Tina Berger

From: Tom Lilly <foragematters@aol.com>
Sent: Monday, July 26, 2021 12:13 PM
To: Tina Berger
Subject: [External] Fwd: Discussion . more bay research?
Attachments: 2020-09-05_211412 CBF PRESS RELEASE.pdf; 2020-06-02_144500 amendment 3 comparison.pdf; VA ALLOCATION.pdf; 2020-08-25_220701 WATTS.pdf; MILLER CBL.pdf; 2020-07-08_124852 Beal letter to Ross.pdf; 2020-08-13_084131 CIERI MAIL.pdf

Tina this is my comment on the agenda item at the menhaden board dealing with more research, Could you put this in the supplemental materials for the Commissioners and the menhaden board? The first mail dealt with the other agenda item on possible state reallocation. Thanks Tom Lilly

Subject: Discussion . more bay research?

to Josh Newhart Menhaden TC Chair

I have questions and a comment about agenda item 4 :
" Review data needs for Spacially Explicit Management of Menhaden in Chesapeake Bay"

Does it benefit the ecology of Chesapeake Bay and the people of Maryland and Virginia to start a new research project instead of taking known management action that will substantially increase menhaden forage in Chesapeake Bay as shown on the scan Single Concept ? With all due respect will you and the TC and the Board consider that question?

Bob Beal, ASMFC Director has said with respect to the Chesapeake Bay and menhaden that " in the face of uncertainty affecting resources ....in poor stock condition, in this case predator species including striped bass,the Commission is to take preventative action..." (n.1) More research that will not produce results for many years, if ever. is not preventative action. The Charter requires decisions be made on the best ecologic, social and economic information available.

Under Amendment 3 management decisions are not to focus on narrow and uncertain quantitative factors but are to apply much broader social and economic values to protect the Atlanic ecosystem and the people of Chesapeake Bay. In 2009 the Commission consultant Jacques Maguire told the menhaden delegates that further quantitative research, such as you are considering now, was unnecessary. He said the bay and the interest groups could be protected "more rapidly" using "time and area restrictions as well as zoning of the fishery". (n.2) The Board has in its possession ample data of all the significant declines in Bay species dependen on menhaden (n.3) and the fishermen of the Bay. Just as Dr. Maguire predicted when the delegates did not follow his advice.

Does the TC and the Board agree that right now the only important question for the people of Maryland and the ecology of the Bay is whether there is enough menhaden in Chesapeake bay right now to properly feed our bay fish and wild life... right now not five or ten years from now. You have the opinions from two of menhaden's top fisheries research scientists and top avian biology scientist that there are not enough menhaden in Chesapeake bay right now and this has caused chronic and continuing damage to the bay's most iconic fish and bird species... the striped bass and osprey, Their

conclusions and management advice is supported by data in a recent 2020 CBF press release (scan 1412)

Dr.Bryan Watts is one of the nation's foremost avian biology and raptor researchers. He is a teaching professor at William and Mary College and founder of the Center for Conservation Biology. In just the last six years he has 21 scientific publications in journals and 61 technical reports. He has been involved in mentoring graduate students in field research in bay and national ornithology for many years.

Dr. Watts' comments seem very clear. Ospreys in the main stem of the bay are dying out due to chronic nesting failures due to inadequate menhaden...he says " no other fish species avaliable to consumers provides the energy content of menhaden" He says "fish delivery rates (the feeding of the chicks by the parents...piece by piece) were three times higher in 1975 ..... " hIs conclusions and data are supported by the same CBF press release (scan 0701) Sea birds are reliable indicators of forage depletion.

