appendix 1 shows the average bycatch landings between 2013 and 2015 by gear and jurisdiction. On average, 5.7 million pounds of menhaden bycatch are landed each year, representing 1-2% of total landings in the fishery. Over 80% of the bycatch harvest comes from stationary gears, with the biggest contributors being the Maryland pound net fishery and the Virginia anchored gill net fishery. Cast nets contribute 6% of bycatch landings and represent the largest contributor from the mobile gear sector. This is followed by drift gill nets (5%) and beach seines (3.7%). Jurisdictions in the Chesapeake Bay contribute the most to bycatch landings of menhaden, with Maryland harvesting 40.7%, Virginia harvesting 24.9%, and the Potomac River Fisheries Commission harvesting 15.4% of annual coastwide bycatch landings. Between 2013 and 2015, 59.6% of bycatch trips using stationary gears landed less than 1,000 pounds of menhaden and 80.7% of trips landed

less than 3,000 pounds of menhaden (Table 5 in Appendix 1). In 2015, most menhaden landed under the bycatch allowance were landed in April (28%), September (23%), and October (21.3%). This corresponds with the closure of several states' directed fisheries in the spring and fall (Table 6 in Appendix 1).

Concerns have been raised regarding the current bycatch provision. The first is that landings under the bycatch allowance do not count toward a state's quota. As a result, bycatch landings may undermine the efficacy of the coastwide TAC since there is no yearly bycatch limit. Additionally, since neither "bycatch" nor "non-directed fisheries" is defined in Amendment 2, it is unclear who can harvest under the allowance. Many passive gears, such as pound nets, can be set to target menhaden but may also catch menhaden incidentally. Furthermore, the question arises to whether the bycatch allowance essentially supports small-scale directed fisheries rather than accommodating and tracking incidental catch. Cast nets, for example, direct on menhaden but are included in the bycatch provision.

Another concern is that the current bycatch provision dissuades cooperative fishing since the bycatch allowance is per vessel rather than permitted individual. This is particularly problematic in the Chesapeake Bay where it is traditional for multiple permitted individuals to work together from the same vessel to harvest menhaden. Addendum I (implemented in 2016) alleviated this problem by allowing two permitted individuals fishing from the same vessel using stationary multi-species gear to land up to 12,000 pounds of menhaden per trip per day (ASMFC 2016); however, there may be other ways to address this issue in Amendment 3.

Moving forward, there are several options to address concerns with the current bycatch provision. Bycatch could be defined as a percent composition to ensure it accounts for incidental landings. Bycatch could also be defined per permitted individual rather than per vessel to allow for cooperative fishing. Alternatively, bycatch could be included in the TAC or limited through a harvest cap to ensure it does not undermine the total quota. Additionally, the bycatch provision could be removed and replaced with a coastwide small-scale fishery set aside (Option F on pg 18). This would remove the administrative burden on states to closely monitor landings by small-scale fisheries, allow for flexibility in landings as abundances changes geographically and temporally, and bring the current bycatch fishery under the TAC.

In the management options presented below, the term 'bycatch' is replaced with the term 'incidental catch.' This change was made due to the various and conflicting definitions of bycatch among the states and to reflect the intent of the allowance to accommodate menhaden catch that is not targeted but is harvested.

Statement of the Problem: Under Amendment 2, there is a 6,000 pound incidental bycatch limit per vessel per trip/day for non-directed fisheries. Several issues have been identified with this allowance, namely that bycatch is not included in the TAC,

there is no definition of what constitutes bycatch, and the allowance does not support cooperative fishing.

Option A: Incidental Catch Limit per Vessel (Status Quo)

Following the closure of the directed fishery, there is an incidental catch limit per vessel per trip for non-directed fisheries. Two permitted individual fishing from the same vessel using stationary multi-species gear are allowed to land twice the allowance when working together.

Option B: Incidental Catch Allowance per Permitted Individual

An incidental catch limit would be established per person/trip, rather than per vessel/trip. As a result, multiple permitted individuals on the same vessel could each land the incidental catch limit.

Option C: Incidental Catch Included in Quota

All incidental catch of menhaden would count towards the directed fishery quota. Once the quota is reached, the menhaden fishery would be closed and no landings would be allowed.

Option D: Incidental Catch Cap and Trigger

Rather than a trip limit, incidental catch in the Atlantic menhaden fishery would be limited by a harvest cap (not part of the annual TAC). If the collective incidental landings exceed this cap by a certain percentage in a single year or by any percentage in two consecutive years, management action would be triggered by the Board to reduce incidental landings in the fishery. Separate harvest caps could be established for passive and active gears

Option E: Incidental Catch Defined by Percent Composition

Trips in the non-directed fisheries that land above a certain poundage of menhaden would be required to maintain their menhaden landings under a specific percent composition of catch. This option could be combined with either an incidental catch allowance per trip or a cap in order to limit menhaden landings in the non-directed fisheries.

Option F: Small-Scale Fishery Set Aside

A portion of the overall TAC would be set aside for gears participating in the small-scale fisheries. Trips by these gears would be limited to a certain poundage per day, and all trips conducted by these gears would count towards the small-scale fishery quota. Separate trip limits could be established for active and passive gears. If the quota is exceeded in a given year, payback could be required or the quota for the subsequent year could be adjusted up or down to meet the expected harvest by small-scale gears. While similar to Option G presented in *Issue 2: Quota Allocation*, the inclusion of this option would allow for the establishment of a small-scale fishery set aside regardless of what allocation option is chosen.

Public Comment Questions: Should there be a cap on incidental landings in the Atlantic menhaden fishery? Should incidental catch be defined as a percent composition? Should the incidental catch allowance be allocated to vessels or permit holders? Should the incidental catch provision be replaced with a small-scale fishery set aside, and if yes, what gears should be included in this sub-quota (see Table 3 in Appendix 1)? Should active and passive gears be treated differently under the incidental catch provision?

***ISSUE 7:
Episodic Events
Set Aside***

Background: Amendment 2 sets aside 1% of the overall TAC for episodic events, which are times and areas where Atlantic menhaden are available in more abundance than they normally occur. The purpose of the set aside is to enable increased harvest of menhaden during episodic events so as to minimize discards in the fishery. The details of the program, established as a pilot, were approved by the Board in May 2013 and are outlined in Technical Addendum I. In the fall of 2013, the Board extended the pilot program until further Board action. In 2016, the Board extended the program until finalization of Amendment 3.

Eligibility in the episodic events set aside program is reserved for the New England states (Maine through Connecticut). To participate in the program, these states must implement daily trip level harvest reporting, restrict the harvest and landing of menhaden under the episodic events program to state waters, and implement a maximum daily trip limit no greater than 120,000 pounds/vessel. In order for a state to declare participation in the program, a state must demonstrate it has reached its quota prior to September 1 and provide information indicating the presence of unusually large amounts of menhaden in its state waters. Any set aside quota that is not used by October 31 is returned to the coastwide quota and redistributed to the states. If the set aside quota is exceeded, overages are deducted from the next year's episodic events set aside amount.

In 2014 and 2015, Rhode Island was the only state to declare participation in the episodic set aside program, harvesting 8% of the set aside in 2014 and 45% of the set aside in 2015 (Table 1). In 2016, Rhode Island and Maine declared participation in the program, and New York sought Board approval to participate in the program. While New York is not considered a New England state under Technical Addendum I, New York highlighted the unusually large amounts of menhaden in the Peconic Bay estuary and the potential for fish kills. The Board approved New York's request to harvest under the episodic events set aside program, capping New York's harvest under the program to 1 million pounds.

Table 1: Episodic events set aside for 2013-2016 and the percent used by participating states.

Year	Set Aside (lbs)	Landed (lbs)	% Used	State	Unused Set Aside Reallocated (lbs)
2013	3,765,491				
2014	3,765,491	295,000	8%	RI	3,470,491
2015	4,142,040	1,883,292	45%	RI	2,258,748
2016	4,142,040	3,810,145	92%	ME, RI, NY	331,895

Given the increasing amounts of menhaden landed under the episodic events set aside program and New York’s request to harvest under the program, the Board is considering changes to the program. Specific questions include whether the percent of TAC allocated to the set aside should be increased, which states should be allowed to participate in the program, and whether the current definition of an episodic event is appropriate. Furthermore, some allocation options presented in this document would potentially negate the need for such a set aside.

Statement of the Problem: Since 2013, participation in and landings under the Episodic Events Set Aside Program have increased. As a result, the Board is considering changes to the scope of the program, including the amount of quota allocated to the set aside and which states are qualified to participate.

Public Comment Questions? Should a percentage of the TAC be set aside for episodic events? If yes, what percentage of the annual TAC should be set aside? Which jurisdictions should be allowed to participate in this program? Does the episodic event program need to be reconsidered as the distribution of menhaden changes? How should states demonstrate that an episodic event is occurring in state waters?

**ISSUE 8:
Chesapeake Bay
Reduction
Fishery Cap**

Background: The Chesapeake Bay reduction fishery is currently limited by a harvest cap of 87,216 metric tons (mt). The goal of this restriction is to prevent all of the reduction fishery harvest from occurring in the Chesapeake Bay, a critical nursery area for Atlantic menhaden. Harvest by the reduction fishery is prohibited within the Chesapeake Bay when 100% of the cap has been reached. A maximum of 10,976 mt of un-landed fish can be rolled over into the subsequent year’s harvest cap. The Chesapeake Bay reduction fishery has consistently underperformed the 87,216 mt harvest cap, landing less than 50,000 mt in 2015, less than 45,000 mt in 2014, and less than 40,000 mt in 2013. Note that landings by the Chesapeake Bay reduction fishery are confidential and only approximate landings are provided.

The Chesapeake Bay Reduction Fishery Cap, which was originally implemented in 2006, was intended to prevent the localized depletion of menhaden. There was a hypothesis that the potential for localized depletion exists in the Chesapeake Bay given the concentrated harvest of the species in the area, particularly from the reduction fishery. Possible outcomes of localized depletion include compromised predator-prey relationships and chronic low recruitment of larval menhaden. The Board committed

to assessing the potential for localized depletion at its February 2005 meeting and established the Atlantic Menhaden Research Program (AMRP) to evaluate the possibility of such depletion occurring. In 2009, work completed under the AMRP was peer reviewed by the NOAA Center for Independent Experts (CIE). The peer review was unable to conclude localized depletion is occurring in the Chesapeake Bay given there were two assessment models which generated different advice. It also noted that given the high mobility of menhaden, the potential for localized depletion could only occur on a “relatively small scale for a relatively short time.” Since harvest by the reduction fishery has consistently been below the cap and there has not been conclusive evidence that localized depletion is occurring in the Chesapeake Bay, the Board would like feedback on whether this is an important management tool in the Atlantic menhaden fishery.

Statement of the Problem:

The Chesapeake Bay Reduction Fishery Cap was intended to protect menhaden nursery areas and prevent against localized depletion; however the reduction fishery has consistently under-performed its harvest cap and a peer review report was unable to conclude that localized depletion is occurring in the Chesapeake Bay. The Board would like feedback on whether this is an essential management tool.

Public Comment Questions: Should the Chesapeake Bay Reduction Fishery Cap be maintained? Is it an important tool for the management of Atlantic menhaden?

**ISSUE 9:
Research
Programs and
Priorities**

Background: As a part of the 2015 stock assessment, the Board’s Technical Committee outlined a series of research recommendations and priorities for the Atlantic menhaden stock. The intent of these recommendations is to help inform and support research conducted by states, institutions, and industry. Current recommendations include evaluating the productivity of different estuaries along the Atlantic coast, collecting age-specific data on movement rates of menhaden to develop regional abundance trends, updating information on maturity and fecundity, and investigating the effects of global climate change on the distribution and behavior of menhaden. While these recommendations outline a variety of research needs for the stock, there may be other pertinent research questions which could inform future management decisions. Furthermore, while none of the TAC is currently set aside for research purposes, there could be an option to establish a Research Set Aside (RSA), through which a portion of menhaden quota could be reserved for scientific studies. Other fisheries, such as Atlantic Herring, currently have a RSA to conduct research on the bycatch of river herring and better characterize catch.

Statement of the Problem: Research recommendations for the menhaden stock are currently provided as a part of the benchmark stock assessment process; however, there may be other recommendations that should be added to this list to inform future management of the resource and fishery. Furthermore, the Board could consider a RSA to help facilitate research on the stock.

Public Comment Questions: What are important research questions that need to be answered regarding the menhaden fishery and resource? How should research recommendations be prioritized? Should there be a RSA established for menhaden? If yes, what portion of TAC should be set aside for research purposes?

**BACKGROUND
INFORMATION
ON THE MGMT
& STOCK STATUS
OF ATLANTIC
MENHADEN**

Summary of Fishery Management

The Commission has coordinated interstate management of Atlantic menhaden (*Brevoortia tyrannus*) in state waters (0-3 miles) since 1981. Management authority in the exclusive economic zone (3-200 miles from shore) lies with NOAA Fisheries. As outlined in the Commission's Charter, fishery management plans shall be designed to prevent overfishing throughout the species' range, be based on the best available science, minimize waste of fishery resources, protect fish habitat, provide for public participation, and allow for fair and equitable allocation among the states.

In 1988, the Commission initiated a revision to the FMP. The Plan revision included a suite of objectives to improve data collection and promote awareness of the fishery and its research needs, including six management triggers used to annually evaluate the menhaden stock and fishery. In 2001, Amendment 1 was passed, providing specific biological, social, economic, ecological, and management objectives for the fishery. Subsequent addenda (I-V) to Amendment 1 sought to improve the biological reference points for menhaden and cap the reduction fishery. Addendum I revised the biological reference points and changed the frequency of stock assessments. Addenda II and III instituted a harvest cap on the Chesapeake Bay Atlantic menhaden reduction fishery for the 2006 through 2010 fishing seasons. Addendum IV extended this harvest cap through 2013. Addendum V, which was approved in November 2011, established a new F threshold and target rate (based on MSP) with the goal of increasing abundance, spawning stock biomass, and menhaden availability as a forage species.

The Atlantic menhaden fishery is currently managed through Amendment 2 to the Atlantic Menhaden FMP, which was passed in 2012 and implemented in 2013. It sets a coastwide TAC for the stock and allocates this harvest into state quotas. Amendment 2 also establishes a bycatch provision which allows for the harvest of up to 6,000 pounds of Atlantic menhaden per trip for non-directed fisheries and sets aside 1% of the overall TAC for episodic events. In order to effectively implement the management measures established in Amendment 2, states are required to implement timely reporting systems to monitor catch.

Technical Addendum I outlines the provisions of the episodic events set aside program. It restricts participation in the program to the New England states and requires these states to implement daily harvester reporting, restrict harvest to states waters, and set a 120,000 pound daily trip limit in order to harvest under the set aside. Technical Addendum I also outlines a process for declaring participation in the

program. Addendum I to Amendment 2 revisits the bycatch provision and allows two licensed individuals to harvest up to 12,000 pounds of menhaden bycatch when working from the same vessel fishing stationary, multi-species gear—limited to one vessel trip per day. Stationary multi-species gears are defined as pound nets, anchored/staked gill nets, and fyke nets.

Summary of Stock Status

The latest peer reviewed stock assessment is the 2015 benchmark assessment. The assessment used the Beaufort Assessment Model, a statistical catch-at-age model which estimates population size at age and recruitment in 1955 and then projects the population forward in time to the terminal year of the assessment (2013). The model estimates trends in population dynamics, including abundance at age, recruitment, spawning stock biomass, egg production, and fishing mortality rates. The current stock assessment model configuration does not directly output the unfished biomass of the Atlantic menhaden stock.

Model results indicate the population has undergone several periods of both high and low abundance over the time series. Biomass has fluctuated over time from an estimated high of over 2,284,000 metric tons in 1958 to a low of 667,000 metric tons in the mid-1990s. Population fecundity (measured as number of maturing ova, or eggs) has also varied throughout the time series with a large number of eggs seen in the early 1960s, the 1970s, the early 1990s, and the 2000's. Fishing mortality has steadily decreased throughout the model time series. This is primarily due to a decrease in harvest in the reduction fishery which peaked in the late 1950's at over 700,000 metric tons and decreased to roughly 130,000 metric tons in 2013. In contrast, bait landings have slowly increased from roughly 30,000 metric tons in the late 1980s to over 60,000 metric tons in 2012.

Population fecundity in 2013 was estimated to be 170,536 billion eggs, well above the fecundity threshold of 86,821 billion eggs (Figure 2). As a result, the population is deemed not overfished. Overfishing is also not occurring as the fishing mortality in 2013 (0.22) is below the fishing mortality threshold of 1.26 (Figure 3).

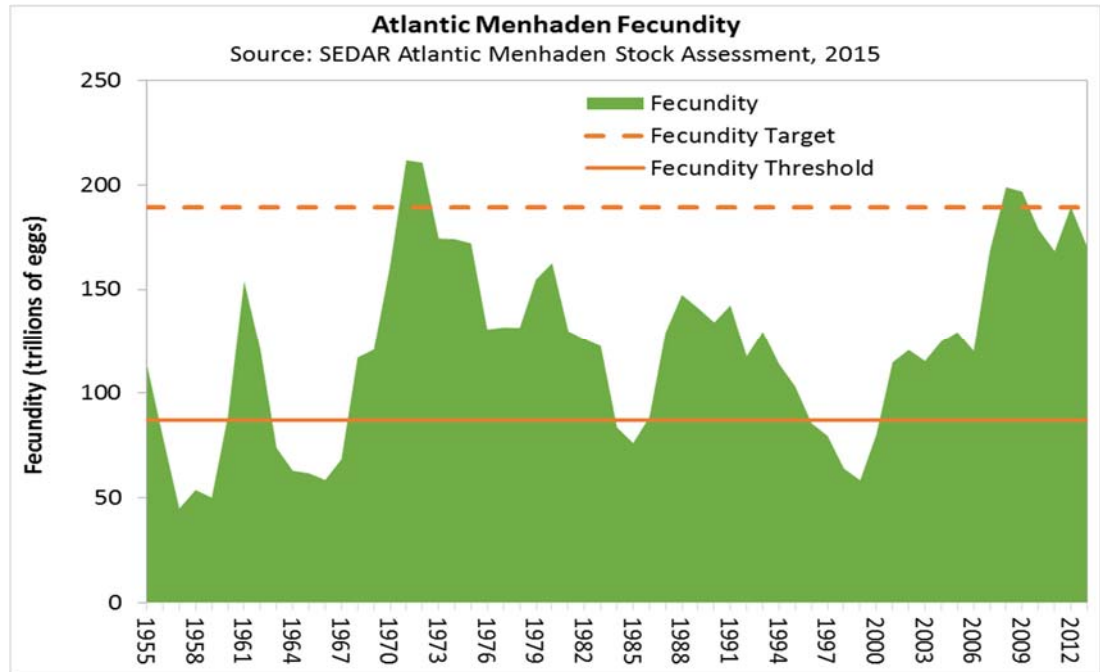


Figure 2: Atlantic menhaden fecundity target and threshold from the 2015 stock assessment. Population fecundity in 2013 was estimated to be 170,536 billion eggs, well above the fecundity threshold of 86,821 eggs.

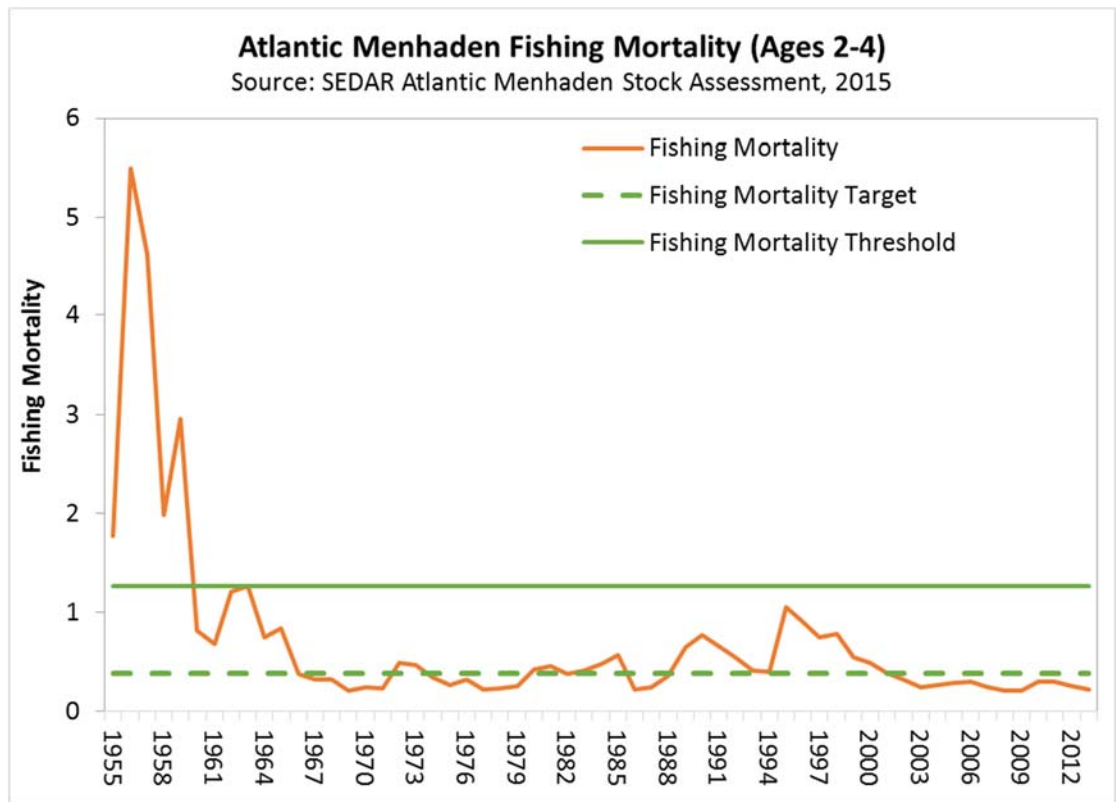


Figure 3: Atlantic menhaden fishing mortality target and threshold from the 2015 stock assessment. Overfishing is also not occurring as the fishing mortality in 2013 (0.22) is below the fishing mortality threshold of 1.26.

Social and Economic Impacts

Changes in the allocation of total allowable catch are expected to have socioeconomic impacts on affected states/jurisdictions, regions, and fishery interests. Overall, improvements in the menhaden stock which lead to increased TAC should benefit fishery participants; however, reductions in allocation to a particular area or interest could lead to reduced employment and associated reductions in the economic benefits derived from menhaden. In general, the reduction sector is expected to take fish in response to the allowable catch in relation to prices of competing oils (for example flax or other vegetable oils), and demand for oil and fishmeal products. The bait sector is expected to take fish in response to allowable catch in relation to the following factors: available fish, competing products (for example herring as bait for lobster), demand for menhaden as a primary desired bait, and prices for competing products in addition to the cost of fishing, fuel and vessel maintenance.

Currently, there is little socioeconomic data available with which to assess the specific effects of changes in allocation and other management actions. The Commission's Committee on Economics and Social Sciences (CESS) issued a request for proposals to fund research in order to characterize the coastwide commercial fisheries, including the bait and reduction sectors and the fishery communities they support. The study will gather both primary and secondary information from stakeholders to understand spatial trends in landings, the distribution of revenue, operational costs, and participation in the fishery. A project was selected early in 2016 and the research is presently being conducted. It is anticipated this data and other project deliverables will be available to the Commission and CESS early in 2017. Information from this survey will be incorporated into Draft Amendment 3.

References

- Atlantic Coastal Fisheries Cooperative Management Act, Title 16 U.S.C. §§ 5101-5108 (1993).
- Atlantic States Marine Fisheries Commission (ASMFC). 2012. Interstate Fisheries Management Program Charter. 1995. Revised February 2016.
- ASMFC. 2012. Amendment 2 to the Interstate Fishery Management Plan for Atlantic Menhaden.
- ASMFC. 2013. Technical Addendum to Amendment 2 to the Interstate Fishery Management Plan for Atlantic Menhaden.
- ASMFC. 2015. Atlantic Menhaden Stock Assessment and Review Panel Reports. SEDAR 40.
- ASMFC. 2016. Addendum I to Amendment 2 of the Atlantic Menhaden Fishery Management Plan.
- Haddon, M. 2009. Review Research on Atlantic Menhaden (*Brevoortia tyrannus*). Chesapeake Bay Fisheries Science Program: Atlantic Menhaden Research Program. External Independent Peer Review by the Center for Independent Experts.
- Hill, K. T., Crone, P.R., Dorval, E., and Macewicz B.J. 2015. Assessment of the Pacific Sardine Resources in 2015 for USA Management in 2015-16. NOAA Fisheries Southwest Fisheries Science Center. http://www.pcouncil.org/wp-content/uploads/2015/04/G1a_SupSWFSC_PPT_SardineAssessment_APR2015BB.pdf
- Hinman, K. 2015. Resource sharing: The Berkeley Criterion. Wild Oceans, Waterford, VA.
- Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O, Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Paul, D., Plaganyi, E., Sainsbury, K., and Steneck, R.S. 2012. Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108pp.
- Smith, A. Brown, C., Bulman, C., Fulton, E., Johnson, P., Kaplan, I., Lozano-Montes, H., Mackinson, S., Marzloff, M., Shannon, L., Shin, Y., and Tam, J. 2011. Impacts of Fishing Low-trophic Level Species on Marine Ecosystems. *Science*, 1209395.
- South Atlantic Fishery Management Council. 2011. Snapper-grouper Amendment 18B – Golden Tilefish.

