Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Atlantic Menhaden Management Board

FROM: Atlantic Menhaden Advisory Panel

DATE: October 13, 2016

SUBJECT: Review of the Amendment 3 Public Information Document

The Atlantic Menhaden Advisory Panel (AP) met via conference call on September 30th to review a draft of the Public Information Document (PID) for Amendment 3. The purpose of this call was to make sure no major issues or options were missing from the document. Preferred management alternatives were not discussed on this call. AP members in attendance included commercial harvesters, recreational anglers, and conservation coalition members. The following is a summary of the recommendations made by AP members on the call.

AP Members in Attendance:

Donald Swanson (NH)
Patrick Paquette (MA)
Bob Hannah (MA)
David Monti (RI)
Meghan Lapp (RI)
Melissa Dearborn (NY)
Jeff Kaelin (NJ, Chair)
Paul Eidman (NJ)
John Dean (MD)
David Sikorski (MD)
Jimmy Kellum (VA)
Peter Himchak (VA)
Scott Williams (NC)
Ken Hinman (GA)

Opening Purpose and Needs Section

- Several AP members felt the stated purpose of the PID focused too heavily on Ecosystem Reference Points (ERPs) and did not appropriately reflect the bait and reduction fisheries which menhaden also support. They recommended the status of the stock be included in the introduction, the human use of menhaden be recognized, and the scale of the menhaden fisheries (e.g. the percent of the annual stock used by humans) be represented. One AP member recommended a goal of the PID be to sustain human use coastwide.
- Other AP members were happy with the stated purpose of the PID. They felt it accurately portrayed the desire of the Board to develop ERPs and address allocation issues in the fishery.
- One AP member asked the standards by which the Commission creates regulatory measures and manages species be added to the document.

Reference Points

- Four AP members presented the following ERP for inclusion in the PID:
  The Atlantic menhaden stock is managed under provisional ecological reference points (ERPs) that specify:
  - *a stock biomass (B) target of 75 percent of virgin, unfished biomass (B_{TARGET} = 0 .75B_0);*
  - *a stock biomass limit (aka threshold) of 40 percent of virgin, unfished biomass (B_{LIMIT} = 0.4B_0);*
  - *a fishing mortality (F) target determined to be consistent with achieving the target biomass (i.e., F = 0.75B_0); and,*
  - *a fishing mortality cutoff (aka threshold) (i.e., F = 0) when B ≤ 0.4B_0.*

  The stated goal of this ERP is to ensure fisheries enjoy the benefits of high biomass while aggressively responding to population declines. Proponents of this proposal noted that, if implemented, the BERP should continue work on the menhaden-specific ERPs and upon completion, the Board should consider complementing, building upon, or replacing these provisional ERPs. AP members in favor of the proposed ERP stated the 75% virgin biomass target for forage fish species has been peer-reviewed and published by Smith et al. (2011) in the journal Science. Furthermore, the reference point is applicable to menhaden as it is intended for low-trophic level species, which are characterized as forage fish which feed on phytoplankton during a significant portion of their life, are present in high abundance, and form schools or aggregations.[1]
- While not all members of the AP supported the new ERP proposal, there was no stated objection on the call to having the reference point analyzed by the PDT to determine its appropriateness for inclusion in the PID. Some members of the AP requested a technical review of the ERP.
- Another AP member asked that language be added to the PID which describes the on-going work to develop management strategies for forage fish. An AP member noted that a paper on this topic is soon to be published by Hilborn et al.

Quota Allocation

- One AP member disagreed with the statement that the current allocation scheme "does not strike an equitable balance between gear types and regions". He highlighted that the current allocation scheme is based on historic landings which represent a fair and equitable way to distribute quota and that if states want more quota, they should pursue an increase in the annual TAC. The AP member questioned what other method there could be, besides historical landings, to distribute quota.
- Several AP members recommended that in *Option G: Fleet Capacity Quotas*, the medium fleet be monitored with a hard quota as opposed to a soft quota.

[1] Anthony D.M. Smith, Christopher J. Brown, Catherine M. Bulman, Elizabeth A. Fulton, Penny Johnson, Isaac C. Kaplan, Hector Lozano-Montes, Steven Mackinson, Martin Marzloff, Lynne J. Shannon, Yunne-Jai Shin, and Jorge Tam. 2011. Impacts of Fishing Low-Trophic Level Species on Marine Ecosystems. *Science,* Vol. 333, Issues 6046: 1147-1150.

- One AP member asked that an example of a seasonal quota, such as a winter quota, be added to the document. This AP member noted a small winter fishery would allow for sampling of the adult population which has been available offshore for the last several years.
- Another AP member recommended all quota allocation options remain in the document presented during the public comment period.