Dr. Matt Cieri with New Jersey is a long term ASMFC menhaden delegate and TC member who recently led the ASMFC ERP task force on menhaden. At my request Dr. Cieri corrected a quote in Bay Journal and said in the attached mail that both striped bass conservation and "reductions in menhaden fishing" would be needed to rebuild the striped bass stock. (scan 4131)

Dr. Tom Miller is the Director of Chesapeake Biological Lab,Solomons Maryland, the second oldest marine teaching institution in the nation, that is part of the UMCES system.He is a long time menhaden researcher and distinguished faculty member. His bio lists 82 journal publications including menhaden topics, He was asked to comment on the opinions of Dr. Watts and Dr.Cieri he said ; (scan MILLER)

"My take on all of this is that there will likely have to be compromises on all sides to reach a solution that will sustain the ecosystem services provided by menhaden, striped bass and sea birds. Reductions of fisheries,both menhaden and striped bass,will likely improve the level of ecosystem services. A central challenge is how to allocate these cuts among the different sectors equitably"

What these three respected scientists have said very plainly is that the managers of menhaden at the ASMFC should be taking the necessary steps now to reduce menhaden fishing in the bay to help restore striped bass and ospreys the species that represent the rest. They do not say more research is needed, They have a lifetime of research on menhaden and the Atlantic ecology and generations of clinical and field experience to base their conclusions on.

After 2009 the last three states that had not banned factory fishing in their waters (but Virginia) New York, New Jersey and North Carolina did so,,,they followed Dr.Maguire's advice. They all protected their environment and fishermen , however, only the menhaden board can protect Maryland. Only this board can prevent the purse seine fishery in Virginia from catching the menhaden schools just as they are migrating into Maryland. scan Virginia Allocation.

We request you take action that would produce known results in 2022 to benefit the millions of people that enjoy and respect the Bay and tens of thousands of businesses without any loss of jobs or quota for the three owners of the 12 Virginia purse seine boats. scan Amendment 3 Comparisons. (scan 4500)

Thank you and "good fishing" ! Tom Lilly Whitehaven Maryland 443 235 4465

(n.1) Scan Beal ltr to Ross pg 4 par 2.

(n.2) Scan Beal ltr to Ross pg 3 par 1
(n.3) Scan Beal ltr to Ross pg 4 par 1, pg 5 par 2,3,5
pg 6 par 1,

AMENDMENT 3 COMPARISON . We consider the number of people, jobs and businesses that are affected by whether menhaden are allocated to Omega Protein or to "user groups" three and four. These are the people , the jobs and businesses, that benefit by leaving menhaden in the water to feed and grow abundant and healthy fish

OMEGA	MARYLAND	VIRGINIA	BENEFIT RATIOS

(1.) BUSINESSES AFFECTED (2019 data)

One foreign Owned company	645 Charter Businesses 683 finfish watermen	269 Charter Businesses 270 Finfish watermen	1 versus 1,867 businesses

There were 88,009 Virginia charter trips in 2000 , the trips dropped from 65,943 in 2015 to 33,197 in 2019. . there were 412,000 number of anglers in 2009 to 294,000 in 2019.
There were 18,199 Maryland charter trips in 2,000, 16,771 in 2010 and 9,571 in 2019., according to the figures the Number of anglers stayed constant around 112,000.
The number of finfish watermen in Maryland was 1,112 in 2000. In 2010 it was 953 and in 2018 was 783.

CONCLUSION Reducing the allocation to Omega would benefit 1,867 traditional Maryland and Virginia small businesses. If fishing improved by 20% it would allow many of these people to stay in business and increase the chances younger people would continue to work on the water. That alone is a very meaningful goal to achieve. Charter captains could provide more successful fishing for up t0 400,000 to 500,000 customers in just our two states.

(2.) COMMERCIAL CREWS AFFECTED

8 purse seiners with 15 crew, 120 crew	1,328 working boats with 2,656 crewmen	523 working boats with 1,046 crewmen	120 versus 3,702 (crew)

CONCLUSION

Fewer watermen and fewer fish means much less fresh Maryland and Virginia caught Fresh fish for our local markets and restaurants . There is a lot of dollars added as fresh fish moves from the waterman at the dock to the wholesaler to the distributor and then to the retail level of markets and restaurants. The 935 finfish watermen sell to over 90 independent fish wholesalers in the two states . All of this economic activity occurs only when menhaden are left in the water to grow abundant healthy fish for our watermen to catch. None of this happens when the menhaden are taken and exported.