Appendix 1

Table 1. Atlantic menhaden allocation and quotas for 2013-2016. Current state-by-state allocation is based off of average landings between 2009 and 2011. Quota totals do not include the 1% of the TAC which is reserved for the Episodic Events Set Aside Program. Florida exceeded their quota in 2015 and this overage is deducted from their 2016 quota.

State	Allocation	2013-2014 Quota (lbs)	2015-2016 Quota (lbs)
ME	0.00039	146,787	161,466
NH	0.0000003	112	123
MA	0.00839	3,126,024	3,438,630
RI	0.00018	66,779	73,457
CT	0.00017	65,034	71,537
NY	0.00055	206,695	227,365
NJ	0.11192	41,721,164	45,893,335
DE	0.00013	49,230	54,153
MD	0.01373	5,116,874	5,628,568
PFRC	0.00621	2,314,174	2,545,595
VA	0.85322	318,066,790	349,873,884
NC	0.00493	1,836,948	2,020,645
SC	0.00000	-	-
GA	0.00000	-	-
FL	0.00018	66,995	73,695 (72,030 in 2016)
TOTAL	-	372,783,605	410,062,453

Table 2: Atlantic menhaden total landings (1985-2015) by jurisdiction. Landings include directed harvest, bycatch, and landings from the Episodic Events Set Aside Program. Total coastwide landings and jurisdictional percentages of total landings do not include confidential data.

	ME	NH	MA	RI	CT	NY	NJ	DE	MD	PFRC	VA	NC	SC	GA	FL	TOTAL
1985	33,192,713		3,039,625	8,388,046	234,800	901,800	2,879,766	176,135	5,372,193	16,768,889	620,118,526	97,738,403	C		7,579,674	796,390,570
1986	C		3,411,000	10,389,187	254,400	399,650	2,453,593	20,081	5,449,350	10,971,973	445,663,686	66,377,931	9,952		7,997,973	553,398,776
1987	18,668,660		1,215,175	13,609,224	94,900	206,795	2,563,163	22,034	5,793,683	13,120,698	622,988,388	55,498,571	C		2,776,777	736,558,068
1988	19,687,805	C	8,047,320	15,583,437	175,200	504,100	1,984,045	127,713	6,430,164	13,231,368	525,926,170	73,715,713	500		1,026,228	666,439,763
1989	380,619	C	1,459,402	19,033,173	148,500	449,100	2,854,361	104,382	6,166,236	8,334,174	588,063,122	66,756,288			1,372,959	695,122,316
1990	5,744,597	264,500	1,709,605	17,102,650	96,706	649,710	9,041,459	167,116	1,662,275	4,523,776	696,229,253	72,231,989			2,636,497	812,060,133
1991	16,107,463	204,000	12,798,310	5,090,375	96,300	650,150	16,597,402	278,774	3,540,179	5,376,264	636,489,011	110,528,754			2,062,983	809,819,965
1992	14,857,195	C	13,499,450	2,849,359	91,200	1,131,701	27,470,906	130,833	1,777,088	5,061,565	566,221,850	57,515,712	C		2,788,592	693,395,451
1993	19,520,455	C	1,211,569	5,146,280	195,827	1,048,993	28,296,741	164,046	2,326,613	7,884,001	296,453,210	64,711,384			2,584,766	429,547,595
1994			351,251	533,800	60,128	961,474	38,176,201	78,672	2,369,071	6,680,937	270,775,349	73,853,901			1,387,012	395,227,796
1995			2,910,613	5,873,315	255,264	1,087,978	36,572,507	101,388	4,264,754	7,002,818	360,140,489	58,374,081			687,944	477,271,151
1996			8,500	802	82,851	11,135	35,516,726	100,063	3,906,808	5,111,423	294,195,660	53,850,943			294,936	393,079,847
1997			238,500	5,750	72,329	553,953	38,118,579	55,733	3,457,237	5,757,370	267,021,139	97,727,057	C		408,492	413,416,309
1998	C	C	121,200	400	338,817	430,084	33,287,641	58,048	2,933,818	3,980,738	513,879,901	57,976,455			301,566	613,309,912
1999	C		292,800	2,330	30,298	242,886	27,753,567	78,551	4,460,534	4,860,883	374,942,360	42,799,080			288,144	455,753,158
2000	C		72,600	320,000	14,423	565,800	31,266,780	47,980	3,935,307	5,023,374	358,236,761	56,280,112			260,710	456,025,297
2001	C		144,600	-	38,865	576,426	26,375,573	53,257	3,970,243	3,329,035	484,528,580	56,012,396			179,951	575,209,116
2002	70,062		301,500	5,750	1,138,788	444,739	24,716,412	80,261	4,023,389	3,122,050	362,640,618	69,190,596			55,304	465,789,469
2003			218,255	62	46,515	384,875	17,080,463	42,593	3,163,252	2,438,790	372,486,794	48,936,502			35,810	444,833,911
2004		C	-	39,232	33,210	543,481	20,678,813	75,635	5,369,952	5,411,043	394,100,339	50,577,983			21,220	476,851,047
2005	30,302		2,177,724	14,453	30,636	871,081	17,574,826	120,658	10,635,776	4,759,905	368,988,147	13,386,245			39,404	418,629,157
2006	37,297		2,524,255	15,524	866,235	811,934	21,290,309	111,405	6,841,296	3,413,517	365,305,722	962,648			157,117	402,337,258
2007	C	C	5,543,805	8,948	90,254	483,557	37,202,485	81,850	11,370,064	5,036,906	405,836,300	1,134,167			71,373	467,054,635
2008	4,310,055	C	14,131,256	269,288	104,881	410,121	38,210,688	72,970	8,153,008	4,820,645	339,001,968	645,231			60,098	410,190,616
2009	166,942	33	6,719,048	107,548	170,907	330,496	33,329,177	69,476	7,756,192	3,191,905	335,238,841	2,124,733			52,800	389,258,097
2010	C	C	4,973,857	78,149	42,489	394,556	50,497,253	51,933	6,903,300	2,790,728	404,384,758	1,299,130			76,593	471,531,136
2011	C		116,151	83,899	26,929	279,117	74,324,485	70,326	6,506,430	2,759,597	389,652,459	3,529,967			146,534	477,551,894
2012	39,383	C	1,648,395	106,606	37,454	258,271	85,457,890	130,725	13,737,314	5,892,228	386,552,474	538,783			126,141	494,526,039
2013	C		2,314,888	99,821	26,463	1,187,525	39,819,342	125,909	7,074,727	3,295,295	316,537,921	454,172			224,872	371,168,714
2014	C		2,226,294	500,903	36,552	825,549	41,449,670	161,509	7,005,271	3,175,893	322,492,690	917,375			220,587	379,145,293
2015	C		2,932,128	1,802,089	77,003	1,468,165	47,811,837	150,542	7,551,430	2,739,035	350,524,668	839,637	C		377,729	416,275,905
% of total landings 1985-2015	0.8%	0.0%	0.6%	0.7%	0.0%	0.1%	5.7%	0.0%	1.1%	1.1%	81.2%	8.4%	0.0%	0.0%	0.2%	100.0%

Table 3: Atlantic menhaden coastwide landings averages by gear type for 2009-2012 and 2013-2014. Bycatch allowance landings are included in the 2013-2014 average. Data are preliminary and subject to change.

Landings in Pounds	2009-2012 Average	Percent by Gear	2013-2014 Average	Percent by Gear
Purse Seine	436,211,312	95.188%	353,766,645	94.207%
Pound Net	16,129,566	3.520%	13,990,507	3.726%
Trawl	2,639,414	0.576%	1,444,210	0.385%
Gill Net	2,784,530	0.608%	5,052,734	1.346%
Cast Net	213,494	0.047%	750,823	0.200%
Trap/Pots	104,775	0.023%	156,790	0.042%
Fyke Net	51,994	0.011%	3,865	0.001%
Haul Seine	64,215	0.014%	118,651	0.032%
Other	65,608	0.014%	237,735	0.063%
Total	458,264,908	100%	375,521,959	100%

Table 4: Average landings under the bycatch allowance from 2013-2015 by gear type and jurisdiction. The highlighted cells indicate the high bycatch landings in the Maryland pound net fishery and the Virginia anchored gill net fishery. (C)= confidential landings and (-)=no landings. Total confidential landings were 209,277 pounds (i.e., the sum of all C's in the table below). Note that the sum of pounds and percent of total columns do not include confidential data.

State/Jurisdiction	RI*	NY	NJ**	DE	MD	PRFC	VA	FL	Sum lbs (NonConf)	% of Total
Stationary Gears While Fishing										
Pound net	57,231	128,854	C	-	2,306,552	884,843	122,913	-	3,500,393	60.9%
Anchored/stake gill net	C	-	100,202	28,998	5,131	-	1,242,512	C	1,376,843	24.0%
Pots	-	C	-	C	10,001	-	-	C	10,001	0.2%
Fyke nets	-	-	C	-	C	-	C	-	<1000	0.0%
Mobile Gears While Fishing										
Cast Net	C	183,137	C	-	C	-	-	163,776	346,913	6.0%
Drift Gill net	-	18,175	129,620	66,117	16,082	-	57,794	-	287,788	5.0%
Seines Haul/Beach	-	206,587	-	-	C	-	5,119	-	211,706	3.7%
Trawl	C	9,733	C	-	-	-	-	-	9,733	0.2%
Hook & Line	C	-	-	-	C	-	-	C	<300	0.0%
Sum lbs (NonConf)	57,231	546,485	229,822	95,116	2,337,766	884,843	1,428,339	163,776	5,744,572	
% of Total	1.0%	9.5%	4.0%	1.7%	40.7%	15.4%	24.9%	2.9%		

NJ** an ad hoc method was used to split gill net data between stationary and mobile gears

RI* trips do not include those landed under the episodic events set aside because those landings are counted as part of the directed fishery.

Table 5: Total number of bycatch allowance trips landing menhaden by stationary gears from 2013-2015 by jurisdiction and percent of total trips by 1,000 pound landings bins. (C)= confidential landings.

Bins (LBS)	VA	MD	PRFC	NJ	NY	DE	RI*	FL	Total Trips	Total Bin%
1-1000	71%	35%	31%	85%	88%	91%	53%	100%	5,350	59.6%
1001-2000	13%	12%	21%	10%	9%	4%	14%	0%	1,176	13.1%
2001-3000	7%	8%	15%	3%	C	4%	18%	0%	716	8.0%
3001-4000	3%	7%	10%	1%	3%	1%	4%	0%	426	4.7%
4001-5000	3%	7%	13%	C	C	1%	3%	0%	441	4.9%
5001-6000	2%	14%	10%	C	C	0%	6%	0%	519	5.8%
6000+	0%	16%	0%	C	C	0%	3%	0%	351	3.9%
Total Trips	4672	2057	1138	477	345	165	102	23	8,979	
Total Trips %	52.0%	22.9%	12.7%	5.3%	3.8%	1.8%	1.1%	0.3%		

RI* trips do not include those landed under the episodic event set aside because those landings are counted as part of the directed fishery.

Table 6: Menhaden bycatch landings by month in 2015. Jurisdictions which landed under the bycatch allowance include Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Potomac River Fisheries Commission, Virginia, and Florida. Bycatch landings correspond to the closure of states' directed fisheries in the spring and fall. Landings under the Episodic Events Program are not included in this table. (C)=confidential landings. Note: the total sum of pounds does not include confidential landings.

	Pounds	%
January	-	
February	-	
March	C	
April	1,746,125	28.4%
May	214,409	3.5%
June	239,290	3.9%
July	160,574	2.6%
August	199,904	3.2%
September	1,416,328	23.0%
October	1,308,829	21.3%
November	640,627	10.4%
December	232,055	3.8%
Total	6,158,140	100.0%

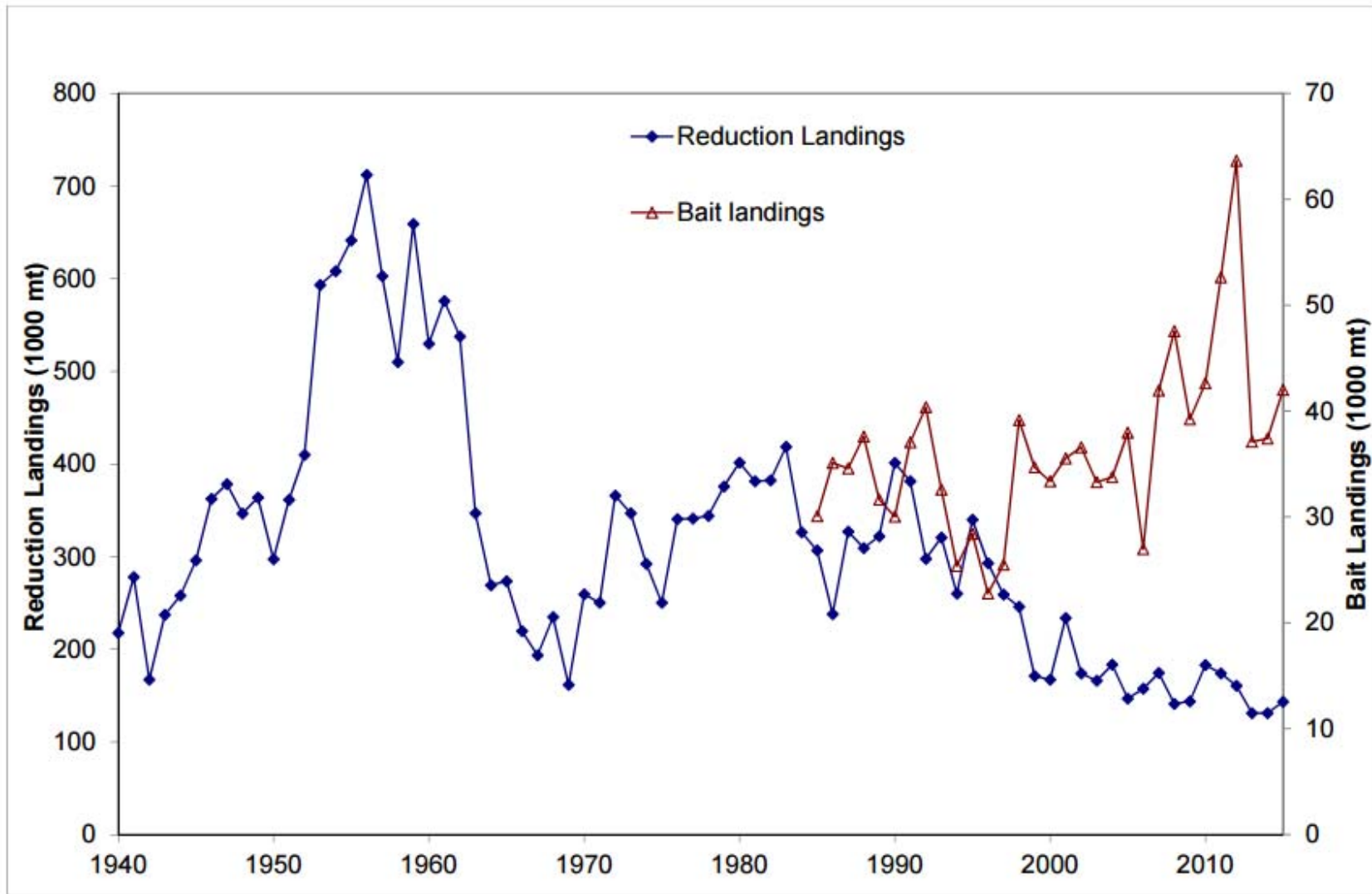


Figure 1: Landings from the reduction purse seine fishery (1940-2015) and the bait fishery (1985-2015) for Atlantic menhaden. Note the two vertical axes are on different scales.

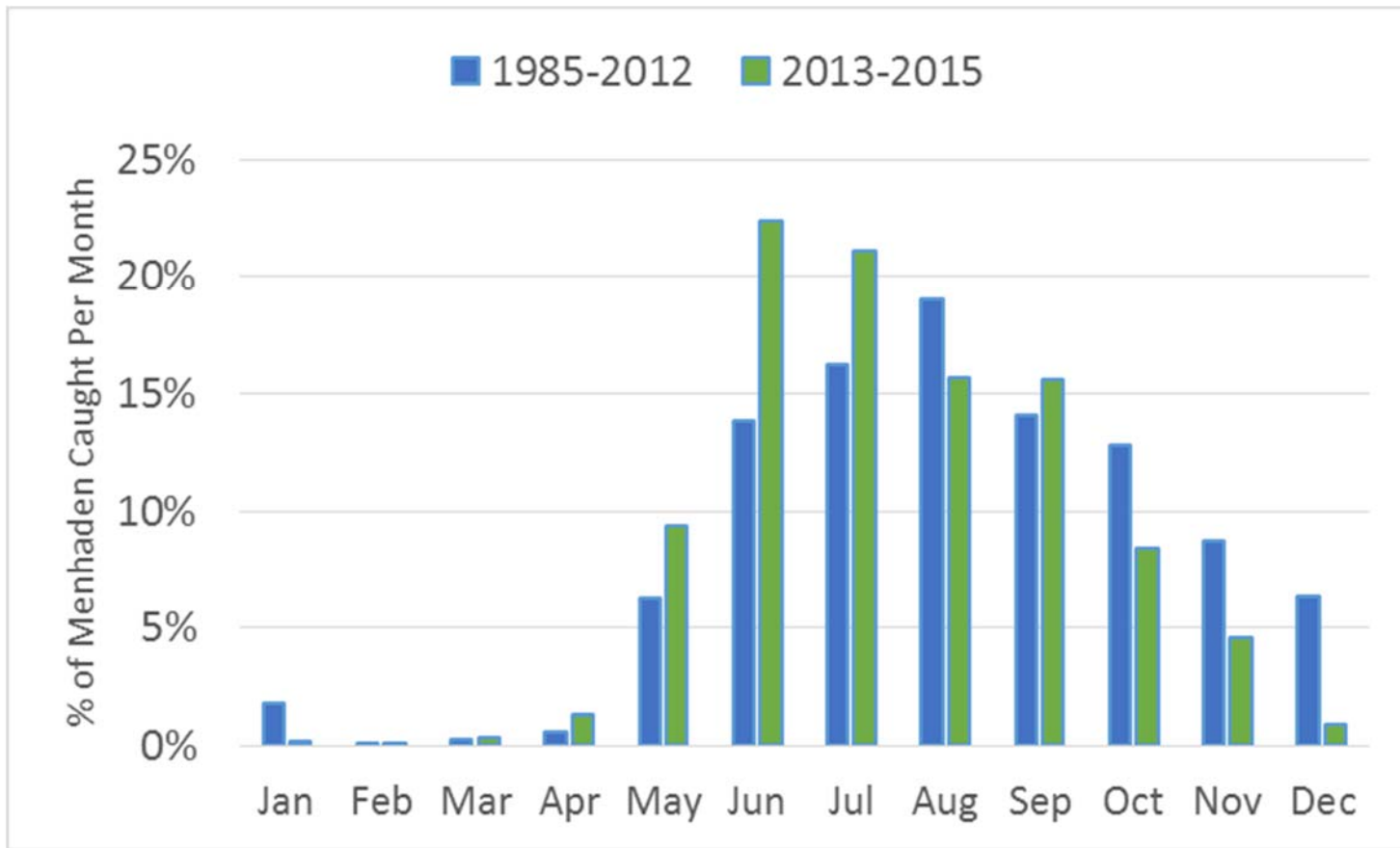


Figure 2: Percent of landings from the menhaden commercial fishery by month. Blue bars show landings from 1985 to 2012 and the green bars show landings from 2013-2015 (following the implementation of Amendment 2).

Appendix 2



Atlantic States Marine Fisheries Commission

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MEMORANDUM

April 20, 2015

To: Atlantic Menhaden Management Board
From: Biological Ecological Reference Points Workgroup
RE: Ecological Reference Points using Pikitch et al. (2012)

At its February meeting, the Atlantic Menhaden Management Board (Board) tasked the BERP WG with developing ecological reference points for Atlantic menhaden using Pikitch et al. (2012) as described in the ERP Report. As the Workgroup noted in the ERP Report, models or ERPs presented in the ERP report required further review by the BERP WG. To complete this task, the Workgroup reviewed the methodology by Pikitch et al. (2012) to determine which “information tier” Atlantic menhaden fit into. Subsequently, the WG evaluated the applicability of the recommended management action associated with that information tier. After detailed discussions, the WG concluded:

1. The WG recognizes that the recommendations in Pikitch et al. (2012) are based on the idea that the variable stock dynamics of forage species, like Atlantic menhaden, may require additional management precautions than other non-forage species.
2. The WG acknowledges that while the ERPs referenced in Pikitch et al. (2012) may be a bet-hedging strategy, it assumes that there must be some stock-recruitment relationship that has not yet been identified for Atlantic menhaden.
3. The WG decided that menhaden fall under the “intermediate information tier” as defined by Pikitch et al. (2012), with strong caveats (please see the attached table).
4. The intermediate information tier recommends management actions in the form of applying a hockey stick harvest control rule with $BLIM \geq 0.4B_0$ and $F=0.5M$. In this scenario, fishing would be prohibited when biomass levels fall below 40 percent of unfished biomass. When biomass is greater than 40 percent of unfished biomass, the fishing mortality would not exceed half the species’ natural mortality rate. The recommended fishing mortality rate from Pikitch et al. (2012) and a comparison to the 2015 Benchmark Stock Assessment single species reference points are displayed below including the terminal year F2013.

Reference Points/Terminal Year F	Benchmark
F26%MSP (threshold)	1.26
F57% MSP (target)	0.38
F64% MSP (Pikitch et al. 2012)	0.29
F70% MSP (F in terminal year 2013)	0.22

5. The WG notes that many of the case studies examined in Pikitch et al. (2012) involved predators that were “highly dependent” (i.e., $\geq 50\%$ of diet) on a single forage species, with strong trophic effects caused by changes in forage abundance. However, in the case of the coast-wide stock of Atlantic menhaden, the primary predator species are more opportunistic, consuming a diverse prey base.
6. While the WG was able to identify that striped bass may meet the Pikitch et al. (2012) predator dependency definition (with menhaden as forage) at certain times of the year and in certain areas (e.g., Chesapeake Bay in winter), the WG determined that none of our predator species of interest could fit the criteria of “highly dependent” predator (with menhaden as forage) on a coast-wide scale. Therefore, the WG does not believe the reference point recommendations in Pikitch et al. (2012) are applicable to this system.
7. Ultimately, the BERP WG does not feel that the management actions recommended in Pikitch et al. (2012) are appropriate for Atlantic menhaden specific management. Furthermore, the WG cannot evaluate if the Pikitch et al. (2012) buffers will actually provide enough forage to sustain predators of interest at desired population levels. Overall, although the ERPs in Pikitch et al. (2012) are less than ideal, predator removals are a large source of mortality for this stock. As such, through the framework of the ERP Report, the WG is working to have better ERP advice that is specific to Atlantic menhaden management.

The WG recommends that the Board form a subcommittee to collaborate with the BERP WG and industry to define more concrete ecosystem management goals and objectives. This would help the WG identify which models might be the most appropriate to achieve proposed objectives. Moving forward, the WG would like to combine the recommendations of a Board subcommittee with those of the Atlantic menhaden peer reviewers to define an objective approach to developing ERPs.

References

Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012). Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

Appendix 3:



TO:

Bob Beal, Executive Director, ASMFC, rbeal@asmfc.org
Toni Kearns, Director, ISFMP Oversight and Policy Development, tkearns@asmfc.org
Michael Waine, Senior Fishery Management Plan Coordinator, Atlantic Menhaden, mwaine@asmfc.org
Louis Daniel, Chair of the ASMFC, louis.daniel@ncdenr.gov
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Jason McNamee, Vice Chair Atlantic Menhaden Technical Committee, jason.mcnamee@DEM.RI.GOV
Jeff Kaelin, Chair Atlantic Menhaden Advisory Panel, jkaelin@lundsfish.com
Amy Schueller, NMFS Beaufort Fishery Analyst: amy.schueller@noaa.gov

RE:

Biological Ecological Reference Points Working Group memo dated April 20, 2015

It was brought to our attention that the Biological Ecological Reference Points (BERP) Working Group (WG) had been tasked “with developing ecological reference points for Atlantic menhaden using Pikitch et al. (2012) as described in the ERP Report.” However, as the WG detailed in its memorandum to you on April 20, 2015, “the WG does not believe the reference point recommendations in Pikitch et al. (2012) are applicable to this system.” Furthermore, “the BERP WG does not feel that the management actions recommended in Pikitch et al. (2012) are appropriate for Atlantic menhaden specific management.

As two co-authors of Pikitch et al. (2012), we are responding to several possible misinterpretations and flawed arguments in the WG memo. We do so by responding to the main reasons the WG gives for concluding that the Pikitch et al. (2012) recommendations are not applicable or appropriate:

1. “The WG acknowledges that while the ERPs referenced in Pikitch et al. (2012) may be a bet-hedging strategy, it assumes that there must be some stock-recruitment relationship that has not yet been identified for Atlantic menhaden.”

- **Brief response:** It is not necessary to identify a stock-recruitment relationship for Atlantic menhaden to apply the Pikitch et al. (2012) recommendations.