Allocation Timeframe

- Several AP members highlighted the importance of a longer time-series average for the allocation timeframe since landings between 2009 and 2011 were relatively low, especially in the northeast. As a result, they recommended examples of longer time series be added to the document, such as 2006-2012 when only one reduction plan operated or 1985-2012, when accurate bait landings are available.

Quota Transfers and Overage Payback

- One AP member asked whether the Atlantic menhaden fishery has exceeded the coastwide TAC since it was implemented in 2013. He felt this information should be added to the document to provide further context on the discussion of quota reconciliation.
- Several AP members asked if quota reconciliation would encourage some states to continually exceed their allocation knowing that other states routinely underperform their quota. As a result, AP members requested a public comment question be added to the document which asks if there should be accountability measures for jurisdictions which repeatedly participate in quota transfers and quota reconciliation.

Quota Rollovers

- The AP felt the public comment questions included in this section were broad and appropriately addressed the issue.

Incidental Catch and Small-Scale Fishery Allowance

- The AP felt the management options included in this section were broad and appropriately addressed the issue.

Episodic Events Set Aside

- One AP member stated the issue of episodic events is intrinsically tied to re-allocation and asked this connection be made clear in the document.
- Another AP member asked if the current definition of an episodic event is appropriate given the geographic expansion of the stock over the last few years. As a result, the AP member requested a public comment question be added to the document which asks how the Commission should qualify an episodic event given the increase in biomass, especially in the northeast.
- One AP member asked that options be added to the PID which look at specific increases in the TAC (e.g. 2%, 5%, 10%) reserved for the episodic events program to see if small scale fishery needs could be met by increasing the set aside.

Chesapeake Bay Reduction Fishery Cap

- One AP member commented that the Chesapeake Bay reduction fishery continually under-performs its cap because the reduction fishery does not target ages-0's.
- Several AP members asked that a more detailed and historic review of the Chesapeake Bay reduction fishery be added to the document. Staff noted that much of this information is confidential.

Other Comments

- Two AP members requested that a section on research programs and priorities be added to the PID for public comment.
- One AP member asked that total landings per year be added as a column in Table 2 of Appendix 1.

Responses to Comments from the Atlantic States Marine Fisheries Commission's Atlantic Menhaden Technical Committee on "The Fate of an Atlantic Menhaden Year Class", August 18, 2016

Kindly accept the responses below that address comments by the Atlantic States Marine Fisheries Commission's (ASMFC) Atlantic Menhaden Technical Committee (TC) as stated in a June 30, 2016 Memorandum to the Atlantic Menhaden Management Board (Board) regarding a TC review of a paper and powerpoint presentation made by webinar on June 17, 2016 on "The Fate of an Atlantic Menhaden Year Class".

The paper's author and presenter of the powerpoint on June 17, 2016 (Peter Himchak) very much appreciates the TC's investment in their time, energy, and recommendations, as well as their applauding the author's efforts to provide perspective on the impact that the reduction and bait fisheries have on the Atlantic menhaden stock.

1. **COMMENT:** The TC did not feel it was appropriate to include age 0 fish in the analysis since the reduction and bait fisheries do not harvest from this age class. By including age 0 fish, the paper fails to compare removals from the fishery to the harvestable population. As a result, the total exploitation on a year class is underestimated. The TC recommended that the analysis start with age 1 or 2 fish, and also consider the fishery selectivity of each age group when calculating the harvestable population. This change would mirror the current ages used for establishing threshold and targets in the menhaden stock assessment.

   RESPONSE: The objective of the analysis is to provide a perspective in the numbers of fish in the population at each age in context with the numbers of fish removed at each age by both the reduction and bait fisheries on a yearly basis. The author chose to start with the number of recruits to the stock at age-0 because that number represents the size of the year class for the analysis. The TC's comment on focusing on the harvestable population is most appropriate when calculating an exploitation rate and the TC stressed that fishing mortality reference points are based on age-2 through age-4 year old fish where management action would have the biggest impact on the harvestable portion of the population. **However, the analysis was not designed to compare removals from the fishery to the harvestable population. Rather, the analysis was designed to track a year class from age-0 through age-6+ and show the removals at each age by natural mortality and fishing mortality**. The author most likely confused the issues by any reference to exploitation rates in an earlier webinar on June 17, 2016 and that was not his intent. It is important to include age-0 and age-1 fish in the analysis to show the losses due primarily to natural mortality and a lesser extent fishing mortality. The calculation of the