(3.) FISHERMEN AFFECTED

Omega has 120 Fishermen	228,000 anglers includes 30,000 Seniors add at least 30,000 children	428,000 fishermen	120 versus 656,000 fishermen

CONCLUSION Maryland has seen a decline in salt water anglers of over 50,000 and Virginia over 20,000. Many of these people have given up the thing they enjoyed most. The numbers are not there but this means thousands of kids aren't fishing, People in our area are not fishing close to what it was just a few years ago. Based on average spending this is a loss of over 100 Million dollars annually to the two states.

(4.) RETAIL SPENDING BY ANGLERS...SALES TAX COLLECTION ...WAGES.....JOBS

OMEGA	MARYLAND	VIRGINIA	TOTAL/RATIO
$ 6 million spending	$225 million spending	$360 million	$6 million vs $885 million
$ 20 thousand tax	$13.5 million tax	$18 million tax	$.30 vs $21.5 million tax
$ 20 million wages	$108 million wages	$139 million	$20 vs $274 million
300 jobs	1,972 jobs	2,864 jobs	300 vs. 4,836 jobs

CONCLUSION The ASMFC striped bass Amendment 6 section 2.2.5 states the impact of recreational striped bass fishing as $7.7 billion and supporting 104,867 jobs. When menhaden serve their natural purpose of growing more abundant healthy fish their value is spread up and down the Atlantic Coast to the economic benefit of hundreds of thousands of our fellow citizens not just to one foreign fish meal company

(5.) ECONOMIC IMPACT OF RETAIL SPENDING ON FISHING BOATS.....JOBS SUPPORTED.....
TAX REVENUE (NMMA report – Michigan State University)

OMEGA	MARYLAND	VIRGINIA	TOTALS/RATIOS
8 boats	142,952 power boats	264,379 power boats	
	100,000 boats fishing	184,000 boats fishing	8 vs. 284,000 boats
Retail spending...			
$4-6 million	$1.0 billion total , average	$1.2 billion total,average	$ 6 million vs.
	$5,600 @ is $560 million	$5,600 @ is $1.03 billion	$1.59 billio

Businesses directly involved (boat building, motor work, supplies, services and dealers);

Unknown –	50% total Md. Businesses is	50% total Va. Businesses is	
Estimate 30	521	378	30 vs. 899

Existing Jobs for recreational boating vs Omega existing jobs for 8 boats in use same categories

Unknown-			
Estimate 100	6,641	6,628	100 vs 13,239

(reference National Marine Manufacturing Assoc....scans 0196,0197)

(6) INVESTMENT IN FISHING BOATS

OMEGA	MARYLANDERS	VIRGINIANS	TOTALS/RATIOS
8 boats @	60,000 boats @	66,000 boats@	8 vs 126,000 boats

$600,000 is $4.8 million	$20,000@ is $1.2 billion	$20,000 is $1.32 billion	$4.8 million vs. $2.52 billion

COMMENT The Omega boats are owned by one foreign company to our knowledge. The 100,000 plus boats used for fishing by Maryland and Virginia families often are often the favorite way that families spend quality time together enjoying Chesapeake Bay , its rivers and creeks. Collectively these Maryland and Virginia friends and families spend 4,304,000 days saltwater fishing according to the ASA . For the entire Atlantic states this total would be over 99 million days. If fishing on the Chesapeake rebounded even twenty percent from its low rate now we could see a million or more days of enjoyable fishing by families, friends and kids in Maryland and Virginia resulting in hundreds of millions of dollars of economic impact.

MARINAS AFFECTED BY THE QUALITY OF COMMERCIAL AND SPORT FISHING

Omega operates from one Marina.	There are over 500 marinas In Maryland (marinas.com)	There are over 300 marinas in Virginia	1 versus 800

CONCLUSION There is a direct connection between the frequency of use of our marinas, boat ramps and parks both on the bay and ocean. We believe numbers of people fishing and fishboat use has declined by over 50% in a few short years.