Detailed Response: The recommendations in Pikitch et al. (2012) are not a bet-hedging strategy, but rather a precautionary approach that will reduce the odds of forage fish population collapse, keep higher forage fish biomass in the water, and, importantly, prevent or ameliorate impacts on dependent fish, marine mammal, and seabird populations that depend on forage fish. A recent paper in the *Proceedings of the National Academy of Sciences* by Essington et al. (2015) provides additional evidence of the importance of using a high minimum biomass threshold to prevent collapse and maintain high levels of forage fish in the water. The paper also finds minimal impact on fishery yields from this practice over the long term.

Regarding the stock-recruitment relationship, the WG has misinterpreted Pikitch et al. (2012). Its recommendations are derived, in part, from an assessment of the effects of forage fish on dependent predators in 10 Ecopath with Ecosim (EwE) models from around the world. EwE does contain a mathematical function that sets the renewal rate (equivalent to recruitment) for some of its trophic groups, but it does not assume a specific strength or pattern. The report's recommendations regarding reference points may therefore be applied without concern about a particular stock-recruitment relationship.

In a memo dated April 22, 2015, the Atlantic Menhaden Technical Committee offers projections based on the assumption that recruitment is independent of density and centered on median recruitment. According to the SEDAR 40 stock assessment for Atlantic menhaden, the BAM model indicates only three years with recruitment above this median in the last 23 years, so this approach is less conservative than that taken by Pikitch et al. (2012).

2. “None of our predators of interest could fit the criteria of ‘highly dependent’ predator (with menhaden as forage) on a coast-wide scale.”

- **Brief response:** It is not necessary for predators to be highly dependent to apply the report's management recommendations.

Detailed response: The report defines a “highly dependent” predator as one that relies on a forage fish species for at least 50 percent of its diet. As the WG memo correctly states in the table on page three, the existence of such predators is a reason to increase the biomass limit reference point and reduce the fishing mortality limit reference point relative to the recommended hockey stick harvest control rule (HCR). When such predators are absent, as is the case when Atlantic menhaden are considered on a coast-wide basis, the report provides a clear recommendation: use a biomass limit reference point of $0.4B_0$ and a fishing mortality limit reference point of $0.5M$.

It is important to note that the WG's predators of interest do not include the birds and mammals known to consume menhaden and to depend on menhaden in their diets. This is an additional argument in support of considering the biomass and fishing mortality limit reference points proposed by Pikitch et al. (2012). The WG is probably correct that none or few of the fish predators in the coastal western Atlantic are highly dependent on menhaden, as defined by Pikitch et al. (2012), at least in recent history. In the past, this might have been different, either throughout the system or in particular regions, such as the Chesapeake Bay.

3. “The WG cannot evaluate if the Pikitch et al. (2012) buffers will actually provide enough forage to sustain predators of interest at desired population levels.”

- **Brief response:** The buffers presented in Pikitch et al. (2012) were designed to do exactly that in a precautionary sense. The WG's statement that, because the adequacy of these buffers cannot be determined, the WG proposes to adopt an even higher fishing mortality level is illogical.

Detailed response: A key recommendation of Pikitch et al. (2012) was to use the “PREP equation” (PREP stands for “predator response to the exploitation of prey”), to predict predator declines using only the fraction of the predator's diet that is composed of the target forage fish. Since these diet data are available for predators of interest, it is appropriate to use the PREP equation to determine the biomass of forage fish necessary to achieve any desired level of predator

abundance (with a given probability of success), up to its estimated biomass of the predator in the absence of forage fish fishing. As an alternative to the PREP equation, the report recommends using data from models specific to the ecosystem. Since the WG indicates its ERP models are under development, we contend that it is appropriate to use the PREP equation at this time.¹ As noted above, the WG has proposed reference points that are less conservative than those in Pikitch et al. (2012). We do not see the logic of adopting a *higher* level of fishing mortality as a reference point on the ground that the Pikitch et al. reference points might not provide enough forage to sustain predators of interest.

4. The report’s “recommended HCR and ERPs make little sense when there is no dependent predator or stock-recruit relationship.”

• **Brief response:** The report’s recommendations are adaptable for a variety of situations, including this one.

Detailed response: To clarify, although it is correct that there is no identified *highly* dependent predator in the system, striped bass and bluefish are dependent on menhaden for more than 10 percent of their diets. As noted above, use of Pikitch et al. (2012) recommendations does not require the existence of a stock-recruit relationship. Under the circumstances, and as an alternative approach, it makes sense to apply the Pikitch et al. (2012) HCR and ERP recommendations. The recommendations were developed to work in many circumstances, including when there are no identified highly dependent predators and when the stock-recruit relationship is uncertain. The WG was tasked to apply the Pikitch et al. (2012) approach in its charge and it should follow that directive.



Ellen Pikitch, Chair, Lenfest Forage Fish Task Force



Edward D. Houde, Member, Lenfest Forage Fish Task Force

REFERENCES

Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. 2012. Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

Essington, T., P.E. Moriarty, H.E. Froehlich, E.E. Hodgson, L.E. Koehn, K.L. Oken, M.C. Siple, and C.C. Stawitz. 2015. Fishing amplifies forage fish population collapses. Proceedings of the National Academy of Sciences. doi: 10.1073/pnas.1422020112.

¹ One of us (Houde, with co-investigators) has research under way to provide ecosystem-specific ERPs, scheduled to be delivered later this year



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MEMORANDUM

TO: Atlantic Menhaden Management Board
FROM: Megan Ware, FMP Coordinator
DATE: January 12, 2017
SUBJECT: Public Comment on Amendment 3 Public Information Document

The following pages represent a summary of all comment received by ASMFC on the Amendment 3 Public Information Document (PID) as of 5:00 PM (EST) on January 4, 2017 (closing deadline).

A total of 25,606 comments were received on the Amendment 3 PID. Of those comments, 75 were from organizations, 283 were from individuals, and 25,248 were from form letters (10 different letters). Included in these comments was another proposal for an ERP based off of osprey abundance. The proposal for this ERP can be found on pages 68-84.

14 public hearings were held in 13 jurisdictions. Approximately 300 individuals are estimated to have attended all of the hearings combined.

The following tables (pages 2-6) are provided to give the Board an overview of the support for specific options and issues contained in the PID. Summaries of the public hearings can be found on pages 7-67, followed by the ERP proposal based on osprey abundance. This is then followed by form letters with total petitioner count, letters sent by organizations, letters sent by individuals, and emails received from both organizations and individuals.

Public Comment Summary Tables

Issue 1: Reference Points				
	Option A	Option B	Option C	Option D
Individual		7	3	216
Organization	1		5	66
Form Letter				25,248
Hearings				
ME			1	2
NH			1	8
MA				16
RI	2		1	4
CT				5
NY				23
NJ				6
DE	2		1	7
MD	6			8
PRFC				1
VA		1		7
NC			4	5
FL				11
TOTAL	11	8	16	25,633

Issue 2: Quota Allocation								
	Option A	Option B	Option C	Option D	Option E	Option F	Option G	Option H
Individual	2	15	2	4	4	18	14	1
Organization	4	21	2	3	5	13	12	1
Form Letter								
Hearings								
ME		1	5	7	1	1		
NH		2			1	1	1	
MA		3				3	1	
RI		3			1	1		
CT		1		2	1	1	1	
NY		5		1	1			
NJ		1			1	1	1	
DE	1	1				1	1	
MD	13							
PRFC								
VA		2		1		3	1	
NC	1	1				1		
FL		1				1	1	
TOTAL	21	57	9	18	15	45	33	2

Issue 3: Allocation Timeframe				
	Option A	Option B	Option C	Option D
Individual	1	1	8	2
Organization	1	2	21	2
Form Letter				
Hearings				
ME			3	
NH			4	3
MA			7	2
RI			3	
CT			1	
NY		2		1
NJ			1	
DE			1	1
MD			2	
PRFC				
VA			3	1
NC			1	2
FL			2	
TOTAL	2	5	57	14

Issue 4: Quota Transfers & Overage Payback				
	No To Transfers	Yes To Transfers	Yes To Quota Reconciliation	Yes To Accountability Measures
Individual	5	8	3	6
Organization	1	19	2	16
Form Letter				
Hearings				
ME	1			
NH		2		2
MA	1	4		4
RI		1		1
CT	1			
NY		1		
NJ	1	1		1
DE		1	2	1
MD	1			1
PRFC				
VA	4	1		1
NC		2		2
FL	3			
TOTAL	18	40	7	35

Issue 5: Quota Rollovers			
	No To Rollovers	Yes To Rollovers	Yes To Limited Rollovers
Individual	24		
Organization	28	4	2
Form Letter	1,406		
Hearings			
ME		1	
NH	5		
MA	5		
RI	2		
CT			2
NY	12	2	
NJ	4		
DE	3		
MD	1	1	
PRFC	1		
VA	8		
NC	1	1	
FL	1	2	
TOTAL	1,501	11	4

Issue 6: Incidental Catch						
	Option A	Option B	Option C	Option D	Option E	Option F
Individual		2	37		3	34
Organization	2		23	2		27
Form Letter			2,435			2,074
Hearings						
ME						
NH			2			1
MA			3		1	
RI			2			2
NY			1			2
NJ			1			1
DE	1	1	1			1
MD	4					
PRFC			1			
VA			1	1		3
NC	1		2	1		3
FL			3			3
TOTAL	8	3	2,512	4	4	2,151

Note: Several letters commented that ASMFC should count all the catch, including incidental catch, as part of the TAC. If specific options were not provided, this statement was counted as Option C and Option F since both options provide methods to count all incidental catch in the TAC.

Issue 7: Episodic Events			
	No To Episodic	1% Set Aside	>1% Set Aside
Individual	8	1	1
Organization	16	4	2
Form Letter			
Hearings			
ME			2
NH	1		
MA	3		
RI		1	
CT	1		
NY			1
NJ	1		
DE	3	1	
MD		1	
PRFC			
VA	2		
NC			2
FL			
TOTAL	35	8	8

Issue 8: Chesapeake Bay Reduction Cap			
	Remove Cap	Maintain Cap	Reduce Cap
Individual	1	3	53
Organization		6	30
Form Letter			2,404
Hearings			
ME		5	
NH			2
MA		1	4
RI			1
CT		4	
NY		1	5
NJ			5
DE		4	1
MD		1	3
PRFC			1
VA		2	8
NC	2	2	
FL		3	2
TOTAL	3	32	2,519

Issue 9: Research		
	No To RSA	Yes to RSA
Individual	1	3
Organization	4	2
Form Letter		
Hearings		
ME	1	
NH		
MA		
RI		
CT		1
NY		
NJ	1	
DE		
MD	1	
PRFC		
VA	1	1
NC		
FL		
TOTAL	9	7

Comments recommended research on the following topics:

- Environmental factors that impact recruitment
- New menhaden abundance indices in light of stock expansion
- Identify and map current and historic spawning areas
- Fish kill causes and responses
- Food web dynamics with a focus on predator/prey match-ups
- The potential for, and effects of, localized depletion
- Water quality services provided by menhaden
- Identify a minimum size for allow for spawning before harvest
- Further socio-economic studies
- A focused study on the Chesapeake Bay including economic impacts of the fishery
- Bycatch in the reduction fishery and at-sea observer coverage
- Greater specification of regional abundance trends and regional stocks
- Speciation of menhaden, particularly in Florida
- Migration patterns and seasonal distributions by age class
- Stomach content analysis
- Impacts of climate change on the stock
- New fishery independent monitoring strategies for schooling fish
- Tagging and genetic studies
- Expanded surveys in Gulf of Maine
- Models of menhaden life history from egg release to estuarine nurseries
- Eco-physiological studies

Osprey as Menhaden Biomonitor: Insights into the need for Ecological Management

Monitoring of osprey populations can provide key insights into local abundance of Atlantic menhaden.

As a group of scientists who have studied osprey (*Pandion haliaetus*) for a combined total of approximately 133 years, we contend that osprey are likely the most appropriate bird species for quantitative study of menhaden abundance. These iconic birds famously dive with extended talons to take menhaden near the top of the water column. The menhaden, with its blunt head and yellow forked tail, is all “field mark” when carried in the osprey’s talons or held on a feeding perch, meaning that accurate visual identification, even from a distance, is easy. We can also identify and measure prey using nest checks or nest cameras during nesting.

Ospreys in the Connecticut-New York coastal region are currently demonstrating sensitivity to the abundance of older migratory menhaden.

As the new Stock Assessment shows, the formerly large northern component of the menhaden population has been reduced in numbers and range. Adult menhaden migrate north, arriving in the coastal waters of Connecticut and New York in May, where they are a critical food source for osprey. The menhaden harvest quota instituted by ASMFC has now been operative for two years, and it is predicted to protect population age structure and the numbers of older migratory fish. Below, we document evidence of positive local results from implementation of the quota in the Connecticut River Estuary and Gardiners Island, NY, where we are seeing osprey numbers rise to levels that have been unprecedented in recent times.

Rebuilding the abundance of this coastal ecosystem component, with its economic, ecological, and cultural benefits to society is most desirable. **As it has long promised to do, it is our hope that the ASMFC will start managing menhaden in a way that accounts for the needs of these charismatic winged predators, as well as the other countless species that rely on them, instead of solely managing them based on the needs of industry.**

Connecticut River Estuary:

Historically, the Connecticut River Estuary on northeastern Long Island Sound supported a high density of nesting ospreys and provided optimal menhaden habitat given the constant, nutrient-rich freshwater input from the watershed and a place to escape predatory attacks by large bluefish and striped bass offshore. Dr. John Chadwick reported about 200 nests there in the late 1930’s (Ames and Mersereau 1964, Poole 1989, Bierregaard et al. 2014), and Spitzer’s recent long-term study there (Spitzer 1978, 1980, 2005, 2014; Spitzer et al. 1983) found the current active nest total to be about 100. The prey brought to these nests, 98-99+% menhaden, were abundant and easily caught, demonstrating the current high menhaden density there.

In July/August of last year in South Cove of Old Saybrook, CT, one could observe 20-30 ospreys hunting simultaneously throughout the day. The menhaden “banquet” extended until at least mid-October. An osprey feeding event of such abundance/duration is unrecorded in a century of extensive observation.

Gardiners Island, NY:

Gardiners Island, NY is historically excellent menhaden habitat. Based on field observations beginning in 1969, Spitzer found nesting ospreys on Gardiners to be especially dependent on menhaden, and thus a useful biomonitor of their local abundance: he terms Gardiners “A Menhaden Osprey Colony”. From the

pioneering visit of Alexander Wilson in 1803 (Wilson 1812) until about 1950, the island supported a colony of 300 nests (Poole 1989), probably the densest concentration of ospreys ever recorded.

Although Gardiners Bay, NY, was formerly known for abundant menhaden, that has not been so apparent in recent years. The osprey colony has struggled during a prolonged period of lower menhaden numbers (Bierregaard et al. 2014). Scheibel has recorded low active nest numbers, ranging from 18 to 28 in 2003-2012; massive starvation of nestlings, resulting in complete nest failures or small brood sizes; and overall reproduction barely at Spitzer's "replacement rate" calculation of 0.8 young fledged/active nest (Spitzer 1980, Scheibel and NYSDEC unpub. 2012).

In 2013 and 2014, however, Scheibel recorded a total of 60 nests fledging 65 young, collectively. These two current improved years average 1.08 young fledged/active nest, well above the replacement rate. A better food supply may also encourage young returning ospreys to commit to breeding.

Four other charismatic bird species may also serve as biomonitors of menhaden abundance in the Chesapeake Bay: Common Loon, Bald Eagle, Gannet, and Brown Pelican. Each species predates on menhaden with great frequency and in many locations in the region. The resultant "wildlife spectacles" can be partially quantified.

Common Loons make a little-known autumn stopover on Chesapeake Bay. They form large, noisy flocks to feed cooperatively on "peanut" menhaden. From late October through November, the loons intercept them in the lower reaches of major tributaries (Spitzer 2012). Near sites such as Beaufort and Wrightsville Beach, NC, the National Audubon Society Christmas Bird Counts tally hundreds and even thousands of loons aggregated to intercept menhaden. Boat and aerial survey enable quantification of this autumn flock-feeding stopover. On Nov. 5, 2014, Spitzer tallied 400 loons (Spitzer 2015) feeding on peanuts, his best count in 20 years.

In late summer/early autumn, Bald Eagle flocks congregate at Bay vantage points to prey on menhaden. Unlike ospreys, eagles snatch them from near the surface without a plumage-wetting dive.

Flock-feeding Gannets are often abundant near the mouth of Chesapeake Bay in December and January. Stomach-content studies of large striped bass co-occurring at this season indicate that a major portion of gannet prey is also peanut menhaden.

Breeding Brown Pelicans in MD (Holland Is.), VA (Shanks Is.), and NC (Core Sound) feed their young large quantities of one- and two-year-old menhaden.

In summary, these 5 bird species' consumption of menhaden serves as a biomonitor for the entire coastal ecosystem, where unharvested menhaden perform profound ecological services for birds, fish, and humans alike. We request that the ASMFC advance its current mode of menhaden management to one that recognizes their value as a key, coastwide forage species.

Sincerely,

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References Cited:

Ames, P.L., and Mersereau, G.S. 1964. Some factors in the decline of the Osprey in Connecticut. *Auk* 81, 173-185.

Bierregaard, R.O., Jr., Ben David, A., Gibson, L., Kennedy, R.S., Poole, A.F., Scheibel, M.S., and Victoria, J. 2014. Post-DDT Recovery of Osprey Populations in Southern New England and Long Island, NY, 1970-2013. *Journal of Raptor Research* 48(4):361-374.

Poole, A.F. 1982. Brood reduction in temperate and subtropical Ospreys. *Oecologia* 53, 111-119.

Poole, A. F. 1989. *Ospreys: A natural and unnatural history*. Cambridge U. Press, NYC. 246 pp.

Spitzer, P. R. 1978. Osprey egg and nestling transfers: Their value as ecological experiments and as management procedures. In *Endangered Birds: Management techniques for preserving threatened species*. S. A. Temple (Ed.). U. Wisconsin Press, Madison. pp. 171-182.

Spitzer, P.R. 1980. Dynamics of a discrete coastal breeding population of Ospreys in the northeastern US during initial post-DDT recovery, 1969-1978. Ph.D. thesis Cornell U., Ithaca, NY. 90 pp.

Spitzer, P.R. 2005. 2005 Osprey study in the Connecticut River estuary, CT, and Gardiners Bay, NY. Unpub. research report to NYSDEC and the Old Lyme, CT, Conservation Trust. 12 pp. (includes study of source-sink dynamics)

Spitzer, P.R. 2012. Common Loons employ intercept fishery of Bay's menhaden. *Bay Journal* vol. 22, #8 (November), p. 35.

Spitzer, P.R. 2014. 2014 Osprey-Menhaden feeding study in the Connecticut River estuary and Long Island Sound. 5pp. Unpub. research report to CT Audubon Soc.

Spitzer, P.R. 2015. Loons spread the good news about menhaden. *Chesapeake Bay Magazine*, April, pp. 26-27.

Spitzer, P.R., Poole, A.F., and Scheibel, M. 1983. Initial population recovery of Ospreys in the region between NYC and Boston. In *Biology and Management of Bald Eagles and Ospreys*. D. M. Bird (Ed.). Harpell Press, Ste. Anne de Bellevue, QC. pp. 231-241.

Wilson, A. 1812. *American Ornithology*, Bradford & Inskeep, Philadelphia.

The Connecticut River Estuary Osprey Colony, 2014-2016: A Proposed **Ecological Reference Point** of local Menhaden Abundance, “Fish in the Water”, Based on a Current Three-year Study of Menhaden Prey Base and Young Fledged/Successful Nest (Y/SN), also known as Mean Brood Size (MBS)

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Executive Summary/Abstract: This famous historic osprey colony was eliminated by DDT and dieldrin food-chain residues in the 1950’s and 1960’s. From a post-DDT nadir of one active nest in the early 1970’s, it has made a dramatic recovery, and is currently over 100 active nests. Many of these are on stable, predator-proof platforms. This enables easy measurement of fledgling brood size. Extensive study of local hunting patterns and prey delivery, 2014-2016, has documented fish diet of 95-100% migratory adult menhaden during the two-month period from hatching to fledging, and beyond. The very high mean brood size of 2.5/successful nest (Y/SN) serves as a biomonitor of local menhaden abundance. **This estuary’s plankton-rich ecology makes it a current “Menhaden Epicenter”.** Thus repeated years in which osprey reproduction falls **below 2.0 Y/SN** will serve as an **Ecological Reference Point** of menhaden depletion. (See also Spitzer, Poole, and Bierregaard, May 2015 letter to ASMFC.)

Introduction

Historically, this region supported a famous density of nesting ospreys, centered on the colony at the 500-acre Great Island tidal salt marsh in Old Lyme (Figure 1). In the 1930’s, Dr. John Chadwick reported about 200 active nests in the greater region (Ames and Mersereau 1964). The DDT era, from the 1950’s to its ban in 1972, extirpated these ospreys. At the low point in the early 1970’s, only one nest remained active in the Connecticut River Estuary (CRE), and 9 in all of coastal CT (Spitzer 1980). By the late 1970’s DDT residues were no longer sufficient to significantly impact reproduction, and population recovery had begun (Spitzer et al. 1978, 1983). I surveyed the CRE ospreys in 2005 and found 70 active nests. In my current 2014-2016 feeding study, the CRE total was about 110 nests, with 75 south of the Baldwin Bridge (I-95), including a shoreline count that stretches from nest poles in Fenwick, Old Saybrook, east to Hatchett’s Point, Old Lyme.

Methods

During each osprey breeding season, 2014-2016, I chose a repetitive study sample of nests that would efficiently monitor the local CRE food regime. Thus I used high quality nest platforms, stable in weather and predator-proofed, to record data on reproduction and prey. This sample included about 25 poles on Great Island, 10 in the adjoining tidal Black Hall River, and (beginning in 2016) 7 clustered at Fenwick Point, Old Saybrook, immediately west across the mouth of the river. These latter sites had just been installed by Andrew Griswold and Sandy Sandstrom of the CT Audubon Society, in cooperation with the borough of Fenwick. The new Fenwick colony is a restoration of historic pre-DDT nest sites. These new platforms were immediately occupied by breeders—dramatic evidence of local limitation of predator-proof nest sites. Thus competition for CRE nest pole sites is intense, and most of them are occupied by experienced breeders, skilled at hunting and raising young. Thus they serve as an optimal readout of the CRE food regime. **To quantify prey abundance, I recorded brood size at fledging in successful nests (Y/SN)**, also known as Mean Brood Size (MBS). I eliminated just a very few late-hatching nests from my Y/SN sample, because they imply young birds with less breeding and hunting experience.

Nests that failed outright were eliminated from the sample, because in the CRE they are not a measure of food. This stands in contrast to the Gardiners Island ERP, because that isolated, non-estuarine site has been so severely food-limited in some periods as to cause complete nest failure by nestling

starvation via “brood size reduction” (Spitzer 1977, 2016; Poole 1982, 1989). Also unlike the CRE, there are no mammalian predators or Great Horned Owls on Gardiners, so nest predation and nest site limitation are not significant variables, but weather effects on exposed Gardiners are more extreme. **Thus each “ERP Osprey Colony” has local ecological particulars, and must be monitored for menhaden abundance in that context. Thus I use the subset Y/SN in the CRE, vs. Y/AN (young/active nest)—all nests--on Gardiners:** Allowing for weather effects, all of Gardiners’ active nests are a much “purer” readout of food than all active nests in the CRE. And I emphasize: At both sites, **a single nestling check prior to fledging is sufficient to calculate the Y/SN and Y/AN parameters which constitute the respective ERPs: So this is not a labor-intensive process.**

To study prey species delivery, I watched with 10X binoculars and 40X telescope from elevated Smith Neck, Old Lyme, which is adjacent to both Great Island and the Black Hall River. The male osprey brings freshly caught fish to a feeding perch close to the nest, where he takes some time to let the fish die and consumes the head and anterior portion, before bringing the rest to the female and young at the nest. This enables prey identification. On Smith Neck, I could simultaneously monitor 20 nests from the state landing—thus had great sampling efficiency. The site also enabled observation of waves of male prey deliveries to the colony: This implied information transfer about the schooling menhadens’ daily CRE locations, and times of availability at the top of the water column. These clustered osprey nests can function socially as a “Menhaden-based Colony”. A further advantage for human (and osprey) observers is easy recognition of adult menhaden when carried in the talons of an osprey: The fish are blunt-headed and laterally compressed, with a diagnostic yellow forked tail. Referring to birds, Roger Tory Peterson termed such species to be “all field mark”.

Results

Over the three-year CRE study, the sample of successful nests consistently fledged about 2.5 young/successful nest (Y/SN, Table 1). Since the osprey’s mean clutch size is slightly over 3 eggs, this is a very high rate of conversion to fledgings. It indicates an abundant food supply, and minimal nestling mortality by brood size reduction. This stands in stark contrast to many of the study years out at the food-limited Gardiners Island ERP colony (see the companion ERP proposal, Spitzer 2016).

The clustered CRE study sample of nests preyed on a common “food pot”. April prey were mainly white perch *Morone americana*, catfish species *Ictalurus*, and alewives *Alosa pseudoharengus*. Eggs were laid mostly in that month. From early May into August, the observed diet was 95-100% migratory adult menhaden *Brevoortia tyrannus*, often 98-100%, taken in the CRE and nearby Long Island Sound waters. These are sanctuary waters for the planktivorous fish, with no significant commercial bait-fishery or pound-nets. But most important, menhaden are actively selecting these habitats because of nutrient influx down the Connecticut River, which generates a large local region of plankton abundance. Thus I term the CRE a consistent “Menhaden Epicenter”—as demonstrated by osprey reproduction.