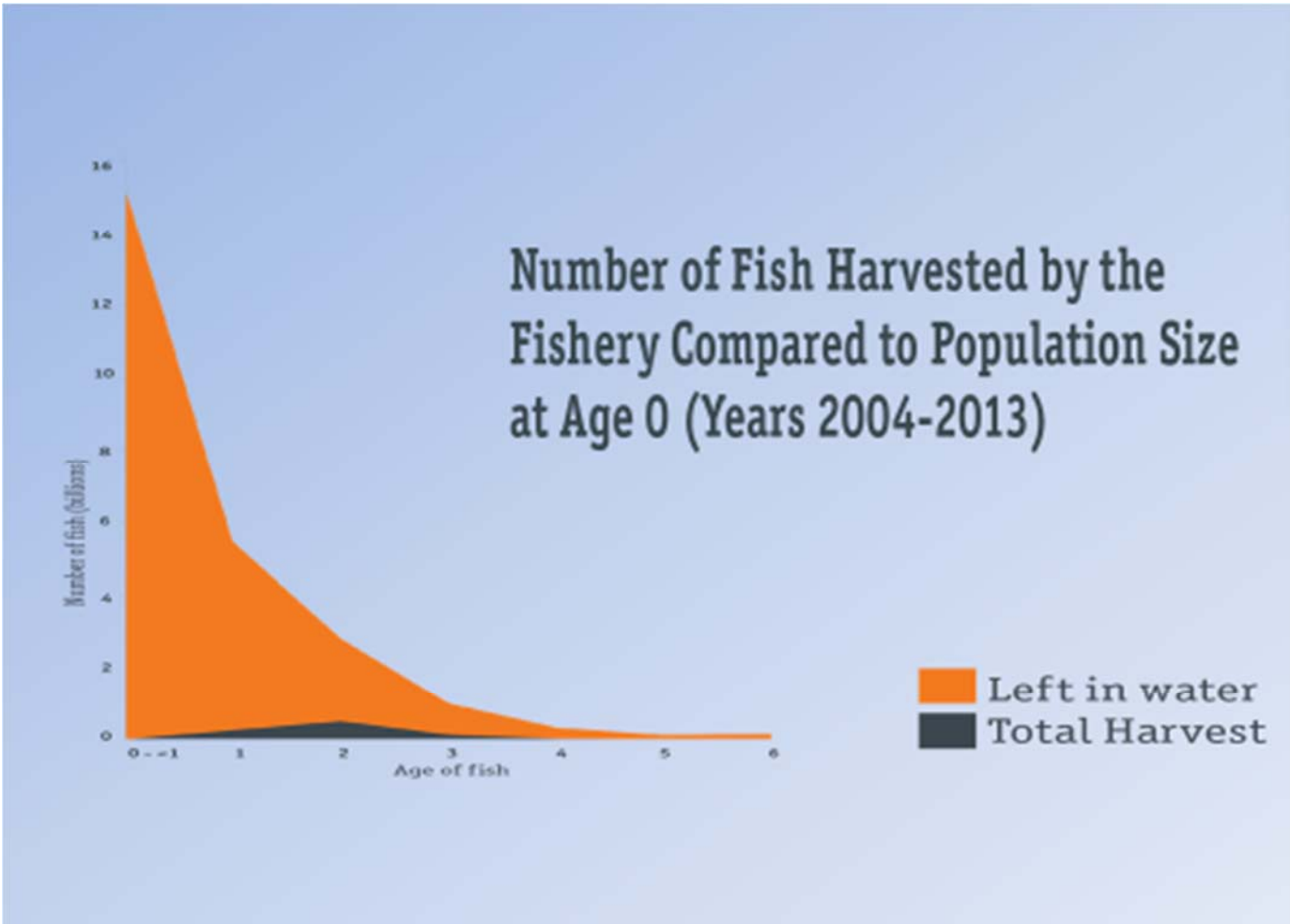
6.4% harvest simply represents the losses in numbers of fish due to both the reduction and bait fisheries on the year class as it ages from age-0 through age-6+ (see Table 1). The analysis demonstrates the varying impacts of natural and fishing mortality losses at each age throughout the life of a year class.

While there is an extremely small harvest by the reduction fishery of age-0s in 9 of the 10 years on which the analysis is based (2004-2013) and some harvest of age-1 year old fish, the reduction fishery takes every effort to avoid these small fish. There are also some losses to cast nets and beach seines largely targeting peanut bunker for bait but these landings are considered minimal in context with the population. Minimal fishing pressure on the smaller fish is important since they serve as food items for many predators and this small harvest is documented. **At the same time, however, the perspective of how many billions of age-0 and age-1 fish lost to natural mortality is an important part of the analysis and it was the author's intent to provide this perspective to the Board**.