0186

Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

Patrick C. Keliher (ME), Chair *A.G. "Spud" Woodward (GA), Vice-Chair* *Robert E. Beal, Executive Director*

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

November 15, 2019

The Honorable Wilbur Ross
Secretary of Commerce
United States Department of Commerce
Herbert C. Hoover Building
1401 Constitution Avenue, Northwest
Washington, DC 20230

Dear Mr. Secretary:

This letter is to notify you that the Atlantic States Marine Fisheries Commission (Commission) has determined the Commonwealth of Virginia is out of compliance with the Commission's Interstate Fishery Management Plan (FMP) for Atlantic Menhaden pursuant to the provisions of the Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act). The Commission unanimously adopted the following motion on October 31, 2019, based upon the recommendation of its Atlantic Menhaden Management Board (Board) and Interstate Fisheries Management Program Policy Board:

On behalf of the Interstate Fisheries Management Program Policy Board, move that the Atlantic States Marine Fisheries Commission find the Commonwealth of Virginia out of compliance for not fully and effectively implementing and enforcing Section 4.3.7 Chesapeake Bay Reduction Fishery Cap of Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden. The Commonwealth of Virginia must implement an annual total allowable harvest from the Chesapeake Bay by the reduction fishery of no more than 51,000 metric tons. The implementation of this measure is necessary to achieve the goals and objectives of the Fishery Management Plan and maintain the Chesapeake Bay marine environment to assure the availability of the ecosystem's resources on a long-term basis.

By this action, the Commission has found the Commonwealth of Virginia out of compliance with the FMP and has outlined what the Commonwealth must do to come back into compliance.

The Board approved Amendment 3 in November 2017 with the goal of managing the menhaden resource in a way that balances menhaden's important ecological role, primarily as a prey species, with the needs of all user groups. As part of the Amendment, the Board set the Chesapeake Bay (Bay) reduction fishery cap (cap) at 51,000 metric tons (mt). The cap recognized the Bay's importance as nursery ground for many species by limiting future reduction landings in the Bay to levels equivalent to the recent harvesting practices by the reduction fishery[1].

[1] The reduction fishery "reduces" whole fish into fish meal, fish oil and fish soluble

The Commission's noncompliance decision results from two findings: (1) the Commonwealth of Virginia has failed to implement the cap and (2) as of September, the 2019 reduction fishery harvest from the Bay exceeded the cap of 51,000 mt. The exceedance is significant; to date, the cap has been exceeded by approximately 15,000 mt (33 million pounds) or about 30 percent. This overage represents approximately seven percent of the total allowable quota (coastwide quota).

It is important to note the Board has exhibited great forbearance and has taken numerous actions over the past 18 months in an effort to avoid this noncompliance determination, including multiple postponements designed to provide Virginia more time to adopt and enforce the cap. In February 2019, the Board effectively granted Virginia an accommodation on adopting Amendment 3's cap provided harvest did not exceed it. Unfortunately, the cap was, in fact, exceeded by a substantial amount. Based on its responsibilities under the Atlantic Coastal Act, the Board was obligated to respond to Virginia's unwillingness to effectively implement and enforce the Bay cap in 2019 by determining the Commonwealth Virginia out of compliance[2].

While long-term overages of the cap may impact the stock status of menhaden, the noncompliance decision was not made in response to menhaden's current stock status, which is generally accepted as robust. Instead, the decision was made to uphold a mandatory conservation tool of Amendment 3, namely to conserve menhaden within the Bay to serve as forage for the many other key species that depend on it. The cap addresses the potential for localized depletion of this important forage species caused by concentrated reduction fishing in the Bay, and the implications of such depletion for numerous other Commission-managed species that utilize the Bay and rely on menhaden as forage. Some of these species are in poor condition, including the Commission's flagship species, Atlantic striped bass, as well as Atlantic bluefish and weakfish. These species are highly sought after by recreational and commercial fishermen. For example, in 2017, 32% of recreational removals and 69% of commercial removals of striped bass came from the Bay.