Conclusions

Therefore, the ERP bar must be set high: **Below 2.0 Y/SN** would serve as a warning of local menhaden depletion, and two such consecutive years would be an extreme warning. **A single visit to the study sample late in the nestling period is adequate to make this assessment, as described in “methods”.**

References Cited

- Ames, P.L., and G.S. Mersereau. 1964. Some factors in the decline of the osprey in Connecticut. *Auk* 81(2):173-185.
- Poole, A.F. 1982. Brood reduction in temperate and sub-tropical ospreys. *Oecologia* 53:111-119.
- Poole, A.F. 1989. *Ospreys: A natural and unnatural history*. Cambridge U. Press, NYC, 246 pp.
- Spitzer, P.R. 1977. Osprey egg and nestling transfers: their value as ecological experiments and management procedures. In *Endangered birds: management techniques for preserving threatened species*. S.A. Temple (Ed.) U. of Wisconsin Press, Madison. pp. 171-182.
- Spitzer, P.R. 1980. Dynamics of a discrete coastal breeding population of ospreys in the northeastern U.S. during initial post-DDT recovery, 1969-1978. PhD thesis Cornell U. 90 pp.
- Spitzer, P.R. 2016. The Gardiners Island Osprey Colony, 1969-2016: A proposed Ecological Reference Point of local menhaden abundance, "fish in the water", based on a 48-year time-series of active nest numbers (AN) and reproductive success (Young per Active Nest, Y/AN). 10 pp.
- Spitzer, P.R., Poole, A.F, and R. O.Bierregaard. 2015. Osprey as menhaden bioindicators: Insights into the need for ecological management. May 2015 letter to ASMFC. 3pp.
- Spitzer, P.R., Poole, A.F., and M. Scheibel. 1983. Initial population recovery of breeding ospreys between New York City and Boston. In *Biology and Management of Bald Eagles and Ospreys*. D.M. Bird (Ed.) Harpell Press, Ste. Anne de Bellevue, Quebec, pp. 231-241.
- Spitzer, P.R., Risebrough, R.W., Walker, W., Hernandez, R., Poole, A., Puleston, D., and I.C.T. Nisbet. 1978. Productivity of ospreys in CT-Long Is. increases as DDE residues decline. *Science* 202-333-335.

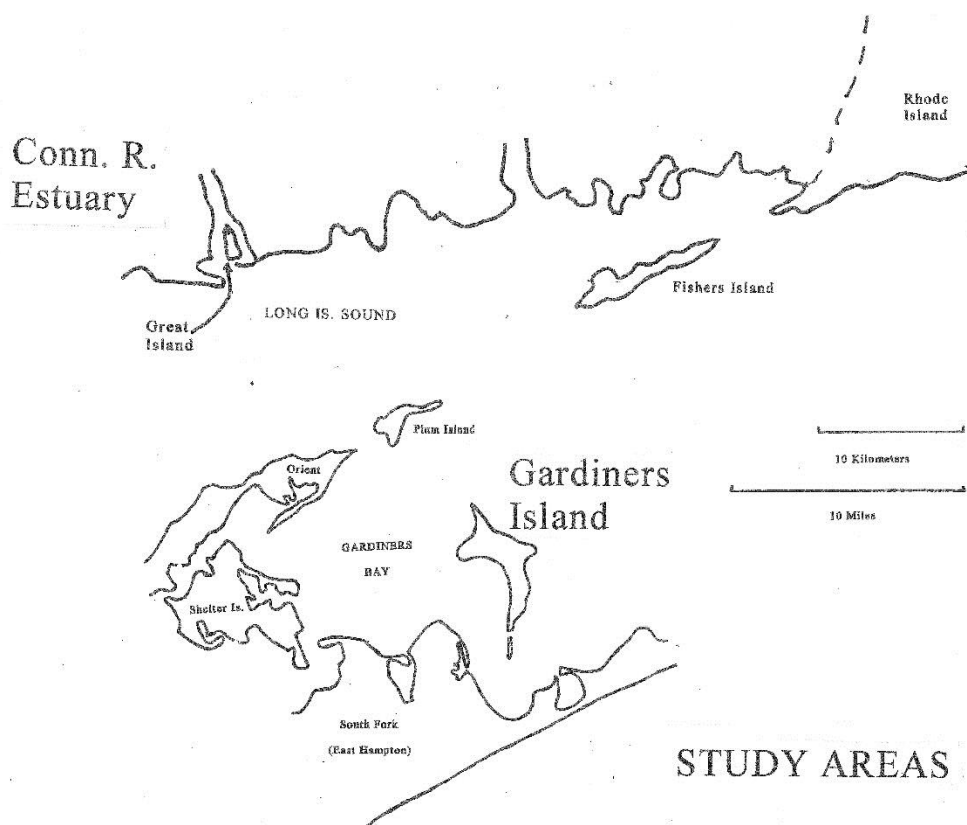


Figure 1. Location of Ecological Reference Point osprey colonies, Connecticut River Estuary and Gardiners Island.

Year	Mean Brood Size (Y/SN)	Sample Size
2014	2.5	N = 23
2015	2.4	N = 25
2016	2.5	N = 37

Table 1. Mean Brood Size (Y/SN) in successful nest samples, Connecticut River Estuary. See text "methods" for details of sample selection.

The Gardiners Island Osprey Colony, 1969-2016: A Proposed Ecological Reference Point of local Menhaden abundance, "Fish in the Water", based on a 48-year time-series of active nest numbers (AN) and reproductive success (Young/Active Nest, Y/AN)

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Executive Summary/Abstract: For large portions of the last 48 years, 1969-2016, post-DDT recovery of this famous historic island osprey colony has been severely limited by menhaden food supply. But for the last five years, 2012-2016, reproduction has bloomed, thanks to a resurgence of with menhaden as prey. Mean 1.23 young/active nest, (-Y/AN) has increased to a time-series high of 1.23, and colony size (active nests, AN) has doubled, from 22 to 44. If the current regional eastern Long Island, NY, abundance of migratory adult menhaden is maintained by proper management, I predict further restoration toward historic levels. Allowing for extreme weather, repeated years in which reproduction falls below 1.0 Y/AN will serve as an Ecological Reference Point of local menhaden depletion. (See also Spitzer, Poole, and Bierregaard, May 2015 letter to ASMFC.)

Introduction

Privately owned Gardiners Island, NY, is roughly 3,000 acres, and lies at the far eastern end of Long Island, roughly on a line between Orient village at the end of the North Fork and Montauk village on the South Fork. Its long north-south axis is roughly 7 miles, and defines Gardiners Bay to the west, with other land masses 5-10 miles distant (Orient Point, Shelter Island, and the South Fork—Figure 1). To the east lie great distances of open water: Block Island Sound and the Atlantic Ocean. In the 19th and 20th centuries, the big open waters surrounding the island were prime habitat for large schools of migratory menhaden, and supported a major menhaden fishery (Frye 1978). At that time, Gardiners was famous for its huge, dense osprey nest colonies, totaling 200-300 active nests (AN) at various time periods (Wilson 1812, Poole 1989).

My central hypothesis is that much of the ospreys' abundance is currently dependent on the abundance of menhaden. Gardiners is surrounded almost exclusively by open deep tidal waters—so alternative fish prey are not sufficiently abundant or predictable throughout the ospreys' five-month breeding season, April through August, to support such a dense colony. Thus, based on recent field observations, I consider the Gardiners Island Ospreys to currently be "A Menhaden-Dependent Colony", and that hypothesis is central to the analysis that follows.

Methods

Data on reproduction and prey base are collected by direct observation of nest contents, and by watching male prey deliveries. A total annual count of the highly visible bulky stick nests is easy on this isolated island. I started the current time-series of AN and Y/AN in 1969, at the beginning of my decade of osprey population studies that culminated in my doctoral thesis on the osprey's initial recovery from DDT, in the then geographically isolated remnant population of ~140 nests along the coast between NYC and Boston. This work also synthesized a broader understanding of osprey population dynamics, based on quantitative collection of essential parameters such as: The range of ages at first breeding; the fledging-to-breeding dispersal distances of males and females; and annual adult survival rates based on return of color-banded individuals. These are common metrics used in bird population studies. I combined these parameters in a population model which enabled estimation of replacement rate at ~0.8 young fledged/active nest (Y/AN) (Spitzer 1980, Spitzer *et al.* 1983). (Demarcated in Figure 2).

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Several colleagues assisted in this data collection, and by the mid-to-late 1970's the NY State portion had become the responsibility of Michael Scheibel as part of his nongame biologist work with NYSDEC, and subsequently with TNC. Remarkably, Michael has maintained the time-series of active nests and young fledged on Gardiners Island through 2016. The only data gaps are Y/AN in 1974 and 2006.

Results

For the purpose of this analysis, the 48-year time-series is broken into four sequential periods, which I hypothesize are driven by broad trends in menhaden abundance (Tables 1, Figures 2 and 3-2). I will not attempt a finer resolution of what I contend is overall food-based causality shaping the two population parameters: young fledged/active nest (Y/AN) and total active nests (AN). In the first three time periods, the MD (Chesapeake) juvenile index of menhaden production appears to be a "Signal" of migratory adult menhaden abundance available to Gardiners ospreys three years later (Table 2 and Figure 3). However, there is no such signal relationship in time period #4, 2012-2016. I propose that the harvest quota in place since 2013 reduces withdrawals of migratory adult fish, thus generating an increase in their availability to Gardiners Island ospreys. Immigration of new osprey breeders fledged in surrounding nesting areas (Figure 1) may also be stimulated by menhaden abundance—see the discussion of period #4.

Period 1 1969-1975, 7 years. DDT residues are still reducing egg viability (Spitzer *et al.* 1978), and sparse menhaden food supply (depressed MD juvenile index, Table 2 and Figure 3) is influencing nestling mortality via brood size reduction (Spitzer 1978). Reproduction is consistently below replacement rate, averaging 0.63 Y/AN, and active nests gradually decline from 38 in 1969 and 1970 to a low point of 27 in 1976 (Spitzer 1980).

Period 2 1976-1993, 18 years. **DDT residues are no longer a significant factor** (Spitzer *et al.* 1978), and for the rest of the time-series, except for occasional years of severe weather such as 1972 and 1982 (denoted by "W" in Figure 2+), **the overall causal food relationship is hypothesized to be primarily the effect of varying menhaden abundance on Y/AN**, followed by an effect on AN, with some lag due to the 3-5 year maturation time of locally fledged young. The MD juvenile index (YOY) is high for 18 years, 1973-1990 (Table 2, Figure 3): I assume it is affecting the abundance of adult fish migrating to NY waters three years later. Y/AN is generally well above replacement rate of 0.8 Y/AN, averaging 1.04 Y/AN (Figure 3). AN respond to this and gradually rise to 71 in 1994 (Figure 2), the high point for the entire time-series: **This period marks the initial post-DDT recovery of the Gardiners Island osprey colony.**

Period 3 1994-2011, 18 years. MD juvenile menhaden index declines drastically in 1992, and remains depressed through 2013 (Table 2, Figure 3), thus potentially ~~reducing~~ affecting abundance of migratory adults through 2016. I term this a "regime shift", and consider that it results from the renewed abundance of predatory Striped Bass *Morone saxatilis* in Chesapeake waters and beyond (Uphoff 2003), due to recovery of the bass from a prolonged period of overharvest, during which the MD menhaden juvenile index recorded high numbers, 1973-1990 (Table 2, Figure 3). Gardiners Y/AN was not measured in 1994, but thereafter it shows severe decline, averaging 0.69, well below replacement rate. AN hold up for a couple years, probably because of recruitment from high Y/AN in the last years of period 2, then gradually decline to 27 into the 20s by 2003. AN ~~They~~ remain very depressed in the 20s for the whole next decade, and stand at a very low 22 in 2012 (Table 1, & Figure 2). During this period there is much brood size reduction due to nestling starvation.

Period 4) 2012-2016, 5 years. MD juvenile index remains low, but Gardiners Y/AN and AN no longer track it. NMFS sampling and models from this period find high menhaden abundance. The Gardiners data agree with this estimate: Y/AN averages a high 1.23, and AN double from 22 to 44. I propose the consistent high Y/AN results from the menhaden harvest quota of 2013-2016, with more adult fish left in the water to reach NY waters. During this period of relatively abundant menhaden, the recruitment of new breeders previously fledged in adjacent areas (Orient Point, Shelter Is., and the South Fork) may help explain the rapid rise in AN, because Gardiners depressed Y/AN in the previous years 2009-2011 (Table 1) is not sufficient to explain it. These ecologically more diverse areas have a more diverse food regime, and thus are not so susceptible to menhaden depletion. In period 3 they showed better Y/AN than Gardiners, and a substantial rise in active nests while Gardiners was declining. Some current nest site saturation in those three areas, with intense competition from established breeders, may have promoted immigration to Gardiners, with its abundant unused nest sites, no mammalian predators, and currently abundant menhaden food. As the colony grows, social stimulation becomes increasingly important. Displaying males, returning from the hunt with a menhaden, transfer fresh information about the location of patchy menhaden schools to other males. If current menhaden abundance is maintained, a sustained Gardiners colony increase to approach 100 AN in 5 years is quite possible. This would mark the initial restoration of the historic large colony. As the AN sample size grows, the value of Gardiners as a long-term ERP will increase.

Conclusions, proposed Gardiners Is. ERP, and reference to a separate Connecticut River Estuary ERP

Based on the Gardiners Island osprey colony's 48-year reproductive time-series, I propose that its current and future annual reproductive performance (Y/AN) and nest numbers (AN) serve as a local ERP for "Menhaden-in-the Water" around Gardiners Island, a region of historic abundance and harvest of migratory adult menhaden. The high Y/AN and doubling AN count, 22 to 44, from 2012-2016 (Table 1, & Figure 2) are consistent with current NMFS coastal menhaden population assessments. In 2012, as part of state harvest quota determinations, previous annual removals were considered state-by-state. A complaint arose in NY, as some previous commercial menhaden harvest had not been reported. So it is possible that some of the previous poor reproductive years on Gardiners were caused in part by undocumented local menhaden harvest. But since 2012, the Gardiners osprey data's congruence with NMFS coastal menhaden estimates is strong.

Gardiners is an exposed site, and extreme weather can cause the osprey colony to have bad reproductive years, such as 1972 and 1982 (Table 1, & Figure 2). Allowing for that, a year in which reproduction fell **below 1.0 Y/AN** would serve as a warning of local menhaden depletion, and two such consecutive years would be an extreme warning. As in the previous 48-year time-series, annual data collection is an iterative process, and its validity as an ERP would be subject to review over time, as ASMFC comes to grips with "ecosystem management" of the fish.

I am making a second, parallel local ERP proposal for the famous historic Connecticut River Estuary, CT, osprey colony (Spitzer 2016). However, that local ecology, very high menhaden density, and resulting very high osprey reproductive parameters are quite different from Gardiners, so I am simultaneously submitting that second proposal as a separate document with somewhat different methodology.

References Cited

Frye, J. 1978. The Men All Singing. The Donning Co. Virginia Beach, VA. 242 pp.

Poole, A.F. 1989. Ospreys: A natural and unnatural history. Cambridge U. Press, NYC, 246 pp.

Spitzer, P.R. 1977. Osprey egg and nestling transfers: their value as ecological experiments and management procedures. *In* Endangered birds: management techniques for preserving threatened species. S.A. Temple (Ed.) U. of Wisconsin Press, Madison. pp. 171-182.

Spitzer, P.R. 1980. Dynamics of a discrete coastal breeding population of ospreys in the northeastern U.S. during initial post-DDT recovery, 1969-1978. PhD thesis Cornell U. 90 pp.

[Spitzer, P.R. 2016. The Connecticut River Estuary Osprey Colony, 2014-2016: A proposed Ecological Reference Point of local menhaden abundance, "fish in the water", based on a current three-year study of menhaden prey base and Young Fledged/Successful Nest \(Y/SN\). 4 pp.](#)

Spitzer, P.R., Poole, A.F., and M. Scheibel. 1983. Initial population recovery of breeding ospreys between New York City and Boston. *In* Biology and Management of Bald Eagles and Ospreys. D.M. Bird (Ed.) Harpell Press, Ste. Anne de Bellevue, Quebec, pp. 231-241.

[Spitzer, P.R., Poole, A.F. and Bierregaard, R.O. 2015. Osprey as menhaden bioindicators: Insights into the need for ecological management. May 2015 letter to ASMFC. 3pp.](#)

Spitzer, P.R., Risebrough, R.W., Walker, W., Hernandez, R., Poole, A., Puleston, D., and I.C.T. Nisbet. 1978. Productivity of ospreys in CT-Long Is. increases as DDE residues decline. *Science* 202:333-335.

Uphoff, J.H., Jr. 2003. Predator-prey analysis of striped bass and Atlantic menhaden in upper Chesapeake Bay. *Fisheries Management and Ecology* 10: 313-322.

Wilson, Alexander. 1812. *American Ornithology*. Bradford and Inskeep, Philadelphia

Table 1. Gardiners Island, NY, Osprey Reproductive Data, 1969-2016: A 48-Year Time-Series !!!

Year	Active Nests	Young	Y/AN	Mean Brood Size	Data Source and Comments
1969	38	25	0.66	25/17 = 1.47	Spitzer—first year of surveys
1970	38	25	0.66	25/14 = 1.79	Spitzer
1971	34	18	0.53	18/12 = 1.50	Spitzer, Hernandez
1972	33	5	0.15	5/4 = 1.25	Spitzer, Hernandez hurricane
1973	32	18	0.56	18/15 = 1.20	Spitzer
1974	34	26	0.76	26/18 = 1.44	Spitzer, Puleston
1975	31	19	0.61	19/13 = 1.46	Puleston, Spitzer

Mean of Means. Drop 1972 data, Hurricane Agnes, so **N=6** years of readout: **Y/AN = 0.63, MBS = 1.47**

1976	27	26	0.96	26/14 = 1.86	Spitzer, Poole
1977	28	30	1.07	30/16 = 1.88	Spitzer, Scheibel
1978	30	24	0.80	24/14 = 1.71	Spitzer, Poole, Scheibel
1979	26	16	0.62	16/12 = 1.33	Scheibel
1980	28	31	1.11	31/16 = 1.94	Scheibel
1981	27	37	1.37	37/22 = 1.68	Scheibel
1982	32	12	0.38	12/7 = 1.17	Scheibel severe storm effects
1983	34	41	1.21	41/19 = 2.16	Scheibel
1984	31	26	0.84	26/19 = 1.37	Scheibel
1985	40	55	1.38	55/27 = 2.04	Scheibel
1986	48	78	1.63	78/38 = 2.05	Scheibel
1987	52	44	0.85	44/28 = 1.57	Scheibel
1988	51	62	1.22	62/38 = 1.63	Scheibel
1989	58	50	0.86	50/32 = 1.56	Scheibel
1990	58	58	1.00	58/38 = 1.53	Scheibel
1991	60	42	0.70	42/31 = 1.35	Scheibel
1992	59	61	1.03		Scheibel
1993	65	71	1.09	71/48 = 1.48	Scheibel

Mean of Means. Drop 1982 data, severe storms, so **N = 17** years of readout: **Y/AN = 1.04, MBS = 1.70**

1994	71	?	?		Scheibel first survey only
1995	67	26	0.39		Scheibel
1996	68	25	0.37	25/23 = 1.09	Scheibel
1997	57	50	0.88	50/33 = 1.52	Scheibel
1998	56	33	0.59	33/22 = 1.50	Scheibel
1999	47	32	0.68	32/25 = 1.28	Scheibel
2000	42	24	0.57	24/20 = 1.20	Scheibel
2001	36	21	0.58	21/15 = 1.40	Scheibel
2002	37	30	0.81	30/22 = 1.36	Scheibel
2003	27	9	0.33	9/8 = 1.13	Scheibel
2004	28	32	1.14	32/19 = 1.68	Scheibel
2005	25	17	0.68	17/11 = 1.55	Scheibel
2006	27	?	?		Scheibel first survey only
2007	24	21	0.88	21/12 = 1.75	Scheibel
2008	22	23	1.05	23/13 = 1.77	Scheibel
2009	22	13	0.59	13/9 = 1.44	Scheibel
2010	18	13	0.72	13/9 = 1.44	Scheibel
2011	22	13	0.59	13/13 = 1.00	Scheibel

Mean of Means, no 1994 or 2006 data, so **N = 16** years of readout: **Y/AN = 0.69, MBS = 1.41**

2012	22	25	1.14	25/17 = 1.47	Scheibel
2013	27	33	1.22	33/16 = 2.06	Scheibel
2014	33	32	0.97	32/21 = 1.52	Scheibel
2015	37	53	1.43	53/29 = 1.83	Scheibel
2016	44	61	1.39	61/34 = 1.79	Scheibel

Mean of Means, N = 5 years of readout: **Y/AN = 1.23, MBS = 1.73**

A 48-year time-series, to compare with Gardiners Island Osprey Reproductive Data, 1969-2016.

NOTES: There is a three-year lag until these “peanuts” are mature fish, migrating north to NY waters where they are potential osprey prey. This lag is shown in relation to all four “time periods” of consistent Gardiners osprey reproduction: A broad “down-up-down-up” 48-year pattern, defined in this paper. The Maryland waters of Chesapeake Bay are only one significant region of “peanut” production—and a lot can happen in three years. I view this data as a “signal” of menhaden abundance over broad time periods. I don’t want to use it as an “independent variable”, with Gardiners reproductive data the “dependent variable”, displaying the data sets on X and Y axes. That would be an overly rigorous attempt. Also: **There may be other menhaden time-series relevant to this paper.**

In the fourth time-period of dramatic Gardiners Island recovery, 2012-2016, active nests double from 22 to 44, and the colony currently appears poised for more rapid increase. MD GMI in 2009-2013 shows only a very modest increase. But anecdotally, I heard that the overall menhaden 2010 year class was excellent, implying coastwide 2013 adult abundance. Then harvest quotas imposed by ASMFC in 2013-2016 would have left more adult fish for migration to NY waters, regardless of previous juvenile indices. Finally, at various recent ASMFC meetings, the NMFS scientists claimed their sampling and analysis showed greater recent menhaden abundance than previously thought. The last 5 years of Gardiners osprey data, 2012-2016, are consistent with that assertion. **THUS** this Gardiners data implies a recent favorable menhaden prey base for the open waters of eastern Long Island, and argues for ongoing “ecological management” of menhaden that restores this historical northern migration, and resulting food-chain productivity.

Year	N trawl samples	GeoMeanIndex	95% CL (low)	95% CL (high)
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Period One, 7 years 1966-1972.

1966	132	0.32	0.12	0.54
1967	132	0.14	0.01	0.29
1968	132	0.31	0.09	0.56
1969	132	0.89	0.45	1.48

1970	132	0.16	0.03	0.30
1971	132	2.61	1.46	4.31
1972	132	2.76	1.63	4.39

Arithmetic Mean of Geometric Means, 1966-1972. **N = 7, mean GMI = 1.03**

Period Two, 18 years 1973-1990.