Table 1. Average number of fish from 2004-2013 listing abundance at age, reduction fishery harvest at age, bait fishery harvest at age, total harvest at age, and abundance at age not harvested but rather lost to natural mortality.

Ages	Abundance at Age	Reduction Harvest	Bait Harvest	Total Harvest at Age	Abundance Not Harvested
0	15,264,300,000	9,494,000	120,000	9,614,000	15,254,686,000
1	5,216,100,000	243,092,000	23,240,000	266,332,000	4,949,768,000
2	2,286,900,000	447,413,000	78,700,000	526,113,000	1,760,787,000
3	870,700,000	90,154,000	47,920,000	138,074,000	732,626,000
4	312,300,000	15,842,000	13,780,000	29,622,000	282,678,000
5	148,000,000	929,000	1,440,000	2,369,000	145,631,000
Total	24,098,300,000	806,924,000	165,200,000	972,124,000	23,126,176,000

The average annual reduction fishery harvest, 806,924,000 fish, as a percentage of the starting (age-0) year class size of 15,264,300,000 fish is 5.3%. The average annual bait fishery harvest of 165,200,000 fish, as a percentage of that same year class is 1.1%. **Thus, only 6.4% of the year class starting at age-0 is removed by fishing losses as the year class ages from age-0 through age-6+.**



NOTE: At the request of the TC, the author did calculate the percentage of losses due to fishing as a percentage of the number of age-1 and age-2 fish starting out the year and those percentages are 18.6% and 42.5%, respectively. The author believes that these percentages are more applicable to the harvestable portion of population and any calculation of exploitation rates.

It is possible to follow any year class starting with 1955 using the SEDAR 40 data for number at age in billions of fish estimated from the base run of the BAM Model and estimated reduction landings in numbers at age (in millions) to show how a year class erodes as it ages, accounting for both natural and fishing mortality. The author did such an analysis for 5 separate year classes, 2003 through 2007 for which bait data were also available in millions of fish harvested at age and followed those individual year classes through age-6+. The percent of the year class, starting at age-0, harvested for the 5 year classes studied ranged from 3.7% in 2004 to 6.3% in 2006.

2. **COMMENT:** The TC noted that the analysis doesn't include calculations of natural mortality at age, and as a result, it is unclear what portion of the population is being removed due to natural causes. Furthermore, since natural mortality is constantly acting on the population, the impact of fishing mortality should be compared to a continuously diminishing stock. The TC recommended the paper clearly outline the losses due to fishing mortality, natural mortality, and fish that survive in a more than explicit way.

   RESPONSE: Subsequent to the June 17, 2016 webinar with the TC, the author has computed the natural mortality losses at each age, as requested. Equations and calculations are presented and graphed below. In the initial Webinar with the TC, graphs included terms such as "not harvested" and "fish left in the water" at each age and it was unclear how many of these fish were lost to natural mortality and how many survived each year.

CALCULATION OF NATURAL MORTALITY AT EACH AGE

Natural mortality at each age from Age-0 through Age-6+ was calculated to show the difference between the losses of natural mortality and fishing mortality at each age.

$N_{0,1,2,3,4,5,6+}$ = number of fish beginning the year at Age 0, 1, 2, 3, 4, 5, and 6+

$M_{0,1,2,3,4,5,6+}$ = number of fish lost to natural mortality at Age 0, 1, 2, 3, 4, 5, 6+

$F_{0,1,2,3,4,5,6+}$ = number of fish harvested at Age 0, 1, 2, 3, 4, 5, and 6+

The estimate of losses due to natural mortality at each age is calculated by adding the fishery losses at that age with the number of individuals alive at the start of the succeeding year and subtracting that sum of individuals from the number of individuals that were alive at the beginning of the first year.

*$\mathbf{M}_5$ is a negative number because $\mathbf{N}_{6+}$ includes more than one age group.

$\mathbf{M}_{6+}$ cannot be calculated without a discrete value for $\mathbf{N}_{7,8,9,etc.}$

$\mathbf{M}_0 = N_0 - (\mathbf{F}_0 + \mathbf{N}_1) =$ 15, 264.30 – (9.61 + 5,216.10) = 10,038.59

$\mathbf{M}_1 = N_1 - (\mathbf{F}_1 + \mathbf{N}_2) =$ 5,216.10 – (266.33 + 2,286.90) = 2,662.87

$\mathbf{M}_2 = N_2 - (\mathbf{F}_2 + \mathbf{N}_3) =$ 2,286.90 – (526.11 + 870.70) = 890.09