The impacts of focusing high levels of removals from the Bay extend beyond ecosystem considerations to the other competing users of the menhaden resource, including economically important commercial and recreational fishing activities which target predators of menhaden. These species have supported valuable commercial and recreational fisheries on the Atlantic coast for centuries. For example, in 2016, Atlantic striped bass commercial and recreational fisheries supported 2,664 and 104,867 jobs, respectively. The economic impact of these fisheries was $103.2 million and $7.7 billion, respectively.[3]

History and Implementation of the Chesapeake Bay Cap

In the years leading up to Amendment 1 to the Atlantic Menhaden FMP (2001), the number of plants and vessels in the reduction fleet declined along the coast, with effort concentrating in Virginia and North Carolina. As a result, total landings along the coast and within the Bay also declined, but the proportion of removals from the Bay increased. The higher proportion of effort in the Bay amidst lower levels of menhaden recruitment to the Bay raised concerns about the possibility of localized depletion, defined as a reduction in menhaden population size/density below the level of abundance that is sufficient to maintain its basic ecological (e.g., forage base, grazer of plankton), economic, and social/cultural functions, as a result of fishing pressure, environmental conditions, and predation pressures that occur on a small spatial or temporal scale.

---

[2] All other states and jurisdictions have complied with the FMP.

[3] Southwick Associates. 2019. The Economic Contributions of Recreational and Commercial Striped Bass Fishing. Fernandina Beach, Florida.

In the late 2000s, the NOAA Chesapeake Bay Office coordinated funding for a series of research projects to address whether localized depletion of menhaden was occurring in the Bay. These projects were reviewed by a panel appointed by the Center for Independent Experts. The panel determined the individual research projects were relevant and well-designed. However, the panel noted that without quantitative definition of depletion, it could not be determined whether localized depletion was occurring or how well the ongoing research could address that question.[4] In his 2009 review, Dr. Jean-Jacques Maguire said, "Whether there is enough [menhaden] for the increasing demands of striped bass and other predators, including the commercial and the recreational fisheries, will be a difficult and possibly very expensive question to resolve. Time and area restrictions as well as zoning of the fisheries that are competing for menhaden might provide a more rapid mechanism to mitigate the possible negative consequences of competing fisheries and predators."

Such concerns were at the forefront of the Board's reasoning when it established the first cap in 2005 and remains the primary reason the Board has continued to include the cap as an important component of menhaden management. Specifically, Board members expressed concerns that concentrated, intense commercial fishing of menhaden in specific areas and at certain times could cause detrimental socioeconomic impacts for other user groups (commercial, recreational, ecotourism) who depend upon adequate local availability of menhaden to support business and recreational interests both at sea and on shore. [5] Accordingly, the Board established the cap to address the potential for localized depletion of menhaden and to minimize possible detrimental biological impacts on predators of menhaden and associated socioeconomic impacts on other user groups.

The Commission first implemented a harvest cap on the reduction fishery in the Bay through Addendum II to Amendment 1. The Addendum limited removals of Atlantic menhaden from the Bay for reduction purposes to the average of 2000 to 2004 landings to be implemented in the 2006 fishing year. Before its first year of implementation, the cap was revised through Addendum III to Amendment 1 to be the average landings from 2001 to 2005, or 109,020 mt. The cap was reduced by 20% in 2013 to 87,216 mt with the concurrent implementation of a coastwide quota, which also represented a 20% reduction from recent average landings in response to stock status concerns at the time. Amendment 3 further reduced the cap to 51,000 mt, approximately equal to the five-year average of reduction harvest from the Bay between 2012 and 2016, to complement the Amendment that sought to bolster the conservation of the resource along the coast, including the Bay. From 2013 to 2018, reduction landings had not exceeded 51,000 mt even under the higher historical caps. While the Commission recognized the cap could impose some costs on the reduction fleet, those costs were balanced and minimized because fishermen excluded from the Bay once the cap was reached had the option to fish outside of the Bay. This is not the only Commission managed species for which recent years harvest is used to set a quota when faced with uncertainty. For example, Maine's glass eel quota, implemented in 2015, was set based on the 2014 harvest level.