1973	132	4.42	2.46	7.50
1974	132	11.34	6.64	18.94
1975	132	12.11	7.13	20.15
1976	132	16.67	9.86	27.77
1977	132	15.09	8.96	25.00
1978	132	4.81	2.94	7.56
1979	132	12.01	7.18	19.70
1980	132	8.64	5.14	14.16
1981	132	11.75	7.13	18.97
1982	132	2.83	1.62	4.60
1983	132	4.34	2.52	7.09
1984	132	4.64	2.76	7.46
1985	132	8.24	4.86	13.57
1986	132	7.61	4.72	11.95
1987	132	3.55	2.16	5.55
1988	132	5.90	3.28	10.13
1989	132	2.23	1.28	3.57
1990	132	4.68	2.73	7.65

Arithmetic Mean of Geometric Means, 1973-1990, **N = 18, mean GMI = 7.83**

Period Three, 18 years 1991-2008

1991	132	3.12	1.85	4.97
1992	132	1.78	1.04	2.79
1993	132	0.62	0.32	0.99
1994	132	1.21	0.62	2.01
1995	132	0.51	0.23	0.86
1996	132	0.53	0.24	0.88
1997	132	0.87	0.43	1.45
1998	132	0.43	0.16	0.77
1999	132	0.87	0.43	1.45
2000	132	0.67	0.37	1.05
2001	132	0.69	0.31	1.18
2002	132	0.28	0.06	0.53
2003	132	0.38	0.15	0.64
2004	132	0.32	0.11	0.57
2005	132	1.40	0.70	2.37

2006	132	0.62	0.32	0.99
2007	132	0.86	0.47	1.35
2008	132	0.93	0.44	1.57

Arithmetic Mean of Geometric Means, 1991-2008, **N = 18, mean GMI = 0.89**

Period Four, 5 years, 2009-2013

2009	132	0.93	0.48	1.50
2010	132	0.96	0.52	1.51
2011	132	0.85	0.43	1.38
2012	132	1.11	0.64	1.73
2013	132	1.45	0.63	1.83

Arithmetic Mean of Geometric Means, 2009-2013, **N = 5, mean GMI = 1.06**

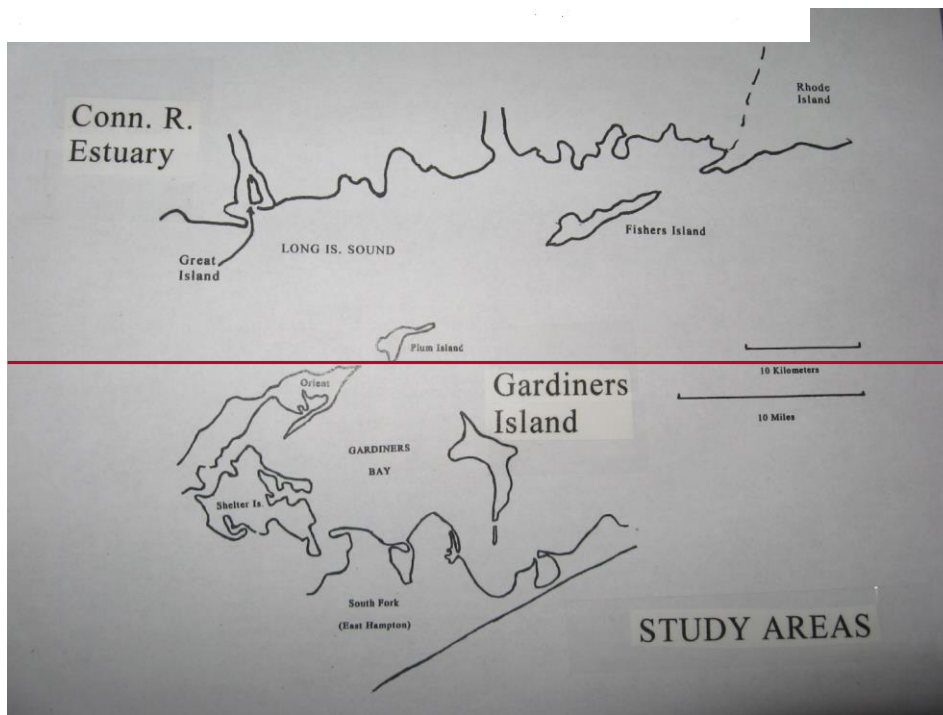
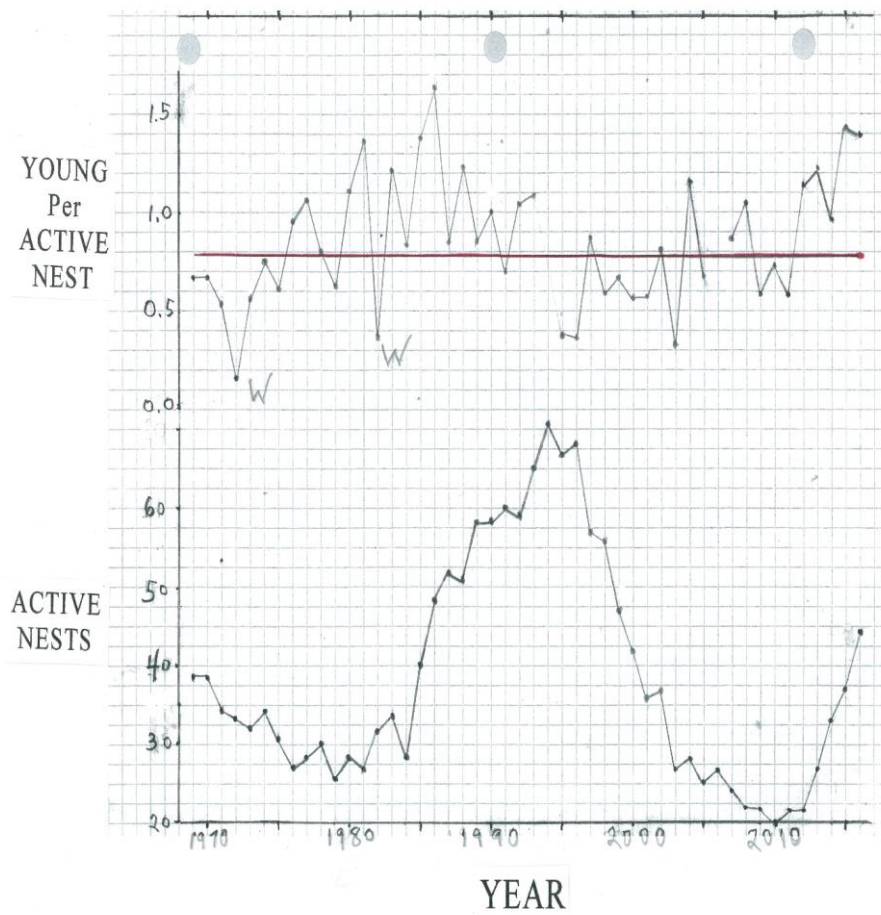


Figure 1. Location of ERP osprey colonies, Gardiners Is. and Connecticut River Estuary



Dark horizontal line marks Replacement Rate.

data

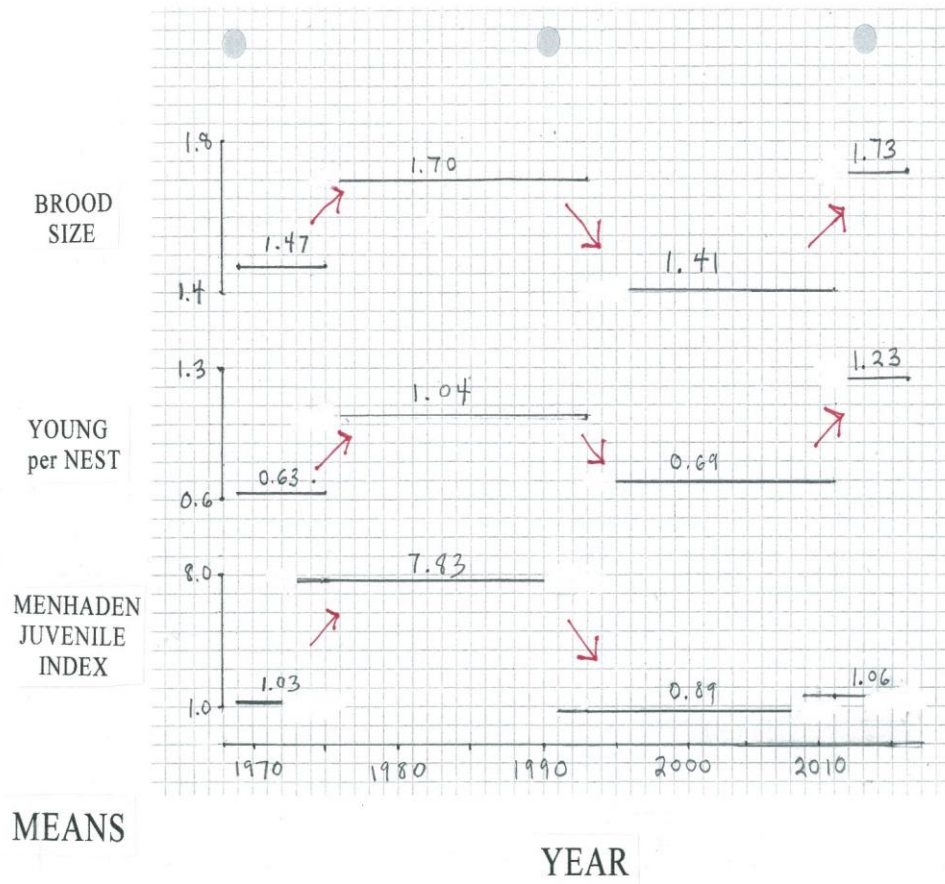


Figure 3. 48-year means running averages of Gardiners Is. Young per Active Nest (Y/AN)/Y/AN, Mean Brood Size, and

MD menhaden juvenile index (YOY),

Atlantic Menhaden Amendment 3 PID Public Hearing

December 13, 2016

Portland, Maine

18 Participants

Attendees: Robbie Begin (Harbor Bait), Steve Train, Peter Fallon, Katharine Deuel (Pew), Kathleen Reardon (ME DMR), Emily Tucker (Maine Coast Fisheries Assoc), Chris Weiner (ABTA), Patrice McCarron (Maine Lobstermen's Assoc.) Rob Bernet (Bailey Island Fish Trap), Joey Nickeson, Jennie Bichrest, Mark Bichrest, Brian Tarbox, Larry Ritch, Pam

Staff: Terry Stockwell (ME DMR), Matt Cieri (ME DRM), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: 1 individual supported Option C; 1 group and 1 individual supported Option D

- Pew and 1 individual supported Option D: Existing Guidelines for Forage Fish Species Until ERPs are Developed by the BERP as a way to manage menhaden for their role as forage fish.
- One individual supported Option C: Single-Species Reference Points Until ERPs are Developed by the BERP as she encouraged the Board to take the time in developing menhaden-specific ERPs.
- One individual did not state a preference for an option but did encourage the Board to consider the ecosystem when managing menhaden.

Issue 2: Allocation Method

Participants generally supported a coastwide quota split by seasons.

- 5 individuals supported a combination of Option C: Coastwide Quota and Option D: Seasonal Quotas. These participants felt that Maine has been under-served by the current allocation method and they supported a seasonal component to quota allocation so that fish are landed only when they are needed; they did not think it was necessary for some states to start landing menhaden in April when there is little demand for bait. One individual stated that localized depletion is being caused by the fact that two states have most of the allocation. Another felt that a coastwide quota will help distribute catch along the coast and that incidental catch should be added as another fleet to Option G: Fleet Capacity Quotas. He expressed concern about being restrained by a trip limit in the small-scale fleet. Overall, these individuals felt that more quotas should be allocated to the bait sector.
- The Maine Lobstermen's Association supported Option D and Option F: Disposition Quota. They did not support Option G because they did not want certain gear types to get painted into a corner.
- The Maine Coast Fisheries Assoc. stated that the allocation method needs to be amended as Maine did not get a great outcome and they would like to see Option B: Jurisdiction Quotas with Fixed Minimum, Option D, and Option E: Regional Quotas for

analysis in draft Amendment 3. They expressed concern that ME is at the northern end of the range and so they might be excluded the menhaden fishery if there is a simple coastwide quota.

Issue 3: Allocation Timeframe

SUMMARY: Participants supported use of a longer time series

- Three individual supported a longer time series as this will ensure that those with historic fisheries will be allocated an equitable amount of quota. One individual thought that landings from 1982 to 1992 should be included in the allocation timeframe and also supported weighting allocation over two time periods if necessary.
- MLA recommended that Option B: 2012-2016 be removed from draft Amendment 3 as the quota was implemented in 2013 and it represents an artificial limit on landings.

Issue 4: Quota Transfers and Overage Reconciliation

SUMMARY: 1 individual stated transfers may not be necessary depending on the allocation method.

- One individual stated that use of a coastwide quota would remove the need for transfers.

Issue 5: Quota Rollovers

SUMMARY: 1 individual supported quota rollovers

- One participant stated that rollovers should be allowed and 100% of unused quota should be able to be harvested in the next year. He felt that if a state is allocated a quota they should be able to catch all of it.

Issue 6: Incidental Catch and Small-Scale Fisheries

SUMMARY: Participants asked for a better definition of incidental catch and better enforcement

- One individual felt that 'incidental catch' needs to be better defined as the states are all using different definitions. She supported catch by small-scale fisheries but was concerned that the incidental catch limit could encourage the dumping of fish.
- Two individuals commented that enforcement of the incidental catch limit is poor and there is abuse of the system.
- Another participant stated that the bycatch provision is not creating a small-scale fishery but rather allowing them to survive.

Issue 7: Episodic Events Set Aside Program

SUMMARY: Participants supported a more equitable distribution of quota but if that doesn't happen, a greater allocation to the Episodic Events Program is needed

- Three individuals stated that Maine would not be so reliant on the episodic events program if quotas were distributed equitably.
- Two individuals stated that if the allocation system is not changed then the episodic events program needs much more quota, somewhere around 50 million pounds. One

participant stated that Maine will only continue to see more menhaden as the Gulf of Maine gets warmer.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: Participants supported continuation of the Cap

- 4 individuals and MLA supported the continuation of the Ches. Bay Cap as it provides a good safety valve for the reduction fishery.
- One individual asked if the Board has considered a size limit in the menhaden fishery to protect against the harvest of juvenile fish who have yet to spawn.

Issue 9: Research Programs and Priorities

1 individual supported research on environmental influences on recruitment; 1 supported greater fishermen participation

- One individual recommended greater fishermen participation in research so that the full range of the species from Maine to Florida can be studied. She did not think a RSA is necessary if active fishermen participate in aging and maturity studies.
- Another participant recommended that there be more research on the environmental factors which impact recruitment in the fishery.

Atlantic Menhaden Amendment 3 PID Public Hearing

Portsmouth, New Hampshire

December 6, 2016

20 Participants

Attendees: Don Swanson (CCA NH), Aaron Kornbluth (Pew), Erica Fuller (Earthjustice), Pam Gromen (Wild Oceans), Peter Whelan, Morgan Callahan (Pew), Le Swiberg, Matthew Larkin, Fred Clews, Pete Tilton, Erik Anderson (NHCEA), Karen Alexander (U Mass Amherst), Bill L. (UNH), Mark Zankel (TNC), Mark Godfrey, Geno Marconi

Staff: Ritchie White (Commissioner), Dennis Abbott (Commissioner), Doug Grout (NH FGD), Toni Kerns (ASMFC)

Issue 1: Reference Points

SUMMARY: 8 participants supported Option D; 1 participant supported Option C

- Eight participants, including representatives of Pew Charitable Trusts, Earthjustice, and the Nature Conservancy, spoke in favor of Option D: Existing Guidelines for Forage Fish until BERP ERPs are Ready. These eight participants agreed that Option D is the most supportive of menhaden ecological services. Several individuals commented on the 75% rule-of-thumb and noted the scientific consensus between Smith et al (2011) and Pikitch et al (2012). Others commended the Commission for proposing options that recognize menhaden for their ecosystem role and value. One individual expressed concern over the mismatch in timing between Amendment 3 and analysis by the BERP Work Group, but noted the importance of the BERP continuing its work. This same individual felt that an outcome of the BERP's analysis might be trade-offs in predator abundance and menhaden natural mortality rather than actionable ERPs. Another commenter highlighted the importance of testing management decisions in this Amendment through a Management Strategy Evaluation.
- One individual supported Option C: Single-Species Reference Points until BERP ERPs are Ready. This individual stated that because of issues with under-reporting in some fisheries and a resulting lack of clarity on fishing mortality, Option C is the best option moving forward.

Issue 2: Allocation Method

SUMMARY: 1 participant supported Options B and E; 1 participant supported Options B, F and G

- One individual supported a combination of Option B: Jurisdictional Quotas with Fixed Minimum and Option E: Regional Quotas, with a four region split.
- Earthjustice supported revising the current allocation formula and preferred Option B, Option F: Disposition quota (with 30% of the TAC allocated to the bait fishery), and Option G: Fleet Capacity Quota, with all fleets managed under a hard quota. Earthjustice

also supported the removal of Option C: Coastwide Quota since it could cause a race to fish.

- One participant emphasized the need for greater confidence in the volume and location of harvest. If there are deficiencies, they should be noted and accounted for when allocating quotas. This participant also supported greater allocations to the bait fishery to account for the lack of historic reporting in this sector.

Issue 3: Allocation Timeframe

SUMMARY: 4 participants supported Option C; 3 participants supported Option D

- Participants generally favored a longer time-series, with 4 participants supporting Option C: Longer Time-Series Average and 3 participants supporting Option D: Weighted Allocation. One commenter suggested that historical catch records back to 1887 be used to calculate quotas. Another commenter warned that fixed timeframes can create large disparities in the industry as factors which influence catch change over time. Another participant stated that the more recent timeframes would disadvantage the New England area because there have been few fish in the area in recent years.

Issue 4: Quota Transfers and Quota Reconciliation

SUMMARY: 2 individuals supported quota transfers only if a state has not met its quota

- Two participants supported unrestricted quota transfers before a quota has been met; however, once met, transfers should be prohibited. They also commented that states should not be forgiven for their state specific overages. One commenter expressed concern that transfers can commodify quotas and lead to an ITQ system. The participant stated that each state is the owner of its quota and the state should decide how to use it. The Commission should pay close attention to those states which repeatedly exceed their quota. There was also a request that a thorough analysis be conducted on how the various quota options (transfers, rollovers, bycatch, episodic events) might lead to an overage of the TAC and how this would impact the ecosystem. A final comment was that quota transfers should not be tied to a particular event (e.g. a fish kill).

Issue 5: Quota Rollovers

SUMMARY: 5 participants did not support quota rollovers

- 5 participants, including Pew, Earthjustice, and CCA New Hampshire, spoke against quota rollovers. Participants generally agreed that quota rollovers add unnecessary risk and that it is difficult to determine how the stock changes from year to year. They felt that the leftover quota should be reserved as a conservation benefit.

Issue 6: Incidental Catch and Small Scale Fisheries

SUMMARY: 1 participant supported Option C; another felt all catch should be counted

- Earthjustice supported Option C. Pew stated that all incidental catch should be counted towards the TAC and that incidental catch could be addressed through re-allocation. One individual commended the change from the term 'bycatch' to 'incidental catch'.

Issue 7: Episodic Events Set Aside Program

SUMMARY: 1 individual did not support the episodic events set aside

- One individual did not support the episodic events program and recommended that the long term results of this program be considered. This participant expressed concern that if we harvest fish just as they are starting to come back to New England, their recovery in the area will be halted. This individual also recommended a better definition of episodic events be crafted by the Board.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 1 participant supported a reduction in the Cap, 1 participant asked for more management alternatives

- One individual recommended that this Issue be better flushed out in draft Amendment 3. She recommended that there be options to reduce the cap to a value based on landings in more recent years (ie: a 3 or 5 year average) and that there be an option which eliminates rollover of the cap. This participant stated that the cap was set too high as the Bay is a critical nursery and there is the potential for localized depletion.
- Pew commented that the Cap should be reduced. A representative stated that the Cap was arbitrarily set. Further, the Cap was set too high as it has never been reached. They would like to see an ecosystem based approach to setting the Cap, paying particular attention to the role of forage fish in the Bay.

Issue 9: Research Programs and Priorities

No comments were given

Additional Comments:

- One participated noted that it is not only important to account for the economic value of menhaden but also the social value in its decision making (ie: rebuilding social capital).
- Another participant noted that in the 1850's, fishermen petitioned Maine to protect menhaden from big seiners coming in and out of the state waters. The fishermen wanted menhaden to come close to shore so the cod would be drawn in.

Public Hearing Summary
Atlantic Menhaden Public Information Document for Amendment 3
Braintree, Massachusetts
December 20, 2016

Attendance

Public (13):

Kalil Boghdan (MA Marine Fisheries Adv. Com.)

Robert O'Neil (MA Striped Bass Assoc.)

Eric Lorentzen (MA Lobstermen's Assoc.)

Lugiano Mascari (Abyss Program Mngmt)

Peter Shelley (Conservation Law Foundation)

Patrick Paquette (MA Striped Bass Assoc.)

Wendy Paquette (MA Striped Bass Assoc.)

Zach Cockrum (National Wildlife Federation)

Katharine Deuel (Pew Charitable Trusts)

Lawrence P. Manning (MA Striped Bass Assoc.)

David Mussina (Mystic R. Watershed Assoc.)

Ray West (MA Striped Bass Assoc.)

Robert Brown (MA Striped Bass Assoc.)

MA DMF: David Pierce, Nichola Meserve

Issue 1: Reference Points

SUMMARY: 7 participants supported Option D

- Seven participants supported adoption of existing guidelines for forage fish species until ERPs are developed by the BERP (Option D). Rationale included: the need to leave more fish in the water for forage to support a healthy, balanced ecosystem; using scientific information that is available now; increased feasibility of adopting ERPs while the stock is robust; maintaining the wider age structure and distribution of menhaden seen recently; more menhaden means reduced consumption of river herring.
- One participant asked that the ASMFC be more clear on the timeline for the BERP's development of menhaden-specific ERPs (i.e., 2019 is the earliest timeframe, could easily take longer).

Issue 2: Quota Allocation

SUMMARY: 3 participants opposed Option A; 1 participant supported Options B, F, and G

- Three participants spoke in opposition to the current allocation system (Option A), particularly Virginia's share of the TAC. Rationale included: the shares are inequitable and don't represent the fishery's longer history; the shares result in a geographically narrow range for most of the harvest, in a location too close to the prime spawning grounds; and the shares have a limiting nature on other states' fisheries.
- One of these participants also commented on other options as follows:
 - State-specific quotas with a fixed minimum (Option B) should be further developed, with 1%, 2% and 5% as the fixed minimum allocation.
 - A coastwide quota (Option C) should be removed from further consideration for biological and socio-economic reasons.

- Regional quotas (Option E) raise concerns for MA. The interaction between MA and RI would need careful consideration. ME having an overage like it did in 2016 would heavily impact MA under a regional quota.
- Disposition quotas (Option F) should be further developed in interest of bringing more fairness to the allocations.
- Fleet capacity quotas (Option G) should be further developed.
- Allocation strategy based on TAC level (Option H) needs a better explanation, but should likely be removed from further consideration.

Issue 3: Allocation Timeframe

SUMMARY: 3 participants opposed Options A & B; 2 participants supported Options C & D

- Three participants opposed allocation based on the 2009–2011 average (Option A) or the 2012–2016 average (Option B). Rationale included: timeframe is only ½ the life expectancy of menhaden (specific to Option A); the timeframes don't consider enough history (e.g., decline of stock that led to industry consolidation) and benefit only a small contingent of stakeholders.
- Two participants supported further development of a longer time-series average (Option C) and a weighted allocation including a longer time-series (Option D), to support a return to more diversification of the industry as was historically present (e.g., there were 8 processing plants in New England at one time). One participant requested specific options that would include landings back to 1985, and back to the 1950s.

Issue 4: Quota Transfers & Overage Payback

SUMMARY: 1 participant opposed transfers; two participants supported greater accountability measures

- One participant opposed any transfer of unused quota to account for quota overages.
- Two participants supported there being additional requirements on states for overage-related quota transfers. These included: 1) rules for how a state manages its quota as a precondition to receive a transfer (e.g., use of quota triggers to reduce harvest as the quota is approached); 2) the transfer must be requested in advance of the overage; and 3) receiving states must demonstrate how they will prevent a similar overage in the following year(s).

Issue 5: Quota Rollovers

SUMMARY: 3 participants opposed quota rollovers

- Three participants opposed rolling over unused quota. Rationale included: concerns for stock sustainability (e.g., localized depletion; if quota is unused, it's likely due to stock decline); and unused quota serves an ecological purpose.

Issue 6: Incidental Catch & Small Scale Fishery Allowance

SUMMARY: 1 participant supported Option C

- One participant supported all incidental catch counting towards quotas (Option C). Rationale included: the loophole of the current bycatch allowance may have been

necessary when Amendment 2 was developed to not penalize small fisheries for which information may have been limited, but Amendment 3 is the time to fix it so that all harvest counts towards quotas and does not undermine the TAC, which can be done without penalizing those same fisheries if the quota allocation system is corrected. If the current approach continues, bycatch should be limited to a percent composition (Option E).

Issue 7: Episodic Events Set Aside

SUMMARY: 1 participant did not support the episodic events set aside

- One participant supported the termination of the episodic event set-aside program, due to concerns that it can lead to detrimental harvest levels.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 1 participant supported the continuation of the cap; 2 participants supported a reduction of the cap

- Three participants supported continuation of the cap to protect the estuary/nursery grounds. Two of them also spoke in support of reducing the current level of the cap, specifically setting a 0-lb cap (i.e., no reduction harvest in the Bay) or limiting it nearer to the current harvest levels (e.g., the recent average, no more than 10% above the recent average).

Issue 9: Research Programs and Priorities

SUMMARY: 1 participant requested greater research on fish kills

- One participant requested that the subject of fish kills be a research priority, due to a lack of consistent coastwide institutional knowledge as to their history and reasons for occurring.

Atlantic Menhaden Amendment 3 PID Public Hearing

Bourne, Massachusetts

December 12, 2016

20 Participants

Attendees: Raymond Kane, Daniel McGonagle (MED), John D. (fishermen), Carol Carson (NECCA), Bill Prodouz (fishermen), Tom Weaver, Bob Hannah (AP member), Steve Barr (Fishermen), Jonathan O'Connor (rec angler), Erik Corentzen (MLA), Beth Casoni (MLA), Douglas Robertson (Friends of Mashpee Wildlife), Belinda Rubmstem, Carl Richardson (Sport Fish), Amy Hedges (NWF), Patrick Paquette (AP member)

Staff: Dan McKiernan (MA DMF), Nichola Meserve (MA DMF), Derek Perry (MA DMF), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: Participants supported Option D.

- Seven individuals and two groups (Nature Conservancy and NWF) were in favor of Option D: Existing Guidelines for Forage Fish Species until ERPs are Developed by the BERP. Participants noted the importance of menhaden in providing food for larger predators and that their value to the marine ecosystem is greater than their value to one company. One individual noted the loss of wildlife she has seen in the New England and Mid-Atlantic regions and how the abundance of menhaden needs to increase to bring back species diversity to the marine ecosystem. Another participant noted the economic benefits of greater menhaden conservation as the recreational, commercial, and tourism industries would all benefit. One participant asked that a more detailed timeline of the BERPs work be added to draft Amendment 3 since he expressed concern that models can take longer than expected to be completed.
 - One individual recommended managing menhaden to 75% of the pre-industrial stock size and requiring the population never drops below 40%.