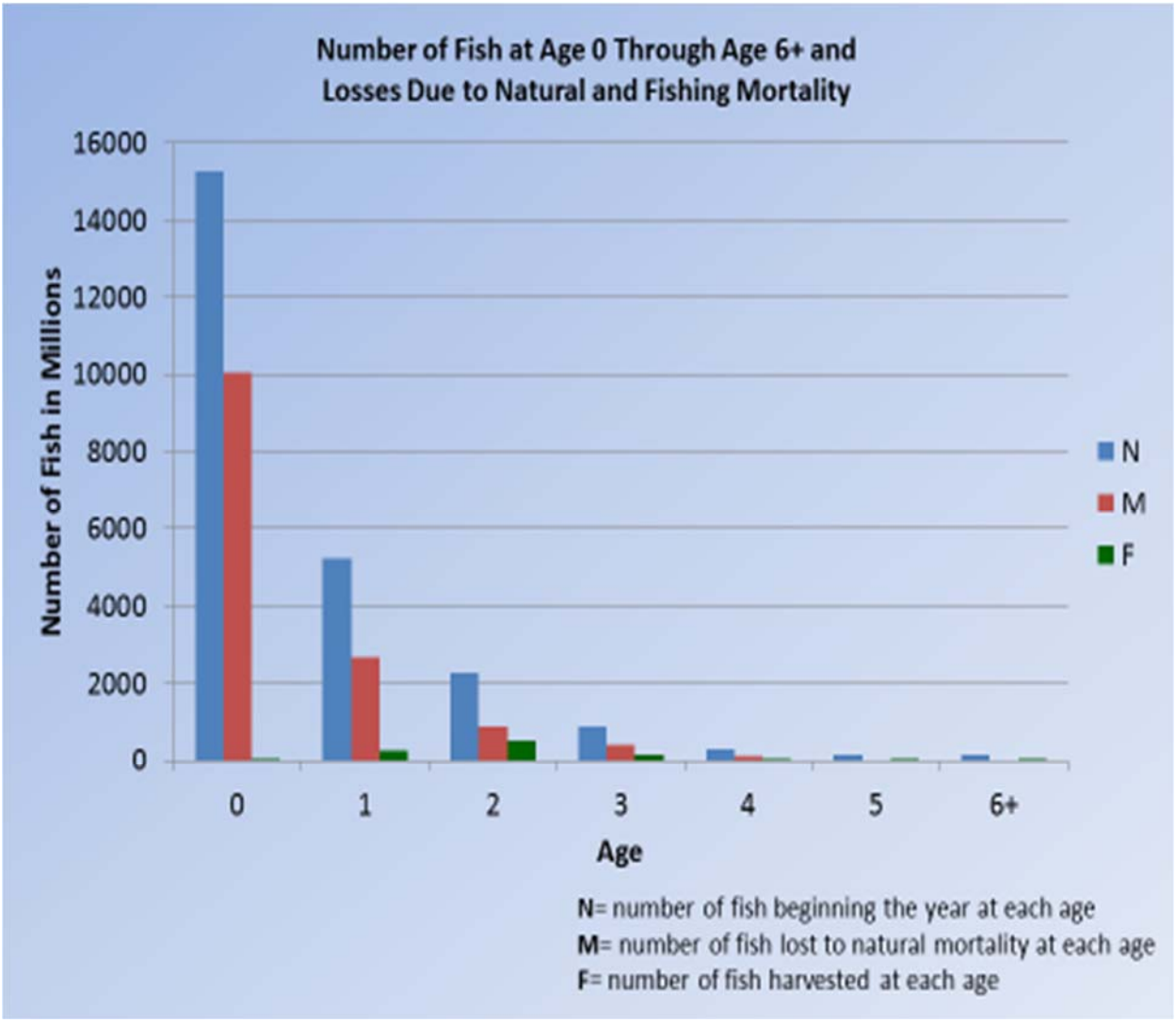
$\mathbf{M}_3 = N_3 - (\mathbf{F}_3 + \mathbf{N}_4) =$ 870.70 – (138.07 + 312.30) = 420.33

$\mathbf{M}_4 = N_4 - (\mathbf{F}_4 + \mathbf{N}_5) =$ 312.30 – (29.62 + 148.00) = 134.68

$\mathbf{M}_5 = N_5 - (\mathbf{F}_5 + \mathbf{N}_{6+}) =$ 148.00 – (2.37 + 171.00*) = -25.37*

NUMBER OF FISH AT AGE-0 THROUGH AGE-6+ (millions of fish) AND LOSSES DUE TO FISHING AND NATURAL MORTALITY

Age	0	1	2	3	4	5	6+
N	15,264.30	5,216.10	2,286.90	870.70	312.30	148.00	171.00
F	9.61	266.33	526.11	138.07	29.62	2.37	0.08
M	10,038.59	2,662.87	890.09	420.33	134.68	-25.37*	-



3. **COMMENT:** The TC recommended that, to fully understand the impact of the Atlantic menhaden fishery, the paper should include a comparison to an unfished stock. This is necessary because fish which are not removed, and then remain in the stock, continue to higher populations in subsequent years. Conversely, the impacts of fishing removals are perpetual in that they reduce the available population in following years.