Issue 2: Allocation Method

SUMMARY: 2 individuals supports Option B and F; 1 individual supported Option G

- Four individuals recommended that the Board revise the current allocation method. Two individuals supported Option B: Jurisdictional Allocation with Fixed Minimum Quota and Option F: Disposition Quota, with at least 30% of the TAC allocated to the bait industry. One of these individuals also supported Option G: Fleet Capacity Quotas but did not support the use of soft quotas. Participants stated that it is not equitable that one state gets 85% of the allocation and that more quota needs to be allocated to the bait sector. One participant highlighted the importance of the bait sector to local economies and the economic growth that could happen if the bait sector had more quota. Another individual thought that the most equitable distribution of quota would be to give each jurisdiction the same percentage of TAC. One participant recommended

the removal of Option C: Coastwide Quota as it creates a race to fish, Option E: Regional Quotas because it is too complex, and Option H: Allocation Based on the Level of TAC because it creates incentives not to raise the TAC. Another participant recommended that if Option H is pursued, the baseline should be the original TAC implemented in 2013, not 212,000 metric tons.

Issue 3: Allocation Timeframe

SUMMARY: 5 participants supported Option C

- Five participants supported Option C: Longer Time Series. Several individuals noted that any timeframe that accounts for less than one generation of fish is too short for management. They also felt that Option B: 2012-2016 is too short and does not consider the extensive catch histories which have occurred in some of the states. One individual supported a time-series from 1955-2016.

Issue 4: Quota Transfers and Quota Reconciliation

SUMMARY: 2 individuals supported quota transfers only if a state has not met its quota

- Two participants recommended that quota transfers be allowed only if a state has not yet exceeded its annual quota. This will ensure that states properly manage their menhaden fisheries. One individual recommended that there be a limit to the number of transfers that can occur in a 5 year time period and that if a state has an overage, it be required to take management action to ensure it does not happen the next year. He noted that MA currently uses trip limits when 75% and 95% of the state's allocation is met and other states should rise to this level of management. Another individual felt that quota transfers might not be necessary if allocation is equitable among the states.

Issue 5: Quota Rollovers

SUMMARY: 1 individual did not support quota rollovers.

- One individual did not think that quota rollovers should be allowed as there may be unintended consequences such as localized depletion. He felt that if a state doesn't meet its quota, then they don't get credit and the fishery wins.
- Another individual questioned whether a state not reaching its quota is a sign that there are not enough fish in the water.
- One participant felt it was important to consider climate change, especially in the Gulf of Maine, when crafting the future management of menhaden.

Issue 6: Incidental Catch and Small Scale Fisheries

SUMMARY: 2 individuals did not think the bycatch provision would be needed after reallocation; 1 felt all catch should be counted towards the TAC

- One individual stated that the bycatch provision will not be needed if quota is allocated in an equitable manner. He understood that the bycatch provision was created to help small-scale fisheries which were hurt by the current allocation method but he hoped that this would not be necessary in the future.

- One individual felt that the bycatch provision is a loophole which allows millions of menhaden to be landed and not counted towards the TAC. He hoped this provision would be removed.
- One participant commented that all catch should count towards the TAC.

Issue 7: Episodic Events Set Aside Program

SUMMARY: 2 individuals felt reallocation would negate the need for the episodic events program

- Two individuals commented that the allocation method should solve the need for this set aside. They felt that a fair allocation process with transfers is enough to manage the menhaden fishery.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 2 individuals supported a 50% reduction in the Cap

- Two individuals stated that the Chesapeake Bay Reduction Fishery Cap is an important tool for management and it should be reduced by 50% to reflect current catch levels. They noted that the Ches. Bay is an important nursery ground which needs to be protected.

Issue 9: Research Programs and Priorities

No comments were given

Atlantic Menhaden Amendment 3 PID Public Hearing

Narragansett, Rhode Island

December 19, 2016

16 Participants

Attendees: Eric Reid (Commissioner), Richard Souza (Ark Bait), Joshua Alexander (Ark Bait), George Allen (RI Saltwater Anglers), Douglas Stephens (Woonasquatucket River Watershed Council), Zach Cochrun (NWF), Meghan Lapp (Seafreeze Ltd.), Dave Monti (RIFMC/RISAA), Rich Beil (TNC), John Nake (WRWC), David Borden (Commissioner), Rachel Calabro (Save the Bay)

Staff: Bob Ballou (RI DEM), Jason McNamee (RI DEM), Nichole Lengyel (RI DEM), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: 1 group and 1 individual supported Option A; 3 groups and 1 individual supported Option D

- RI Saltwater Anglers, Save the Bay, The Nature Conservancy, and 1 individual supported Option D: Existing Guidelines for Forage Fish until ERPs are Developed by the BERP. They stated that the Board should immediately change from single-species reference points to multi-species reference points to help menhaden abundance grow and reach its historic range. One individual noted the importance of menhaden to recreational anglers.
- Seafreeze Ltd., supported Option A: Singles-Species Reference Points but if the Board is committed to ERPs, Seafreeze Ltd., supported Option C: Single Species Reference Points until ERPs are Developed by the BERP. They stated that the menhaden fishery does not compete with predators as the fishery targets larger fish than the predators eat. Seafreeze Ltd., noted that the TC has raised concerns about the Pikitch et al (2012) reference points and as a result the Board should wait until menhaden specific ERPs are ready to make any change.
- One individual supported Option A. He stated that the Board should get the stock under control before switching to ERPs and dealing with other issues such as clean water.

Issue 2: Allocation Method

SUMMARY: 2 groups and 1 individual supported Option B; 1 group supported Option E; 1 group supported Option F

- RI Saltwater Anglers supported Option E: Regional Quotas with either a three or four region split. They stated that the current allocation formula should be revised as it is inequitable for 1 state to take 85% of the quota. They opposed Option C: Coastwide Quota as it may cause a race to fish, Option G: Fleet Capacity Quota, and Option H: Allocation Method Based on Level of TAC as it creates perverse incentives to change the TAC.
- Seafreeze Ltd., stated that the current allocation method doesn't capture the historic participation of Rhode Island and a business cannot run off of the episodic events

program. They supported Option B: Jurisdictional Quotas with Fixed Minimum so that each state gets at least 1% of the TAC. A spokesperson also supported a winter fishery so that, after a certain date, unused quota would be pooled together into a coastwide allocation for a winter fishery.

- Save the Bay recommended changes to the allocation method to get away from the near monopolization of the resource by one state. The group supported Option B or Option F and did not support Option C or Option E.
- The Nature Conservancy supported reallocation of quota.
- One individual supported Option B.

Issue 3: Allocation Timeframe

SUMMARY: 3 groups supported Option C

- RI Saltwater Anglers, Save the Bay, and Seafreeze Ltd. supported Option C: Longer Time Series. RI Saltwater Anglers felt that Option A: 2009-2011 and Option B: 2012-2016 should be removed as they exclude significant catch history of the New England states. Seafreeze Ltd. noted that in the 1980's, Rhode Island landed roughly 10 million pounds a year and the allocation percentages would be quite different if an earlier timeframe such as 1985-1992 was used.

Issue 4: Quota Transfers and Overage Reconciliation

SUMMARY: 1 group supported transfers before an overage; 1 individual did not support overage reconciliation

- RI Saltwater Anglers stated that quota transfers should be unrestricted prior to a state reaching its quota; however, if a state has already exceeded its quota, it should take action to payback the overage and it should not be allowed to accept transfers in the subsequent year.
- One individual did not support quota reconciliation as he thought that it could open Pandora's Box and encourage every state to overfish. If quotas are state managed, then the states should be responsible to shut the fishery down when the quota is met.

Issue 5: Quota Rollovers

SUMMARY: 2 groups did not support quota rollovers

- RI Saltwater Anglers and Save the Bay did not support quota rollovers as there may be unintended consequences such as localized depletion. Save the Bay did support quota overage payback.

Issue 6: Incidental Catch and Small-Scale Fisheries

SUMMARY: 2 groups supported Option C and Option F

- RI Saltwater Anglers and Save the Bay stated that the current bycatch allowance is a loophole that allows menhaden to be landed without being counted towards the TAC. The groups stated that all catch should count towards the TAC and they supported Option C: Incidental Catch Included in Catch, and Option F: Small-Scale Fishery Set Aside.

Issue 7: Episodic Events Set Aside Program

SUMMARY: 1 individual supported the set aside; 1 group was not opposed to a set aside; 1 group hoped to resolve the issue through reallocation

- One individual stated that there should always be an episodic events program. He thought a 1% set aside was fine and that participation should be allowed for the states with the least amount of quota.
- RI Saltwater Anglers did not oppose the use of the episodic events set aside.
- Save the Bay encouraged re-allocation as a way to negate the need for an episodic events program. They stated that the distribution of quota should be more equitable to avoid this cumbersome set aside.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 1 group recommended a reduction to the Cap; 1 group recommended a coastwide ban on the reduction fishery

- RI Saltwater Anglers recommended the Cap be kept and reduced to 96 million pounds to prevent against localized depletion in the Chesapeake Bay. They noted that the Bay is a primary nursery ground for menhaden and it is also where the majority of catch is concentrated.
- Save the Bay supported a coastwide ban on the reduction fishery. They stated that the reduction fishery is damaging the resource and is a collective issue for the Atlantic states.

Issue 9: Research Programs and Priorities

SUMMARY: 1 group supported fishery independent research; 1 group recommended research on menhaden as filter feeders; 1 individual recommended research on spawning areas

- RI Saltwater Anglers recommended the Board prioritize fishery independent research to investigate historical abundance, the effects of localized depletion, and food web dynamics. The group was not opposed to the use of a research set aside.
- Save the Bay noted the important role that menhaden serve as filter feeders in Narragansett Bay and recommended research on the role of menhaden in reducing nutrients in bays and estuaries.
- One individual recommended greater research to identify menhaden spawning areas along the coast.

Atlantic Menhaden Amendment 3 PID Public Hearing

Old Lyme, Connecticut

December 14, 2016

11 Participants

Attendees: Kendall Barbery (Save the Sound), Tom Cleveland (Branford Land Trust), Chris Brown (Hal Brown Co.), Anthony Cherry (Mayforth Group), Katherine Deuel (Pew), Zach Greenberg (Pew), Mike Roy (Reel Cast Charters), Peter Auster (Mystic Aquarium and UConn), Valeri Bannister (freelance writer)

Staff: David Simpson (CT DEEP), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: 1 group and 4 individuals supported Option D

- Save the Sound and 4 individuals supported Option D in order to ensure there are enough menhaden in the water to fulfill their ecological role as forage fish. One individual stated that the protection of menhaden is an inclusive issue as it impacts many stakeholders such recreational fishermen, commercial fishermen, tourism industries, and birders; as a result menhaden should be managed for their role in the ecosystem. Save the Sound noted that although the current TAC in Connecticut and New York is small, we should not underestimate the impact of menhaden on the marine ecosystem. Greater protection is also needed as environmental changes such as climate change and runoff continue to impact the stock. Another participant noted that while predators consume different types of prey, menhaden is of high conservation value, and the Board needs to consider the availability, or lack thereof, of other prey species when considering the importance of menhaden.

Issue 2: Allocation Method

SUMMARY: Participants supported revisions to the allocation method through a combination of options.

- Save the Sound advocated for a more equitable distribution of menhaden quota and believed that a greater percentage of quota should be allocated to New England.
- One individual supported a combination of Option B: Jurisdictional Quota with Fixed Minimum, Option D: Seasonal Quota, Option F: Disposition Quota, and Option G: Fleet Capacity Quota.
- Another participation supported allocation options that consider the temporal and geographic spread of menhaden catch to ensure menhaden are available to predators. He recommended combining Option D with Option E: Regional Quota with a four region split. He did not support Option C: Coastwide Quota.

Issue 3: Allocation Timeframe

SUMMARY: 1 individual supported Option C

- One individual supported Option C: Longer Time Series. He recommended the Board look at the range of variation in the allocation percentages over different lengths of time to see how great the change is between the different options.

Issue 4: Quota Transfers and Overage Payback

SUMMARY: 1 individual did not support quota transfers; 1 individual expressed concern about quota reconciliation

- One individual expressed concern that quota transfers could result in localized depletion as the effects of fishing are local. As a result, transferring quota from one area to another could result in greater harvest in one region than is recommended by science and could have cascading consequences for the ecosystem.
- Another individual expressed concern that overage reconciliation may promote intentional overages by jurisdictions.

Issue 5: Quota Rollovers

SUMMARY: Two individuals supported limited quota rollovers

- One individual stated that the ability to rollover quota is based on the assumption that the stock assessment is correct. It also assumes that unused quota is the result of fish not being caught rather than a lack of fish to be caught. He felt that some percentage of rollover is fair but that it should be conservative to account for the high degree of uncertainty in the assessment.
- One individual stated that quota rollovers should occur as there may be many reasons why the quota is not caught, including poor weather. He recommended that half of the unused quota be rolled over.

Issue 6: Incidental Catch and Small Scale Fisheries

No comments given.

Issue 7: Episodic Events Set Aside Program

SUMMARY: 1 individual did not support the episodic events program

- One individual did not support setting aside 1% of the TAC for episodic events.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 4 individuals supported continuation of the Cap

- 4 individuals supported the continuation of the Chesapeake Bay Reduction Fishery Cap as it is an important tool for management. They expressed concern that if there is no Cap, the Bay may be further impacted.

Issue 9: Research Programs and Priorities

SUMMARY: 1 individual supported research on food web dynamics and the impacts of fishing on the distribution of menhaden

- One individual recommended research on the dynamics of fishing and how this impacts the localized distribution of menhaden. He also recommended research on how variations in the population of menhaden impact food web dynamics. He stated that a RSA could provide an underlying framework for this research and foster collaboration with the industry.

Atlantic Menhaden Amendment 3 PID Public Hearing

December 15, 2016

Freeport, New York

40 Participants

Attendees: Charles Witker, Ronald Turbin (CCA-NY), Philip Romano (Bayside Anglers Group), Margaret Kraft, Connor Burke (Eastern Bays Oysters), Louis DeRicco (NY Coalition for Rec Fishing), Bill Mead, Jesse Hornstein (NYS DEC), Elizabeth Brown-Hornstein (Safina Center), Zack Greenberg (Pew), Will Caldwell (C. Well Fish), Thomas G. (TC Fisheries Inc.), Dave Yagerman (Bayside Anglers Group), Catherine Granton (Gotham Whale), Zack Cockrum (NWF), S. Daros (HOBAS), Stella Miller (Huntington-Oyster Bay Audubon), Ross Squire (Traditional Surfcasters), Jon Semlear (comm. fishermen), John Turner (Seatuck Environmental Assoc.), Charles Temkey (Atlantic Clam Co.), Percy Brice, Sean O'Neill (Peconic Baykeeper), William Davison (Stripper Surfclub), Rob W. (Operation Splash), Jim J. Carl LoBue (Nature Conservancy), David Blindsen (North Flats Guiding), Michael Kalaun (Seahorse Dist.), Capt. Tom P., Jake Labelle (Wildlife Conservation Society), Bill Carr, James Caldwell, Margot C., Jamie Pollock, Steve Townsend (Salty Fly Rodders), Bob Skoy (Salty Fly Rodders)

Staff: Jim Gilmore (NYS DEC), John McMurray (Commissioner), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: Participants supported Option D

- 13 groups (Peconic Baykeeper, Gotham Whale, Long Island Beach Buggy, CCA, Seatuck Environmental Association, Safina Center, NY Coalition for Recreational Fishing, National Wildlife Federation, Huntington-Oyster Bay Audubon, Operation Splash, Wildlife Conservation Society, Salty Fly Rodders, Stripper Surfclub) and 10 individuals supported Option D: Existing Guidelines for Forage Fish Until BERP Completes ERPs. Many stated that menhaden need to be managed as forage fish in order to support the marine ecosystem including whales, birds, anadromous species, and larger fish. Others noted the economic benefits to recreational fishermen, commercial fishermen, tourism industries, and coastal communities that result from increases in menhaden abundance. Several felt that the ocean is healthier than it has been and recommended the Board take a conservative approach to managing menhaden. Three individuals highlighted that menhaden help filter water and improve water clarity.
- One individual expressed concern with the Pikitch et al (2012) reference point as it would allow current fishing levels to continue since, under that reference point, overfishing is not occurring.
- One individual noted that there is always a desire for precise numbers out of a population model and the Board should be warned that the BERP's model outputs will have a tremendous amount of uncertainty. This uncertainty will require a precautionary approach to managing menhaden.

Issue 2: Quota Allocation

SUMMARY: Participants supported Option B and combinations of allocation methods

- Four participants supported Option B as a way to solve many problems in the fishery including episodic events, quota transfers, and the bycatch allocation. They stated that the allocation mechanism needs to be revised as it is not equitable that one state gets 85% of quota.
- One individual did not support Option E: Regional Quotas as he felt that New Jersey would beat New York to the quota and flood the bait market.
- Another participant supported Option E if it is combined with Option B and did not support Option C: Coastwide Quota as it would result in inequitable access to the resource along the coast.
- Another individual supported a combination of Option D: Seasonal Quotas and state allocations.

Issue 3: Allocation Timeframe

SUMMARY: Participants recommended the Board look forward, not backward, in menhaden management; two individuals supported Option B

- Two individuals supported Option B: 2012-2016 as this best reflects current landings.
- Four participants did not support any of the timeframes provided. They stated that the Board should look forward, rather than backward, when setting allocation methods and the options in the PID do not allow this to happen. One individual stated that 2009-2011 represents a time when the reduction fishery was overfishing the menhaden stock and should not be used. Another participated stated that if a year must be chosen, he would recommend just looking at 2016. One individual stated that if he had to choose an option if would Option D: Weighted Allocation.

Issue 4: Quota Transfers and Overage Reconciliation

SUMMARY: 1 individual support quota transfers; 1 individual encouraged transparency

- One individual supported quota transfers but expressed concern that transfers could become a commodity as the abundance of menhaden grows.
- Another participant encouraged an open and transparent process for quota transfers.

Issue 5: Quota Rollovers

SUMMARY: 9 individuals and 3 groups did not support rollovers; 2 individuals supported limited rollovers; 1 individual recommended unused quota be rolled over into a set aside

- Nine individuals and 3 groups (Operation Splash, Gotham Whale, Huntington-Oyster Bay Audubon) did not support quota rollovers. Two individuals stated that unused quota is not a credit to use the next year. Other individuals noted that unused quota supports marine life, contributes to higher recruitment, and provides a buffer for the stock. Some questioned whether unused quota was an early sign of low stock abundance and that quota rollovers might perpetuate this problem. One individual hoped that new allocation methods would provide states enough quota to negate the need for rollovers and was concerned that quota rollovers would make stock assessments harder. Another

participant stated that quota rollovers allow states to not fish one year and fish twice as hard the next year. One individual expressed concern that if states with the largest quotas could rollover quota, they would have a larger impact on juvenile fish.

- Two participants supported quota rollovers. One participant supported limited quota rollovers similar to other fisheries that allow a percentage of quota to rollover each year. The other thought that quota rollovers should be allowed as long as there is nothing wrong with the stock biomass.
- One individual recommended that unused quota be rollover into a bank for each state to be used for episodic events or fish kills.

Issue 6: Incidental Catch and Small-Scale Fisheries

SUMMARY: 1 group supported Option C; 2 individuals and 1 group supported Option F

- 2 individuals and the Peconic Baykeeper supported Option F: Small-Scale Fishery Set Aside as it gets small-scale gears out of the shadows of a bycatch allowance and allows them to direct on menhaden. The Peconic Baykeeper stated that Option F would remove some of the administrative burden on states and would protect small-scale gears indefinitely. One individual noted that as a beach seiner, his business survives on the 6,000 lb bycatch allowance and defining incidental catch would shut him out of the fishery.
- Operation Splash supported Option C: Incidental Catch Included in Quota so that all landings count towards the TAC.
- One individual recommended that all fish be counted towards the quota but that to do this, NY needs a larger quota. He noted that the current bycatch provision was created to solve the quota allocation problem established by managers.

Issue 7: Episodic Events Set Aside Program

SUMMARY: 2 individuals recommended New England's quota be increased; 1 individual recommended NY be added to the set aside or have its own set aside

- 2 individuals stated that the best way to deal with episodic events is to increase the New England states quota. This would hopefully alleviate the need for the set aside program and provide a simple solution to this problem.
- 1 individual stated that NY should either have its own episodic events set aside (at 1% of the TAC) or be included in the New England program but have the set aside increased. He cited the numerous fish kills in New York as reason for why New York needs episodic set aside quota.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 3 individuals and 2 groups recommended the Cap be reduced; 1 individual recommended the Cap be maintained; 1 individual did not support harvest in nursery areas

- Three individuals and two groups (Peconic Baykeeper, Huntington-Oyster Bay Audubon) felt that the Cap should be maintained and reduced to current fishing levels. One individual commented that if the reduction fishery is not meeting its Cap, the Board should investigate whether there are enough forage fish in the Chesapeake Bay.

- One individual recommended that if the reduction fishery is not meeting the Cap, then it needs to be revisited and that there should not be fishing allowed in an important nursery area.
- One participant stated that the cap should be maintained as it seems to be working since stocks are growing.

Issue 9: Research Programs and Priorities

SUMMARY: Participants supported continued research on the menhaden stock

- 4 individuals supported greater research on the menhaden stock to answer many of the questions that still remain on the biology of the species. One individual recommended research on a minimum size that would allow menhaden to spawn before being harvested.

Atlantic Menhaden Draft PID for Public Comment

Atlantic States Marine Fisheries Commission
December 15, 2016
New York

-- PLEASE PRINT CLEARLY --

<u>Name</u>	<u>Company/Organization</u>	<u>City, State</u>
CHARLOS WITUK	—	WUIT BAYLON, NY
RONALD TURBIN	CCANY - GATEWAY STRIP	LIBRA/LYMBROOK NY
PHILIP W. ROMANO	BAYSIDE ANGLERS GROUP	FLUSHING, NY
MARGARET KRAFT		COLD SPRING HARBOR, NY
Connor Burke	Eastern Oys Oyster	Samesport, NY
LOUIS DeRICCO	NY Coalition for Recreation Fishing	Rockville Centre, NY
BILL MEAD		EAST MORICHES, NY
Jesse Hornstein	NYS DEC	
Elizabeth Brown-Hornstein	Sailing Center	Setvallet, NY
Zach Greenberg	The Row Chanticle Trust	Washington, DC
Wm P Caldwell	C Wall Fish h	Hampton bays, NY.
Thomas Garity	TG Fisheries Inc	Center morich, NY
DAVE VAGERMAN	BAYSIDE ANGLERS CLUB	BAYSIDE, NY
CATHERINE GRANTON	GOTHAM WHALE	BROAD CHANNEL, NY
Zach Cockrum	National Wildlife Federation	Montpelier, VT
S. D'AROS	HOBART	Suff. NY 11791
Stella Miller	Huntington-Oyster Bay Audubon	Sussex, NY
Ross Squire	TRADITIONAL SURFCASTERS	Centerport, NY
JON SEMLEAR	Comm. FISHERMAN	SAG HARBOR, NY
JOHN TURNER	SEAFORK ENVIRONMENTAL ASSOC	ISLIP, NY
Charles Tenkey	Atlantic Clam Co/TLC Shellfish	Patchogue NY
PERCY BRICE III		FREEPORT NY
Sean O'Neill	De Jonil Baykeeper	Quincy, NY
William Davis, N	Striper Surfclub	Seaford NY
Kid Wether	OPERATION SFLASH	Freeport NY
Jim Jenkins		Kyle NY
CARL Lobie	The Nature Conservancy	Cold Spring Harb. 11724
Dave Blundson	North Fork's Guardians	East Hampton NY 11937
MICHAEL KALAVN	SEA HORSE DIST.	FREEPORT, NY

Atlantic Menhaden Amendment 3 PID Public Hearing

Port Republic, New Jersey

December 8, 2016

13 Participants

Attendees: Lindsey Fuller (NJ Sea Grant), Paul Harris (NJBBA), Carole Harris (NJBBA), Peter Himchak (Omega Protein), Scott McGarey (NJOA NJ Federation), Noel Angelicci (Fortescue Anglers), Paul Eidman (Menhaden Anglers), Fred E. (GEHWA), Ron Nachmann (SSSWA), Bill Figley

Staff: Russ Allen (NJDFG), Jeff Brust (NJ DFG), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: Participants supported Option D.

- Six participants supported Option D. Menhaden Defenders stated that the Board should move immediately to ERPs so that the historic range of menhaden can be restored from Maine to Florida. The group stated that single-species reference points are wrong for menhaden as they ignore the importance of menhaden in the food web. Several individuals noted the economic importance of menhaden to coastal states as recreational fishermen are drawn to the NJ beaches and spend money on food, gas, fishing line, and hotels. Without menhaden, these economies dwindle. One individual stated that the value of fish as forage is greater than their value as fish meal or oil. Another individual expressed concerns about the poor state of river herring and how this could already be limiting forage fish in the ecosystem.
 - Menhaden Defenders supported managing to the 75% unfished biomass and ensuring abundance does not fall below 40% unfished biomass.

Issue 2: Quota Allocation

SUMMARY: One group supported Option B, F, and G; 1 individual supported Option E.

- Menhaden Defenders supported Option B: Jurisdiction Allocation with Fixed Minimum Quota, Option F: Disposition Quota, and Option G: Fleet Capacity Quota. Specifically for Option B, the group supports a 30/70 split with 30% of the allocation going to the bait fishery in order to support coastal communities. Menhaden Defenders did not think it is equitable that 85% of the quota goes to one state and primarily one corporation. They recommended Options C: Coastwide Quota, Option E: Regional Quotas, and Option H: Allocation Strategy Based on TAC be removed from the draft Amendment. Option H was of particular concern as this could create incentives against increasing the TAC.
- One individual supported Option E: Regional Quotas with a four region split in order to distribute quota along the coast. He noted, however, that boats can go anywhere now and this will have to be addressed in this option.

Issue 3: Allocation Timeframe

SUMMARY: 1 group supported Option C.

- Menhaden Defenders supported Option C: A Longer Time-series with a recommendation to use data from 1955-2016. The group felt trends prior to 2009 should be considered as these earlier times reflect periods when catch was distributed more widely. They did not support Option A: 2009-2011 or Option B: 2012-2016 as they do not consider earlier time periods.

Issue 4: Quota Transfers and Overage Payback

SUMMARY: 1 group supported quota transfers with qualifications that prevent abuse of the program by states.

- Menhaden Defenders recommended that quota transfers be unrestricted if completed prior to a state exceeding its quota; however, if a transfer occurs after the quota is exceeded, states should take steps to address the overage in the following year and should not be allowed to accept a quota transfer in the next year. This will prevent states from repeatedly exceeding their quota.
- One individual recommended that quota underages be given back to the stock to improve the population.

Issue 5: Quota Rollovers

SUMMARY: Participants did not support quota rollovers.

- Four participants did not support quota rollovers. Menhaden Defenders stated that quota rollovers could lead to unintended consequences in regards to localized depletion or quota allocation. One individual stated that if you don't catch your quota in a year, it probably means there are not enough fish in the water.

Issue 6: Incidental Catch and Small Scale Fisheries

SUMMARY: 1 group and 1 individual supported Options C and F.

- Menhaden Defenders and 1 individual supported Option C: Incidental Catch Included in Quota and Option F: Small-Scale Fishery Set Aside as these options provided a way to have all catch counted towards the TAC.

Issue 7: Episodic Events Program

SUMMARY: 1 group did not think the episodic set aside will be needed; 1 individual recommended adaptive management.

- Menhaden Defenders did not think the Episodic Events Program would be necessary as long as Amendment 3 addresses the allocation issues in the fishery. There was a question of how towns should deal with fish kills which require lots of funds to clean up and will likely become more prevalent as the abundance of menhaden increases.
- One individual stated that the management program should respond to distribution of fish over time. Moreover, as the distribution changes, allocation should change.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: Participants supported a continuation and reduction of Cap.

- Five participants supported a continuation of the Chesapeake Bay Reduction Fishery Cap and a reduction by 50%. Menhaden Defenders stated that the Board needs to protect the Chesapeake Bay which is currently a sick Bay due to the pollutants and high catch rates. Given the reduction fishery's proximity to the Chesapeake Bay, participants expressed concern that harvest concentrates around the Bay and that the Cap is vital in limiting effort.

Issue 9: Research Programs and Recommendations

Summary: 1 group recommended research programs and noted the abuse of RSAs in other fisheries.

- Menhaden Defenders recommended that the Commission prioritize fishery independent research on migration, water filtration, localized depletion, and food web interactions. In addition, the group recommended additional research on impacts of large-scale menhaden fishing. Menhaden Defenders expressed some concerns with the abuse of RSA programs in other fisheries but also noted the need for research on menhaden.

Atlantic Menhaden Amendment 3 PID Public Hearing

Lewes, Delaware

December 8, 2016

18 Participants

Attendees: Chris Bason (CIB), Leonard Voss, Brenna Goggin (DE Nature Society), Amy Roe, Rich King (DE Surf Fishing), Benson Chiles (Chiles Consulting LLC), Charles Robertson, John Satterfield (waterman), Katie Peikes (DE Public Media), Joseph Smith (FiaFish Council), Sarah Cooksey (TNC), Mike Cooksey, Ed Hale (DNREC)

Staff: Max Appelman (ASMFC), John Clark (DE DFW), Roy Miller (DE Commissioner), Craig Pugh (DE Commissioner), Stuart Michels (DE DFW)

Issue 1: Reference Points

SUMMARY: 6 individuals (mostly representing environmental groups and agencies) supported Option D; 1 individual supported Option C or D; 2 individuals supported Option A

- Six people, most representing environmental groups and agencies, commented in favor of Option D: Existing Guidelines for Forage Fish Species until ERPs are Developed by the BERP Workgroup. Commenters were in agreement that single species reference points are not appropriate for a forage fish species like menhaden, and that a conservative baseline should be used while ERPs are being developed. Commenters stressed the importance of menhaden in the Chesapeake Bay; improving water quality by eating algae, exporting that energy from the Bay to other ecosystems, and as a food fish for other species. Commenters continued to mention the importance of menhaden in the marine food web. Other comments included that while menhaden are not overfished, the size of individual fish are decreasing which is indicative of stressed stock. At least two commenters agreed that more fish should be allocated to predators.
 - One commenter was in favor of either Option C or Option D. Essentially, this commenter was in favor of ERP but was indifferent to the type of reference points used in the interim.
- Two commercial fishermen commented in favor Option A: Single Species Reference Points. The commenters supported the current science to manage the species, and stated that the reference points are not causing the population to be overfished, and overfishing is not occurring. Changing the ERPs may only create more problems down the road. The commenters noted that there is always room for improvement using the status quo reference points, but there is too much unknown about the ERPs being developed. Additionally, the commenters noted that there have been huge die-offs in the Bay and other regions indicating that there are more fish than the environment can sustain.

Issue 2: Quota Allocation

SUMMARY: 1 individual supported Option B, F or G; 1 individual supported Option A; 1 individual supported redistribution of quota

- One individual (representing an environmental group) supported Options B, F, and G, mainly noting that too much of the quota is given to the reduction fishery. The commenter continued that this unfair share is discriminatory to some degree and should be allocated fairly. The individual was also in support of removing Options C, E, and H from consideration in the draft amendment.
 - One individual commented that there needs to be a redistribution of quota from reduction fishery to the DE bait fishery, but did not specify any particular option.
- One fisherman commented in favor of Option A: Jurisdictional Quotas based on a landings during a selected reference period. The commenter noted that this allocation system has not led to overfishing or overfished status, and changing the system could open the door to other issues.

Issue 3: Allocation Timeframe

SUMMARY: 1 individual (group) supported Option C; 1 individual supported Option D.

- One commenter supported Option C: Longer Time Series Average, as the allocation program should be based on what the fishery has done over the long term.
- One commenter supported Option D: Weighted Allocation, because future allocations should take into account both the historic and short term trends.
- Another comment here was that managers should turn a blind eye to historical records.

Issue 4: Quota Transfers and Overage Reconciliation

SUMMARY: commenters were in favor of quota transfers.

- One commenter was in favor of transfers so long as they were bound by geographic region (e.g., doesn't make sense to transfer quota from ME to FL when these states are likely fishing on very different biological units)
- Two individuals commented in favor of moving to a quota reconciliation system as this would help keep states within the quota without a penalty, also noting that transfers don't really help the state of DE in any way.
- One commenter noted that perpetual overages and transfers should not be permitted. Transfers should occur well before any overage occurs.

Issue 5: Quota Rollovers

SUMMARY: 3 individuals did not support quota rollovers.

- Three commenters (two fishermen, one other) did not support quota rollovers. Rollovers are a dangerous scenario and can only lead to overfishing down the road.

Issue 6: Incidental Catch and Small-Scale Fisheries

SUMMARY: 1 individual (group) supported Option C; 1 individual supported option A, B, or F (against option C)

- One commenter (group) was in favor of Option C: Incidental Catch Included in the Quota, because all catch should count towards a state's quota. The commenter noted that if the allocation system were done correctly, then there would not be a need for a bycatch allowance.
- One commenter (fishermen) was in favor of Options A, B or F, and was against Option C, because this could create issues with bycatch mortality and should be avoided.
- One commenter noted that DE's quota is only a third of what their landings are, and that something needs to be done to address this (either changing the allocation scheme or the bycatch allowance).

Issue 7: Episodic Events Set Aside

SUMMARY: Participants were mostly against episodic events provision, but at least one was in favor of status quo.

- In general, commenters were against an episodic events provision noting that this is really a way of avoiding penalties with quota overages. Commenters felt that episodic events would be addressed by looking at a longer time series for quota allocations.
- Commenters felt episodic events should be addressed in the allocation program as these are usually occurring in the same regions (e.g., Gulf of Maine).
- One commercial fishermen preferred the status quo episodic events provision, noting these are not a regular occurrence and should be addressed on a case by case basis

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: Commenters supported maintaining the cap.

- In general, commenters supported maintaining the harvest cap to avoid any potential adverse effects of high harvest levels in the Bay in the future. One commenter noted that the cap should be lowered to be closer to what the fleet is actually harvesting

Issue 9: Research Programs and Priorities

SUMMARY: 1 group recommended research on recruitment and food web models

- Commenters would like to see research focused on socioeconomics, and how that information can be accounted for in the allocation development process.
- Commenters would like to see fishery participants collecting data and being a platform for research

Atlantic Menhaden Amendment 3 PID Public Hearing

Annapolis, Maryland

December 7, 2016

49 Participants

Attendees: Howard King (MAFMC), Bill Boyer (CCACBF), Bill Goldsborough (CBF), Peter Himchak (Omega Protein), John Veil (Veil Environmental, LLC), George O'Donnell (DNR), Stuyve Pierrepont (Farr, Miller, & Washington), Larry Jennings (CAA MD), Fred Menage (Pasadena Sportfishing), Larry Powley (waterman), Burl Lewis (waterman), Joseph Gordon (Pew), Sara Carley (NWF), Colton Naval (NWF), Amy Hedges (NWF), Jim Rowe (CCA), Marty Gary (PRFC), David Blazer (DNR), Lester King (CCA), Capt. Robert Newberry (DFA), Rachel Dean, Elaine Williams, Ashton Poole, Abel Fabian (CCA), Abel Fabian (MSSA), Rosella Fabian (DGGSE Program), Anna Vecchio (NWF), Vanessa Pena (NWF), Robert Brown (MWA), Peter Miller (CCA), Joe Evans (CBF), Lani Hummel, Ed Liccione (CCA MD), David Sikorski (CCA MD), F. Bonanno (CCA MD), Hugh Mealy (CBF), Helen Mealy (CBF), Millie Bryon (TNC), Jeff Brainard (Maryland Sea Grant), Levin Lihell (CCA MD), Kenneth Lewis (CCA MD), David Zajano (CCA MD), Jerry Morgan (CCA), John Vanastine (waterman), Phil Ellis (CCA), Ellie Howe, Margarett Jennings (CCA MD)

Staff: Lynn Fegley (MD DNR), Harry Rickabaugh (MD DNR), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: 4 groups and 4 individuals supported Option D; two groups and four individuals supported Option A.

- Four groups (Pew, CCA-MD, Ches. Bay Foundation, and National Wildlife Federation) and four individuals supported Option D: Existing Guidelines until ERPs are Developed by the BERP. Several groups noted that the management of menhaden should account for the needs of predators and recognize the value of menhaden left in the water. Pew expressed concern about waiting until 2019 to implement ERPs as high yields of menhaden will continue to deplete the ecosystem. Ches. Bay Foundation highlighted the importance of menhaden abundance to predators and the continued low menhaden abundance in areas around the Chesapeake Bay. CCA MD supported ERPs to ensure the expansion of the stock up and down the coast. Several individual and groups noted the importance of taking a large-scale ecosystem approach to the management of menhaden and to recognize the linkages in the marine system.
 - Pew and Ches. Bay Foundation supported the 75% rule-of-thumb and Ches. Bay Foundation recommended a fishing cutoff at 40% unfished biomass.
- Two groups (Delmarva Fisheries Assoc. and MD Waterman's Assoc.) and four individuals did not support the implementation of ERPs and recommended Option A: Single-Species Reference Points. These groups and individuals felt that ERPs are not necessary in MD as the pound net fishermen have an insignificant impact on the menhaden population. These participants noted that there is a local population of menhaden which spawn and reside in the Bay year-round and that there is nothing wrong with their local fishery.

Several individuals expressed concern with developing ERPs when the Board does not have a value for an unfished population. Others highlighted the economic impact that the 20% reduction in catch had on the local fishery as this management action almost put them out of business; these participants felt that MD should have been exempt from the reduction since they do not have an impact on the stock. Overall, those that supported Option A stated that the stock is not in danger as it is not overfished and overfishing is not occurring and that any measures in Amendment 3 should not impact the Chesapeake Bay.

Issue 2: Allocation Method

SUMMARY: 5 groups and 8 individuals supported Option A with a new quota distribution between states.

- 5 groups (CCA-MD, Ches. Bay Foundation, Delmarva Fisheries Assoc., MD Waterman's Assoc., and Pasadena Sportfishing Assoc.) and eight individuals supported Option A: State-by-State Allocation but recommend that state allocations be modified. Participants thought that state-by-state allocations worked well administratively but felt that the percentages allocated to each state were incorrect and that many small-scale gears were not treated fairly. Many stated that VA's share of allocation represents a monopoly and it should be distributed to small-scale fishermen who fish in a more sustainable manner and have no impact on the stock. Specifically, participants recommended that MD get 15 million pounds of menhaden quota each year. Several participants felt that there should be no quota in MD since the fishermen do not have an impact on the stock.
- CCA-MD opposed the use of soft quotas.
- Delmarva Fisheries Assoc. stated the Board has not been fair in its use of science as they are quick to take cuts but are unwilling to provide increases when there is a 0% chance of overfishing even if you raise the TAC by 40%.
- MD Waterman's association and the Ches. Bay Foundation highlighted the importance of the bait fisheries to coastal economies and the blue crab fishery.

Issue 3: Allocation Timeframe

SUMMARY: 1 group and 1 individual supported Option B; 2 groups and 1 individual opposed Option A.

- Delmarva Fisheries Assoc. supported Option B: 2012-2016 and opposed Option A.
- MD Waterman's Association opposed Option A and expressed concern about Option B as it would take into account the 20% reduction. The group felt the quota needs to be increased or MD should be eliminated from the system since they do not have an impact on the ecosystem.
- One individual opposed Option A: 2009-2011 since he felt this timeframe is what has created many of the allocation problems.
- Another individual supported Option B as it includes 2012 which was a banner year for MD and may give MD a bigger quota.

- One participant supported any option that will give MD more fish.

Issue 4: Quota Transfers and Overage Payback

SUMMARY: 1 group did not support quota transfers and 1 individual supported accountability measures.

- Delmarva Fisheries Assoc. did not think there is a need for quota transfers or overage reconciliation. They stated that the MD fishery has no bearing on anything coastwide.
- One individual felt that there has to be some accountability measures built into the regulations. Without accountability, the rules become meaningless and states could repeatedly exceed their quota.

Issue 5: Quota Rollovers

SUMMARY: 1 group opposed quota rollovers and 1 individual supported them.

- One individual asked why a state would not want to rollover unused quota and why there is a question of whether rollovers should be mandatory or voluntary.
- Pew was opposed to quota rollovers. They stated that there is a scientific basis for annual quotas and quota rollovers would allow these levels to be exceeded. On a state-by-state basis, there may also be localized depletion which rollovers could exacerbate. Overall, Pew stated that allocation should not exceed what scientists say is the correct amount to take out of the water each year.

Issue 6: Incidental Catch and Small Scale Fisheries

SUMMARY: Two groups and two individuals supported Option A as long as provisions of Addendum I continue; 1 group hoped allocation would negate the need for a bycatch fishery.

- Two groups (Delmarva Fisheries Assoc. and MD Waterman's Assoc.) and two individuals supported Option A: Incidental Catch Limit per Vessel. One individual expressed concern that Option B: Incidental Catch Limit per Permitted Individual may cause fishermen to 'rent' limits from others or get people to join their vessel so they can harvest more fish. Another individual expressed concern with Option F: Small-Scale Fishery Set Aside as this might create a derby style fishery where small-scale fishermen compete to harvest before the set aside is used. MD fishermen are not in a hunt and chase fishery and this would disadvantage pound net fishermen. Several participants and groups were satisfied with Option A as long as they get to keep the provisions in Addendum I, which allow two permitted individuals to harvest 12,000 pounds of menhaden when working together on the same vessel. Delmarva Fisheries Assoc. asked that the safety issues of only allowing one permitted individual on a vessel in the bycatch fishery be highlighted in draft Amendment 3.
- CCA-MD and two individuals stated that if the allocation issues are properly addressed there won't be a need for the bycatch provision. Moreover, they felt the solution is to allocate MD the proper amount of fish, such as 15 million pounds, and bycatch won't be an issue.

Issue 7: Episodic Events Set Aside Program

SUMMARY: 1 individual thought that VA might donate quota to the Episodic Events Program.

- One individual felt that the New England states should be entitled to what they need. They felt that VA might still relinquish some of their quota to the episodic events program.
- Another individual stated that if there are fish kills occurring in New England, this means there are enough fish in the water.
- Another participant noted that hypoxic conditions, which cause fish kills, can be caused by a high concentration of fish but also by lots of decaying matter.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 3 groups recommended a 50% reduction in the Cap; 1 group recommended the cap be maintained at current levels.

- Three groups (CCA-MD, Pew, and Pasadena Sportfishing Assoc.) recommended that the Cap be maintained but reduced by 50%. They stated that the Cap should truly be a Cap and not artificially high. Pew was concerned with the possibility that reduction fishing in the Ches. Bay could increase by 50%. CCA-MD expressed concerns about localized depletion in the Bay. Pasadena Sportfishing Assoc. highlighted that the Chesapeake Bay is an important nursery ground for menhaden and this is also where most of the catch is taking place.
- One individual recommended that the Board look at the number of fish in the Bay and set the Cap based off of the local population.
- Delmarva Fisheries Assoc. recommended the Cap be maintained where it is as Omega primarily targets larger fish for their higher oil content.

Issue 9: Research Programs and Priorities

SUMMARY: Participants recommended research on bycatch and regional stocks in the Ches. Bay

- Delmarva Fisheries Assoc. recommended that the Chesapeake Bay estuary be evaluated. They also noted that science has two sides and the Board needs to listen to the TC not only when cuts are needed but also when increases in the TAC can be taken with no risk of overfishing.
- Pew recommended that the Commission look at bycatch in the menhaden fishery. Several older studies say that bycatch in the reduction may be around 1% and there are currently no at-sea observers. There is no science about what other species are being interacted with at sea.
- One individual felt that research should be conducted but that a portion of TAC does not need be set aside as a high volume of fish is not needed to accomplish this research.
- Another individual supported the development of regional abundance trends as the northern states seems to have a lot of menhaden. They also noted that all areas had episodic events in the past and that the 20% reduction in catch did not cause the recent episodic events in New England.

- One participant felt that more research is needed on the importance of menhaden for other species and the water quality services menhaden provide. He wanted to know what impact the 200,000 mt TAC is going to have on the ocean.
- Another participant asked for analysis on economic impacts on management actions. He also wanted to know how many fish are in the Bay and where they spawn.

Atlantic Menhaden Draft PID for Public Comment

Atlantic States Marine Fisheries Commission
December 7, 2016
Maryland

-- PLEASE PRINT CLEARLY --

<u>Name</u>	<u>Company/Organization</u>	<u>City, State</u>
HOWARD KING	MAFMC	TAD
Bill Boyer	Citizen; MAFMC PTR Follower	MD - Dunkirk
Bill Eddsborough	Ches. Bay Foundation	Annapolis
Peter Hinchard	Omega Proteu	Tuckerton, NJ
John Vexl	Veri Environmental, LLC	Annapolis, MD
George O'Donnell	JWR	Annapolis, Md.
Stuyve Pierrepont	Farr, Miller & Washington	Arlington, VA
Larry Jennings	CCA MD	Annapolis, VA
FRED MENAGE	PASADENA SPORT FISHING	PASADENA, MD
LARRY POWLEY	JORCHESTER	Fishing Creek, MD
Burl Lewis	Jorchester	Cambridge, Md.
June Gunton	PCA	Silverspring, MD
Sara Canley	NWP	DC
Colton Naval	NWF	DC
Amy Hedges	NWF	Annapolis MD
Jim Rowe	CCA	Derwood MD
Marty Gary	PREC	Colonial Beach VA
Lester King	CCA	Silver Springs, MD
Capt. Robert Newberry	DEA	Crumpton, MD .21628
Rachel Dean		Lusby MD
Elaine Williams		Lusby MD
Ashton Poole	CCA-Self	ANNA POLIS MD
Abel Fabian	MSSA	Saint Leonard, MD.
Rosella Fabian	DBSI Program	Saint Leonard, MD.
Anna Vecchio	NWF	Washington, DC
VANESSA PAPA	NWF	DC
Robert T. Brown	MWA	Annapolis, Md.
PETER MILLER	CCA	Annapolis, MD
JOE EVANS	CHES BAY MAGAZINE	ANNAPOLIS, MD
Lani Hummel	SELF	ANNAPOLIS, MD 21403

Atlantic Menhaden Amendment 3 PID Public Hearing

Colonial Beach, Virginia

December 6, 2016

6 Participants

Attendees: Stuart Ashton, Mindy Ashton, Zach Greenberg (Pew), John Page Williams (Ches. Bay Foundation)

Staff: Ellen Cosby (PRFC), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: 1 group supported Option D

- The Ches. Bay Foundation recommended that the Board adopt an ecosystem approach, including ERPs, to the management of menhaden. A representative stated that ERPs will help fishery managers set menhaden catch levels that ensure enough menhaden stay in the water to support species such as striped bass, ospreys, and dolphins. Specifically, the Ches. Bay Foundation supported Option D: Existing Guidelines for Forage Fish Until ERPs are Developed by the BERP.

Issue 5: Quota Rollovers

SUMMARY: 1 group did not support quota rollovers

- The Ches. Bay Foundation did not support rolling over unused quota into the subsequent year. They stated that quota rollovers cause the subsequent year's catch to exceed the ecological reference points.

Issue 6: Incidental Catch and Small Scale Fisheries

SUMMARY: 1 group supported Option C

- The Ches. Bay Foundation stated that all catch from the menhaden fisheries should count towards the TAC and supported Option C: Incidental Catch Included in Quota.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 1 group supported the continuation and reduction of the Cap

- The Ches. Bay Foundation supported the continuation of the Chesapeake Bay Reduction Fishery Cap and its reduction by 50%. Due to concerns about low abundance of menhaden in the Bay, the organization felt it is in the best interest of the Bay and fishermen to reduce the Cap.

Atlantic Menhaden Amendment 3 PID Public Hearing

December 5, 2016

Newport News, Virginia

33 Participants

Attendees: Mike Ruggles (Tidewater Anglers Club), Bob Mandigo (Tidewater Anglers Club), Mike Avery (VSSA), Tom Miller (FORVA), Chris Moore (CBF), Peter Himchak (Omega Protein), Steven Epstein (Ches. Bay Defenders), Lee Atkinson, Paul Ewing (Fishing Fever Charters), Bryan Stoots, Woody Poole, Rob Cowling (Pen Saltwater Sport Fish. Assoc.), Saundra Paulter, Wallace Paulter, Curtis Tomlin (VSSA), Wes Bluw, Nikki Rovner (Nature Conservancy), Vanessa Pena (NWF), Amy Hedges (NWF), David Bromley (Omega Protein), Ron Bray (Omega Protein), Burton Thrift (Omega Protein), Jane Crowther (Omega Protein), Amy Hall (Omega Protein), Joseph Gordon, Nick Sterrett (Omega Protein), Benson Chiles (Chiles Consulting LLC)

Staff: Rob O'Reilly (VMRC), Joe Cimino (VMRC), Katie-May Laumann (VMRC), Ryan Jiorle (VMRC), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: Majority of participants favored Option D; one individual favored Option B.

- Majority of participants, including the Ches. Bay Defenders, Tidewater Anglers Club, Virginia Saltwater Sport Fishing Association (VSSA), National Wildlife Federation, Ches. Bay Foundation, Virginia Conservation Network, and Friends of Rivers of Virginia supported Option D: Existing Guidelines until ERPs are Developed by the BERP. Participants noted that menhaden are an important species to the marine ecosystem, including larger fish and birds, and more menhaden need to be left in the water in order to fulfill this critical role. Several noted that while the stock has been improving, recruitment in the Chesapeake Bay is still low and this is of concern. Many felt that ERPs provide an opportunity for the Board to innovate fisheries management.
 - The Chesapeake Bay Defenders and Chesapeake Bay Foundation supported the 75% rule-of-thumb as a scientifically defensible existing ERP.
- One participant supported Option B: Existing Guidelines for Forage Fish. He stated that the Board can't wait until the populations of menhaden get too low and that we need to protect our fisheries now.

Issue 2: Quota Allocation

SUMMARY: Participants noted support for Options B, C, D, E, F, and G.

- VSSA supported Option B: Jurisdictional Allocations with a Fixed Minimum Quota, Option F: Disposition Quota, and Option G: Fleet-Capacity Quota as they support current fisheries and future growth. VSSA did not support the use of soft quotas in Option G and recommended in Option F that 30% of the TAC be allocated to the bait fishery. VSSA did not recommend Option C: Coastwide Quota, Option E: Regional Quotas, and Option H: Allocation Strategy Based on TAC Level for inclusion in draft Amendment 3.