   RESPONSE: The analysis in "The Fate of an Atlantic Menhaden Year Class" was an attempt to provide perspective on the natural and fishing mortality losses at age as a year class ages from age-0 through age-6+ using data from 2004 through 2013 in SEDAR 40. The analysis is not designed directly to provide guidance on developing management measures for future implementation. The author is not trying to interpret the significance of the fishing mortality losses of 6.4% on the hypothetical year class. Is 6.4% too high, low or sustainable in an ecological context? The author leaves that question up to the ASMFC Ecological Biological Reference Points Working Group.

SUMMARY STATEMENT: "The Fate of an Atlantic Menhaden Year Class" analysis shows the proportion of losses due to natural and fishing mortality at each age as the year class ages from age-0 through age-6+. It also shows that there are different age and size selectivities for both the reduction and the bait fishery. The proportion of natural and fishing mortality losses at each age is demonstrated

From: Michael Pierdinock <cpfcharters@yahoo.com>
Sent: Thursday, October 13, 2016 3:15 PM
To: Megan Ware
Cc: David Pierce; Melanie Griffin; Dave Waldrip; Barry Gibson; Rep. Sarah K. Peake; Cantwell James - Rep. (HOU)
Subject: ASMFC - Menhaden: Status Quo Alternative

Megan:

On behalf of the Recreational Fishing Alliance ("RFA") we recommend that the ASMFC maintain the status quo with no increase in the commercial landing of menhaden. It should be noted that as a result of the recent sound management of the menhaden stock that there has been an increase in the abundance of menhaden in our waters north as well as south of Cape Cod. We have observed the benefit of this critical forage fish that has returned to our waters as a result of those species that we target from striped bass to tuna. It should be noted that there is still lack of significant numbers of peanut bunker specifically north of Cape Cod in our Massachusetts waters and as far north as the coast of Maine. Any increase would be premature based upon our observations and/or lack of significant numbers of peanut bunker north of Cape Cod.

In conclusion on behalf of the RFA we recommend, the Status Quo alternative with no increase in the menhaden commercial harvest. If you have any questions please email or give me a call.

Thanks

Capt. Mike Pierdinock
RFA - Massachusetts Chairman
617-291-8914 (cell)

"To safeguard the rights of saltwater anglers, protect marine, boat and tackle industry jobs and ensure the long-term sustainability of U.S. saltwater fisheries."
www.joinrfa.org

From: Rory Geyer <Rory_Geyer@hotmail.com>

Sent: Wednesday, October 12, 2016 9:39 AM

To: Megan Ware

Subject: Re: Atlantic Menhaden Concern

Follow Up Flag: Follow up

Flag Status: Flagged

Hi Megan,

Thanks for the clarification. These schools provide a great food source for our striped bass population (among other fish populations) up here in New England. There is nothing more depressing and concerning than watching the commercial guys come in with their nets and make entire schools filled with thousands of fish disappear in a matter of hrs. I will support any endeavor that conserves these schools.

Thanks,

Rory

Ms. Megan Ware, Fishery Management. Plan Coordinator
Atlantic States Marine Fisheries Commission
1050 N. Highland St. Suite 200 A-N
Arlington, VA 22201

Dear Ms. Ware

On behalf of the Recreational Fishing Alliance – New England, I would urge ASMFC maintain the status quo, with no increase in landing quota, in the commercial menhaden fishery. It should be noted that as a result of recent management measures, there has been an increase in the abundance of menhaden in New England waters. Our members have witnessed the return of this important forage species to our waters and the positive benefits to species such as striped bass and bluefin tuna. It should be noted that there is still lack of significant numbers of juvenile "peanut bunker" north of Cape Cod up through mid-cast Maine. Any increase in quota would be premature based upon our observations and/or lack of significant numbers of juveniles in the northern areas.

In conclusion, on behalf of the RFA-NE, I strongly recommend, the Status Quo Alternative with no increase in the commercial harvest. If you have any questions please email or give me a call.

Thank you very much for your consideration.

Sincerely,

Barry Gibson

Capt. Barry Gibson, New England Regional Director
1`9 Royall Rd.
East Boothbay, ME 04544
(207) 633-5929
barrygibson6@aol.com

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Curtis Tomlin

Atlantic States Marine Fisheries Commission
Menhaden Management Board (ATTN: Megan Ware)
1050 North Highland Street, Suite 200
Arlington, VA 22201

Dear Board Members

October 13, 2016

The Virginia Saltwater Sportfishing Association (VSSA) requests the following be included as a public comment for the ASMFC meeting 23-27 October, 2016 for the Menhaden Management Board.