- The Ches. Bay Defenders supported Option F with a 50% split between the bait and reduction fisheries. They also supported Option E with a four region split as a way to distribute landings along the coast.
- The Tidewater Anglers Club recommended Option B and Option F, with 30% of the TAC allocated to the bait fishery. They also supported Option D, noting that the Chesapeake Bay is an important nursery ground and there should be a regional split with the Chesapeake Bay so that there can be minimal harvest in the Bay during spawning season. They also recommended that Option C be maintained in the draft Amendment as a benchmark. The organization noted that allowing one state to harvest 85% of the TAC is unfair and many of the species ecological goals have been hurt by the current allocation method. NOAA's National Standard 4 recommends allocation be fair and equitable and the menhaden fishery is not meeting this goal. The Tidewaters Anglers Club recommended Option A and E be removed from the draft Amendment.

Issue 3: Allocation Timeframe

SUMMARY: Participants supported a longer time series.

- VSSA recommended that trends prior to 2009 be considered as catches have been widely distributed and the short time series excludes essential catch history. They suggested that the time series go back to 1955.
- One individual supported a time series that goes back to 1955.
- One individual supported Options C and D as the current three year times series does not capture the range of the fish or fishery.

Issue 4: Quota Transfers and Overage Reconciliation

SUMMARY: Participants expressed concerns about quota transfers.

- VSSA expressed concern about rewarding states that mismanage their quota by providing them an opportunity to accept transfers. They recommended that transfers only be completed before a state has met its quota.
- Four individuals stated that quota transfers create a loophole in the fishery which allows states to take a riskier approach to management and promotes overfishing. They noted that states know what their quota is and how not to exceed it.

Issue 5: Quota Rollovers

SUMMARY: Participants opposed quota rollovers.

- VSSA, Tidewater Anglers Club, and Ches. Bay Foundation opposed quota rollovers. They stated there is a reason that fish aren't being caught and quota rollovers would only exacerbate the problem. They also felt that quota rollovers would upset the balance used to set ERPs.
- Four individuals were opposed to quota rollovers. Three individuals stated that if a state does not reach its quota, it means that there are not enough fish in the water as there should be. Another individual said that quota allocations are based on science and quota rollovers are not.
- One individual opposed quota rollovers for the reduction fishery.

Issue 6: Incidental Catch and Small-Scale Fisheries

SUMMARY: 4 groups recommended all catch count towards the TAC; 1 individual supported Option D

- VSSA, Virginia Conservation Network, Ches. Bay Foundation, and Nature Conservancy recommended that all landings count towards the TAC.
 - VSSA supported Options C: Incidental Catch Included in Quota and Option F: Small-Scale Fishery Set Aside.
 - Virginia Conservation Network supported Option F.
 - Ches. Bay Foundation noted that small scale fisheries are extremely important to the blue crab fishery and that it is impossible to prevent non-species specific gear from catching menhaden after the quota is reach; however, significant landings under the bycatch allowance need to be included in the TAC.
- One individual supported Option D: Incidental Catch Cap and Trigger.
- Another individual expressed concern that the incidental catch provision creates a loophole for others to abuse following the closure of the directed fishery. He stated that bycatch is a gimmick that people have been using for years to manipulate quotas and limits. He felt that fishermen are good enough at what they do to be able to avoid harvesting large amounts of menhaden once the quota has been reached.

Issue 7: Episodic Events Set Aside Program

SUMMARY: Participants felt the episodic events program won't be necessary after re-allocation.

- VSSA stated that they believe the Amendment 3 process will be successful and address the current issues/concerns with allocation and, as a result, the episodic events program will no longer be necessary.
- One individual stated the episodic events program is not necessary as the program was created as a work around to Amendment 2. If the fishery is allocated more equitably, episodic events will not be needed.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: Participants supported continuation of the Cap and a reduction in the limit.

- The Ches. Bay Foundation, Virginia Conservation Network, VSSA, Tidewater Anglers Club, Nature Conservancy, Ches. Bay Defenders, and four individuals agreed that the Chesapeake Bay Reduction Fishery Cap should be kept in place. Several stated that the Cap prevents against localized depletion and that it is an essential management tool given the current lack of ERPs and lack of a regional stock assessment. Others noted that the Cap should be considered in the context of all other species in the Bay and VSSA noted that the recreational fishery could be severely impacted by the removal of the Cap.
 - The Virginia Conservation Network, Ches. Bay Foundation, Tidewater Anglers Club, and three individuals recommended that the Cap be reduced by 50% to bring it to current harvest levels and support stock-wide recovery.
 - The Ches. Bay Defenders recommended the Cap be reduced by 70%.

- Nature Conservancy agreed the Cap should be reduced given the importance of menhaden but did not provide a specific percentage.

Issue 9: Research Programs and Priorities

SUMMARY: Participants were split on whether there should be a RSA.

- VSSA expressed concern that a RSA program has a high potential to be abused and great care should be taken in monitoring any research set aside. Suggested research programs include life history, water filtration, food web interactions, and localized depletion especially in Virginia waters.
- One individual emphasized the need for ERP studies.
- Another individual recommended at-sea observer coverage in the menhaden fishery.
- One individual recommended that there should be a RSA since there are so many questions about the stock. The research set aside should be less than 1% of the TAC.

Atlantic Menhaden Draft PID for Public Comment

Atlantic States Marine Fisheries Commission
December 5, 2016
Virginia

-- PLEASE PRINT CLEARLY --

<u>Name</u>	<u>Company/Organization</u>	<u>City, State</u>
Mike Ruagles	Tidewater Anglers Club	Virginia Beach, VA
BOB MANDIGLO	TIDEWATER ANGLERS CLUB	VA BEACH, VA
Mike Avery	VSSA	Hampton, VA
Tom Miller	FORVA	Lanexa, VA
Chris Moore	C.B.F.	VA Beach, VA
Peter Hunchet	Omega Protein	Tuckerton, NJ
STEVEN ERSTEIN	Ches. Bay defenders	
LEE ATKINSON		CHESAPEAKE VA
SAUL ELKING	FISHING FEVER CHAIRS	VA BEACH VA
Bryan Stoots		VIRGINIA BEACH
Woody Poole		Virginia Beach, -
Rob Cowling	Pen saltwater sport fish. Assoc	Newport News VA
Sandra Bultter		Virginia Beach
Walter Pealk		VA Beach VA
Curtis Tomlin	USSA	Mechanicville VA
Wes Blum		Newport News VA
Nikki Rorner	The Nature Conservancy	Richmond VA
Vanessa Peña	National Wildlife Federation	Washington DC
Amy Hedges	National Wildlife Federation	Washington DC
David Bromley	Omega Protein	Reedville Va.
Ken Bray	"	"
Burton Thrift	Omega Protein	Reedville VA
One Crowther	Omega Protein	Reedville VA
Amy HALL	Omega Protein	Reedville VA
Joseph Gordon		Sioux Spring MD
Nick Stersett	Omega Protein	Reedville, VA
Benson Chiles	Chiles Consulting LLC	Atlantic Highlands NJ

Atlantic Menhaden Amendment 3 PID Public Hearing

Morehead City, North Carolina

November 30, 2016

20 Participants

Attendees: David Bush (NCFA), Steve Weeks (NCFA/CCFA), Chuck Laughridge, Scott Williams, Zack Greenberg (Pew), Louis Daniel, Corrin Flora (NCDMF), Joseph Smith, Attila Nemezc (PAWC/NCWF), Barbara Garrity-Blake (DUML), Leda Dunmire (Pew), Jack Cox (Blue Ocean Market), Bradely S. (CCFA), Caitlin Starks (DUML), Kelsey Dick (DUML), Justin Pearce (DUML), Tom Roller (CCA-NC), Paul Myers

Staff: Michelle Duval (NCDMF), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: 2 groups and 2 individuals supported Option C; 4 groups and 1 individual supported Option D;

- The Carteret County Fisheries Association, the NC Fisheries Association, and two individuals supported Option C: Single-Species Reference Points until ERPs are Developed by the BERP. Participants stated that the stock assessment shows the stock is in good condition and recent TC projections indicate the TAC could be increased by 40% and result in a 0% chance of overfishing. This shows the current reference points have been successful as they have allowed for the maintenance and growth of the menhaden stock. Others noted that the abundance of menhaden seems to be increasing and this would not happen if they were not fulfilling their ecological role. The NC Fisheries Association commented that evaluation of the ERP options all seem to provide for further conservation of the stock. It is unclear if this is the appropriate approach given that the environment is the primary driver of recruitment. Furthermore, general forage fish ERPs are not appropriate as menhaden are a unique fishery and one model does not fit all. These groups and individuals recommended the BERP continue work on menhaden-specific ERPs and when completed, these ERPs be peer-reviewed. In the meantime, the Board should manage with what they do know and not what they don't know. One individual noted that the 20% reduction taken in 2013, which was based on a flawed assessment, had many serious economic impacts along the coast (MD had to establish a bycatch fishery, NJ had to shut down its directed fishery in July, etc) and, so far, the Board has taken a precautionary approach in restoring catch to its historic levels.
- Coastal Fisheries LLC, NC Wildlife Federation, Pamlico-Albemarle Wildlife Conservationists, the Coastal Conservation Association, and one individual supported Option D: Existing Guidelines for Forage Fish Species until ERPs are Developed by the BERP. These groups and individuals recommended that the Board manage menhaden for maximum abundance rather than maximum yield. Using the current single-species reference points while waiting for the BERP's menhaden-specific ERPs will result in

cyclical abundances which are detrimental to the marine ecosystem. Instead, implementing existing guidelines for forage fish species will protect menhaden from overfishing and provide for the needs of predators. Several groups noted that menhaden are still on the road to recovery and the Board should not risk reducing the conservation gains made over the last several years. This is particularly important given the changes occurring in the ocean as the result of climate change. The CCA stated that a sustainable menhaden population also means sustainable commercial and recreational fisheries, and their economies (a \$1.6 billion rec industry in NC).

- Coastal Fisheries LLC, the NC Wildlife Federation, and one individual supported the 75% rule-of-thumb to allow menhaden to perform their ecological function and support important species such as king mackerel, cobia, and striped bass.
- The Coastal Conservation Association recommended menhaden population not be reduced below 40% of their unfished biomass so that the stock can fully expand to their northern and southern ranges.

Issue 2: Quota Allocation

SUMMARY: 1 individual supported Option A; 1 group supported Option B; 1 individual supported Option F.

- The NC Fisheries Association supported Option B: Jurisdiction Allocation with a Fixed Minimum Quota. This option allows for continued fishing practices but also greater flexibility for states with limited quota.
- One individual supported Option F: Disposition Quotas. He felt it is a better strategy to distribute quota by fishery (ie: bait vs. reduction) and then consider further allocation by state and fleet.
- One individual supported Option A: Jurisdictional Quotas as he wants to protect the menhaden catch in NC. He noted that in other management plans, regional quotas have shut North Carolina out of the fishery due to timing and water temperatures.
- One individual did not state a preference for a quota allocation method but wanted to see NC have the opportunity to expand their bait fishery.

Issue 3: Allocation Timeframe

SUMMARY: 1 individual supported Option C; 1 group and 2 individuals supported Option D.

- One individual supported Option C: Longer Time Series Average, as a longer time series would better reflect the fishery and would not result in knee-jerk reactions on the part of management.
- The NC Fisheries Association and two individuals supported Option D: Weighted Allocation. They noted that the 2009-2011 timeframe does not reflect when menhaden were abundant in New England or the southern states and as a result, many of these jurisdictions got the short end of the stick. A longer time series is needed to calculate landings and allocation should be weighted between two time periods. The NC Fisheries Association noted that there must be a limit on late reporting. Some of the issues with the current quota allocation have been the result of late reporting and there must be a limit after which changes cannot be made.

Issue 4: Quota Transfers and Overage Reconciliation

SUMMARY: 1 group and 1 individual supported quota transfers.

- The NC Fisheries Association and 1 individual supported the continued use of quota transfers as they are standard operating procedures and maintain flexibility in the fishery. The NC Fisheries Association noted that overages should be forgiven but not rewarded and states should be held accountable for meeting their quota.

Issue 5: Quota Rollovers

SUMMARY: 1 group supported quota rollovers and 1 individual did not.

- The NC Fisheries Association supported quota rollovers as they can absorb overages before reaching out to others states.
- One individual did not support the use of quota rollovers. He stated that if a jurisdiction does not make its annual quota that does mean the state gets a credit.

Issue 6: Incidental Catch and Small-Scale Fisheries

SUMMARY: 1 group supported Option A, D, or F; 1 group and 1 individual supported Option C; two individuals supported Option F.

- The NC Fisheries Association supported Option A: Incidental Bycatch Limit Per Vessel, Option D: Incidental Catch Cap and Trigger, and Option F: Small-Scale Fishery Set Aside or a combination of the above. Overall, they felt it is the responsibility of the state to manage and resolve issues with the bycatch provision.
- The Coastal Conservation Association and one individual supported Option C: Including Incidental Catch in the Quota. They stated that the current bycatch allowance is a loophole as those landings do not count towards the TAC.
- Two individuals supported Option F. They felt the bycatch allowance needs to be replaced with some other strategy as current bycatch landings do not count against the quota and the allowance has supported the creation of a small-scale fishery, especially with cast nets. A small-scale fishery set aside would relieve administrative burden on the Commission and states to follow landings by non-directed gears.

Issue 7: Episodic Events Set Aside

SUMMARY: 2 individuals supported 3% of TAC allocated to Episodic Events; 1 group supported 1% maximum.

- The NC Fisheries Association stated that if a state has a quota under 1% of the coastwide TAC, 1% should be the maximum. This could be addressed with the Minimum Fixed Quota option in Issue 2.
- Two individuals supported continuation of the episodic events set aside program and that the amount of TAC set aside to the program be increased to 3%. They also felt that the states of NY through ME be allowed to participate in the program.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: 2 groups supported the continuation of the Cap; 2 individuals supported removal of Cap.

- The NC Fisheries Association and the Coastal Conservation Association supported the continuation of the Chesapeake Bay Reduction Fishery Cap until ERPs are established. The Cap should not be removed as it keeps pressure on the reduction fishery in this area. The CCA recommends the Cap be cut in half to 96 million pounds.
- Two individual stated that the Chesapeake Bay Cap should be removed as the majority of catch is from the mouth of the Bay and off the Virginia cape.

Issue 9: Research Programs and Priorities

SUMMARY: 1 group recommended research on recruitment and food web models

- The NC Fisheries Association recommended that research focus on what factors impact recruitment and on food web models.

Atlantic Menhaden Amendment 3 PID Public Hearing

Melbourne, Florida

December 1, 2016

25 Participants

Attendees: Tim Adams (Organized Fishermen Fl.) Charlie Sembler, George Geiger, Mitch Roffer (Roffs), Aaron Adams (Bonefish Tampa Trust), Dominic Agostini (BFFA Brevard), Martin McKasty, Lisa McKasty, Duane Defreese, Cameron Jaggard (Pew), Mike Readling (Snook Gamefish Foundation), Michael Splitt (Florida Tech), Steven Lazarus (Florida Tech), R.T. 'Bo' Platt (Brevard IRL Coalition), Matt Badolato (Florida Today), Lora Lose (Space Coast Audubon), Matt Heyden (Space Coast Audubon), Rodney Smith (Angler for Conservation), Vince Lamb, Lyle Zody, Terry Gibson (Northswell Media) Grayson Kyte, Dennis Long

Staff: Jim Estes (FWC), Krista Shipley (FWC), Megan Ware (ASMFC)

Issue 1: Reference Points

SUMMARY: All participants supported Option D.

- All participants supported Option D: Existing Guidelines for Forage Fish Species until ERPs are Developed by the BERP. Many participants stated that we should leave as many menhaden in the water as possible without ruining the livelihoods of the small-scale fishermen. They noted that Florida is the recreational fishing capital of the world and is home to many important bird species. As a result, menhaden are essential to the Florida ecosystem and economies. Several individuals recommended that menhaden be left in the water to do the job they are supposed to do. Participants noted that menhaden stocks have not recovered to their historic levels and ERPs could provide a way to get more fish back in Florida waters. Some felt that the single-species reference points are outdated and the Board now has the data and technology needed to support ERPs. One individual commented that there will need to be a transition period to ERPs and the Board should not wait until 2019 to start this transition. Another participant felt that implementing ERPs would help achieve the management goals of many other species which rely on menhaden for prey.
 - One individual specifically supported implementation of the 75% rule-of-thumb as a way to ensure a healthy ecosystem.

Issue 2: Quota Allocation

SUMMARY: 1 participant supported Options B, F, or G. Others recommended alternative allocation methods.

- One participant supported Option B: State-Specific Quota with a Fixed Minimum, Option F: Disposition Quotas, and Option G: Fleet-Capacity Quotas. He did not think it was fair that one jurisdiction got 85% of the quota and felt that these other options provide a better balance in the fishery.

- Several individuals did not like any of the options provided and recommend other allocation strategies.
 - A. One participant recommended there be a regional quota system based off of stock definition. He felt there is a disconnect between reference points and quota allocation and that the biology of menhaden needs to be included in the allocation method. As a result, regional quotas should be based on stock units and stock assessments should further refine stock boundaries. He noted that Florida is unique in that there are multiple species of menhaden, not all of which migrate along the coast. To account for these regional differences, a greater level of speciation is needed in the quota method.
 - B. Another participant recommended a step-down quota system similar to what is in place for Spanish mackerel. As the fishery gets closer to the TAC, catch limits should progressively be put in place. These catch limits would become more restrictive as the fishery gets closer and closer to the TAC. This method would ensure a longer season for the small-capacity gears as, at some point, the larger gears would have to exit the fishery due to the catch limits. He also noted that the small-capacity gears are a more sustainable fishing practice and should be allowed to continue fishing.
- Several fishermen noted that due to the net ban, fishermen in Florida are limited to using cast nets to catch menhaden. As a result, their impact on the stock is minimal as they are catching menhaden for high quality bait and not fish oil or meal.
- One individual stated that climate change has to be included into the management of menhaden.

Issue 3: Allocation Timeframe

SUMMARY: Participants favored changes to the current allocation timeframe and generally supported a longer time series.

- One individual recommended the Board use the longest time series possible to consider all aspects of the fishery. The 2009-2011 average provides very little insight into what has happened to the stock.
- Another participant noted that the 1994 net ban in Florida creates a unique situation as, in essence, the state has already had a 90% cut in landings. As of 2009, the Florida bait fishery wasn't fully up and running so the current time period does not reflect where the fishery is today. Florida also has issues with non-reporting in the fishery prior to the TAC.
- One individual recommended the Board look at the causes of fluctuations in landings by the various states. Unique circumstances like the Florida net ban need to be recognized but climate change should also be considered in stock assessments.

Issue 4: Quota Transfers and Overage Reconciliation

SUMMARY: Participants did not support quota transfers or overage reconciliation.

- Participants did not favor quota transfers in the menhaden fishery. One participant was concerned that some states intentionally exceed their quota knowing that they will get transfers from other states. Another participant noted that better quota allocation, such

as a step-down limits as the quota is reached, may negate the need for transfers as there would be fewer overages. Another participant stated that due to the migratory nature of menhaden, transfers do not make sense as the fish move throughout the year. All participants felt that quota overages should not be forgiven and did not support quota reconciliation.

- One individual suggested that the Board look at the fisheries in the North Sea to see how they deal with quota transfers and overages between different countries.

Issue 5: Quota Rollovers

SUMMARY: Majority supported quota rollovers; 1 individual did not support quota rollovers.

- The majority of participants favored the implementation of quota rollovers. They felt that if a state is allocated a specific quota they should be allowed to use it, even if it is not harvested in a single year. They also noted that overage paybacks should continue to roll over so that states are held responsible for their overages. One individual recommended that the Board keep the provision that rollovers can only occur if the stock is not overfished and overfishing is not occurring.
- One individual did not support quota rollovers. He stated that management is based on a yearly quota and so rollovers should not be allowed. He felt that banking quota is not right for the current management plan and that a conservation benefit would be lost if unused quota is harvested in a subsequent year.

Issue 6: Incidental Catch and Small-Scale Fisheries

SUMMARY: Participants favored a combination of Option C and F.

- Participants favored a combination of Option C: Incidental Catch Included in Quota, and Option F: Small-Scale Fishery Set Aside. They noted that the cast net fishery is really a directed fishery and it should be considered as such. As a result, their landings should count towards the quota in a small-scale fishery set aside. Several fishermen commented that their cast nets are some of the most sustainable gear types used in the menhaden fishery and these small-scale gears should not have to fight against large purse seiners for a spot in the menhaden fishery.

Issue 7: Episodic Events Set Aside Program

SUMMARY: Majority of participants recommended gear restrictions on episodic harvest; 1 individual recommended the 1% be set aside for non-harvest.

- The majority of participants recommended that participation in the episodic events program be reserved for small-scale gears and in-state residents. Participants were concerned that purse seiners can catch the episodic events quota so quickly that it minimizes the value to other gear types and states. The large-scale harvest by purse seines also negatively impacts local recreational fisheries as fish such as striped bass suddenly have no prey and they leave the area.
- One individual recommended that the 1% set aside for the episodic events program be reserved as a non-harvest set aside. He was concerned with the validity of the current

reference points and felt that setting aside 1% of the TAC for conservation would provide a natural buffer in the population.

- Another participant was concerned how the Board might define episodic events in a changing climate; an 'episodic event' now might just be a blimp in the population when looking at a longer time series. He noted that episodic events are really re-building of the stock to its former geographic extent.

Issue 8: Chesapeake Bay Reduction Fishery Cap

SUMMARY: Participants recommended Cap be maintained and reduced.

- All participants agreed that the Chesapeake Bay Reduction Fishery Cap should be maintained. They expressed concern that changing environmental conditions could encourage greater harvest from the Bay and the Cap would provide a safe net for this important nursery area. Several individuals felt the Cap should be reduced if the reduction fishery is consistently underperforming its limit in the area. One participant recommended the Cap be expanded to other areas along the Virginia coast.

Issue 9: Research Programs and Priorities

SUMMARY: Participants had several recommendations relating to ERPs, speciation, and regional stocks.

- Several participants recommended prioritizing ERPs for menhaden, specifically looking at prey biomass and impacts on other predators.
- One participant recommended the impact of fish kills be studied and incorporated into stock assessment models.
- One individual wanted to see environmental covariates incorporated into stock assessments.
- Several participants requested greater detail in the definition of regional stocks and in the speciation of menhaden, particularly in Florida.
- Another individual recommended that harvest by small-scale fisheries be better understood to determine what amount of menhaden would be harvested under no state quota. Right now, states such as Florida are limited in their catch due to the small jurisdictional allocation and there should be studies on how catch would change for these small gears without a limit. This could be tied in with a small-scale fishery set aside or in a step-down TAC approach.

Submitted Atlantic Menhaden Public
Comment can be accessed at
<https://asmfc.egnyte.com/dl/5u5zP0h8ZS>



Atlantic States Marine Fisheries Commission

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MEMORANDUM

January 17, 2017

To: Atlantic Menhaden Management Board
From: Tina Berger, Director of Communications
RE: Advisory Panel Nomination

Please find attached one nomination to the Atlantic Menhaden Advisory Panel – Chris Hole, a commercial trap/net fisherman from Maine. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or tberger@asmfc.org.

Enc.

cc: Megan Ware

M17-12

ATLANTIC MENHADEN ADVISORY PANEL

Bolded names await approval by the Atlantic Menhaden Management Board

January 17, 2017

Maine

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Appt Reconfirmed 12/13/16

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Appt Confirmed 10/26/16

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Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10

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Appt. reconfirmed 12/07

ATLANTIC MENHADEN ADVISORY PANEL

Bolded names await approval by the Atlantic Menhaden Management Board

January 17, 2017

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North Carolina

2 Vacancies – conservation & commercial

South Carolina

Vacancy (rec)

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Appt Reconfirmed 5/10

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Appt. Reconfirmed 1/2/06
Appt Reconfirmed 4/22/10

PRFC

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Appt. Confirmed 7/17/01
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10



ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.

Form submitted by: CHRIS Hole State: MAINE

(your name)

Name of Nominee: CHRIS Hole

Address: PO 330 Harpswell ME

City, State, Zip: Harpswell ME 04079

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 207/251/0339 Phone (evening): 207-833-5751

FAX: _____ Email: ChrisHole48@gmail.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.

1. _____

2. _____

3. _____

4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

yes _____ no _____

3. Is the nominee a member of any fishermen's organizations or clubs?

yes _____ no _____

If "yes," please list them below by name.

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

lobster

Elvers

Menchaden

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Menchaden

lobster

Eels (elvers)

Shrimp

Sealop

Ground Fish

Tuna

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 30 years
2. Is the nominee employed only in commercial fishing? yes no
3. What is the predominant gear type used by the nominee? Traps Net
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)?
inshore offshore

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? _____ years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no _____
If "no," please list other type(s) of business(es) and/occupation(s): _____

3. How many years has the nominee lived in the home port community? 35 years

If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? _____ years
2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no _____

If "yes," please explain.

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing?
_____ years

2. Is the nominee employed only in the business of seafood processing/dealing?

yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

3. How many years has the nominee lived in the home port community? _____ years

If less than five years, please indicate the nominee's previous home port community.

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years

2. Is the nominee employed in the fishing business or the field of fisheries management?

yes _____ no _____

If "no," please list other type(s) of business(es) and/or occupation(s):

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

I am a life long Fisherman, I am most interested in helping with the menhaden. There are very few of us that have done it for a career

Nominee Signature: Christopher S Hole

Date: 12/6/16

Name: Christopher S Hole
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

Ty Stodwell for Kathleen

State Director

State Legislator

Governor's Appointee

*after consultation with Maine
Commissioners*