We strongly object to the appointment of Peter Himchak, an employee of Omega Protein from Virginia, representing the company's commercial vessels and processors **to the Atlantic Menhaden Advisory Panel as representative from Virginia.**

We have an expectation that all our representatives appointed on advisory panels, boards, committees appointed by ASMFC boards to represent a broad user base in an unbiased, neutral manner able to listen to discussion from all sides before making recommendations. Peter Himchak, as a direct, paid employee of Omega Protein is unable to provide neutral, unbiased advise to the board as his advice will **ALWAYS 100% of the time side to the advantage of a single company, Omega Protein.** Panel members nominated by the states and approved by the board should carry out duties in an unbiased manner that is **best for the fishery overall**, not what is best for a single company.

Additionally, we believe Peter Himchak has a clear conflict of interest and violates ASMFC's code of conduct rules to have no direct or indirect financial interest that conflicts with the fair and impartial conduct of official duties.

We strongly urge the board to disapproved Peter Himchak's nomination to the Atlantic Menhaden Advisory Panel.

Sincerely,

Mike Avery

Mike Avery, President

Stellwagen Bank Charter Boat Association
P.O.BOX 1230
Marshfield, MA 02050

Atlantic States Marine Fisheries Commission
1050 N Highland Street, Suite 200 A-N
Arlington, VA
22201

October 13, 2016

Request Status Quo for the Commercial Menhaden Fishery

Dear Megan,

The members of the Stellwagen Bank Charter Boat Association (SBCBA) based out of Marshfield, MA recommend the Atlantic States Marine Fisheries Commission vote for a status quo with no increase in the commercial landing of menhaden. For the first time in many years we are now seeing schools of menhaden located in the waters throughout Massachusetts resulting in excellent striped bass and blue fishing along with increased catches of bluefin tuna. We believe this is not a coincidence and the direct result of finally having the forage fish to hold the bass, blues and tuna. The charter boats who had a long history of running cod fishing charters have had to remodel their business plans to now target bass, blues and tuna. With the improved striped bass fishing customers are willing to go book a charter, allowing these small businesses to survive.

In summary the Stellwagen Bank Charter Boat Association members request a status quo alternative with no increase in the commercial quota.

Respectfully,

David Waldrip, President

Stellwagen Bank Charter Boat Association

October 11, 2016

Megan Ware
FMP Coordinator
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200
Arlington, VA 22201

RE: Atlantic Menhaden Quota for the 2017

Dear Ms. Ware,

We, the undersigned are representatives from a variety of conservation and angling organizations from across that state of Virginia. Despite many differences in the background of our organizations we are united in our concern about the health of the menhaden population within the Chesapeake Bay and along the Atlantic Coast.

After failing to adopt a quota for the 2017 during its August meeting the Atlantic State's Marine Fisheries Commission's (ASMFC) Atlantic Menhaden Management Board should make the adoption of the current quota for the upcoming fishing season its highest priority. In taking this action, our organizations uniformly advocate that the board not raise the current quota of 187,880 metric tons and remain consistent with the previous two fishing seasons. Adoption of the existing quota for 2017 will provide certainty for both the industrial and bait fisheries while appropriately waiting for the final adoption of Amendment III to the fishery management plan prior to making any changes in the harvest quota for this species.

Thank you for distributing these comments to members of the management board prior to the October meeting. Conservative management of these species is necessary to ensure we reverse the trend of low recruitment in the Chesapeake Bay and continue restoring the historic range of this ecologically important species along the Atlantic Coast.

Sincerely,

John Bello
Chairman

Bob Mandigo
Bob Mandigo
President

Steven Epstein
Steven Epstein
Chairman

Mariah Davis
Mariah Davis
Hampton Roads Organizer

Chris Moore
Chris Moore
Senior Scientist

Frank W. Wagner
Senator Frank W. Wagner
Senate of Virginia

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September 30, 2016

VIA E-Mail
Toni Kerns, Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street
Suite 200 A-N
Arlington, VA 22201
tkerns@asmfc.org

Re: Menhaden Allocation vs Bycatch

Dear Toni:

Thanks for taking the time to discuss the bycatch situation involving our menhaden fishery here in Maryland. Please use my email address: rnewberry56@yahoo.com for your letter.

Thanks again, and have a great weekend.

Sincerely,

Capt. Robert Newberry
Chairman

October 18, 2016

Atlantic States Marine Fisheries Commission
1050 N. Highland Street
Suite 200 A-N
Arlington, VA 22201

Dear Commissioners:

The Recreational Fishing Alliance (RFA) respectfully requests the Atlantic States Marine Fisheries Commission (ASMFC) vote to maintain the current 187,880 metric ton total allowable catch (TAC) for the 2017 fishing season. This TAC was set in response to the findings of the 2015 benchmark assessment and since that time, no new data has been presented and incorporated in the assessment that would justify a quota prior to the 2017 assessment update.

As you know, an assessment update is expected to be conducted in 2017. That assessment update will in part drive the development of ecological reference points to be included in the public information document for Amendment 3. It is the hope of the recreational fishing community that those reference points will reflect menhaden's important role as a forage fish along the Atlantic Coast. These reference points are expected to take into consideration the ecological value of menhaden and at what level the menhaden stock needs to be maintained to ensure that other species such as summer flounder, striped bass, and bluefish are able to meet their conservation objectives while producing maximum socioeconomic benefits to both the commercial and recreational fishing industries. As the ASMFC moves forward with the development of Amendment 3, maintaining the 2017 TAC at status quo is the most appropriate course of action.

RFA and the vast majority of the recreational fishing community do not believe that an increase to the 2017 menhaden TAC is warranted or appropriate at this time. Even at status quo, commercial removes roughly equate to half a billion pounds of menhaden which is significant especially considering some of the current challenges with striped bass and summer flounder. The impact of which is compounded by the fact that the majority of landings occur in a very small area relative to the management range. Status quo provides ample poundage for both commercial and recreational bait needs. Any TAC increase would only benefit Omega Protein executive, lobbyists and its share holders which the RFA simply cannot support. The RFA encourages you to vote to maintain the TAC at 187,880 metric tons and ensure that the public information document for Amendment 3 is approved and released in a timely manner.

Sincerely,

Jim Donofrio
Executive Director

RECREATIONAL FISHING ALLIANCE
PO Box 3080 New Gretna, NJ 08224
888 JOINRFA, www.joinrfa.org

Chesapeake Bay Ecological Foundation, Inc.
Easton, MD 21601
410-822-4400

MENHADEN CRUCIAL TO STRIPED BASS HEALTH IN CHESAPEAKE BAY

Striped Bass & Menhaden Management Disrupts Chesapeake Bay Ecosystem

Chesapeake Bay Ecological Foundation (CBEF) conducted the only long-term (2005-2015), year-round nutritional and food habit study on adult striped bass, examining over 15,000 fish and major prey consumed – primarily Atlantic menhaden. Study areas included Choptank River, Chesapeake Bay & Atlantic Coast from Montauk, NY to Oregon Inlet, NC.

Chesapeake Bay is the largest nursery and production area for striped bass and menhaden. In the Bay, menhaden are crucial prey for striped bass over 12" and essential to the ecosystem as filter feeders and key prey for many predatory fish and birds. In 1990, the Atlantic States Marine Fisheries Commission (ASMFC) reopened the Maryland striped bass fishery after being closed during a five year moratorium. At the same time, ASMFC raised the striped bass minimum size from 14" to 18" in MD's portion of the Bay, increasing prey demand on the depressed menhaden population. In 1991, concern that the Atlantic menhaden stock was being overfished appeared in a National Marine Fisheries Service publication "Marine Fisheries Review" ("Assessment and Management of Atlantic & Gulf Menhaden Stocks", D.S. Vaughan & J.V. Merriner). The summary cautioned: *"The expansion of fishing on the spawning stock in New England waters concurrently with increasing fishing pressure on pre-spawning menhaden off Virginia and North Carolina in the fall prompts concern for maintenance of the Atlantic menhaden resource".* By the time the Bay's striped bass population reached ASMFC's abundance objective in the late 1990s, a high percentage were malnourished and diseased. Recent striped bass tagging studies indicate high natural mortality rates.

Striped bass management must utilize multi-species approaches. Prey shortages in the Bay are not factored in ASMFC management of striped bass. Poor health and survival from the predator/prey imbalance may be undercutting striped bass management goals. ASMFC has failed to protect small, young menhaden, crucial prey for non-migratory adult Chesapeake Bay striped bass. Management of the menhaden harvest should be based on quotas and size limits that protect the Chesapeake Bay's striped bass prey supply, rather than the size of the estimated menhaden spawning stock, which is uncorrelated to recruitment.

CBEF's research enhances knowledge of Chesapeake Bay & mid-Atlantic ecosystems and the life cycle of striped bass & menhaden. Our study determined that lowering the striped bass size limit and/or establishing a menhaden minimum size for the purse seine fishery is essential for maintenance of healthy Chesapeake Bay adult striped bass.