The Commission's action in setting the cap at 51,000 mt was carefully considered and deliberate. It reflects the reality that even with the stock of Atlantic menhaden not undergoing overfishing on a coastwide basis, localized depletion within the unique Bay ecosystem could have serious adverse effects on key

[4] Maguire, J.J. 2009. Report on the evaluation of the Chesapeake Bay Fisheries Science Program: Atlantic Menhaden Research Program. Laurel, Maryland.

[5] Atlantic States Marine Fisheries Commission (ASMFC). Proceedings of the Atlantic Menhaden Management Board Meetings. Arlington, VA: February 2005 available at http://www.asmfc.org/uploads/file/52865780Feb05AtlMenhadenBoardProceedings.pdf; August 2005 available at http://www.asmfc.org/uploads/file/52865780Feb05AtlMenhadenBoardProceedings.pdf; December 2012 available at http://www.asmfc.org/uploads/file/atlMenhadenBoardProceedings_Dec2012.pdf

Commission-managed fisheries in poor condition, as well as a variety of other avian and aquatic species. These issues could be exacerbated if localized depletion of menhaden in the Bay was occurring due to increased fishing pressure. Menhaden are important prey for many species, including Atlantic striped bass, bluefish, and weakfish. Striped bass and bluefish stocks have decreased by 36% and 25%, respectively, in the last decade.[6] Concentrated menhaden fishing could decrease menhaden availability, exacerbating issues with these stocks. During the public comment period for Amendment 3, a wide range of stakeholders with knowledge of the Bay environment expressed serious concern about the need to protect menhaden and the Bay. Over 85,000 comments were received in support of setting the cap at 51,000 mt to prevent expansion of the reduction harvest within the Bay.

The decision to establish a cap and to subsequently modify the cap has and continues to be supported by science-based information on the ecological role of Atlantic menhaden, particularly as an important food source for species managed by the Commission. Additionally, it supports sound management practices which favor protective measures in the face of recognized but uncertain threats to the resources. It is reflective of recent fishery performance to prevent an increase amidst scientific uncertainty as to the impact of intensive reduction fishery harvest on the Bay ecosystem while ecological reference points are developed to establish scientifically-sound harvest limits that consider menhaden's important role as forage. Acting with such precaution is an accepted and responsible management practice in resource conservation, referred to as the Precautionary Principle.[7] This principle counsels that, in the face of uncertainty affecting resources that are known to be under poor stock condition, in this case predator species including striped bass, the Commission is to take preventative action before serious harm occurs.

Impacts of the Overage on Atlantic Menhaden and the Ecosystem

Exceeding the Bay cap has implications for the stock assessment and its quota projections. The menhaden stock assessment model uses important assumptions about the size and age classes caught by the fisheries to produce projections, which the Commission uses to set management measures moving forward. The projections used to set the coastwide quota are based on the assumption that future fishery selectivity pattern (i.e., the age classes vulnerable to the fishery) would be the same as the selectivity pattern in the most recent year of the data used in the model, which reflects 2016 harvest in the Bay (less than 51,000 mt). The Bay reduction fishery harvests a higher proportion of age 1 and 2 fish than the ocean fisheries north of the Bay. Therefore, if removals from the Bay increased beyond the 51,000 mt cap, the impact of those removals on the total population would change even if the coastwide quota was not exceeded, because the overall selectivity pattern would be different.[8] Any change to the selectivity pattern will affect the validity of assessment projections, potentially leading to underperformance of the stock and failure to meet prescribed conservation objectives. This undermines the Board's ability to meet the goals and objectives of the FMP. Setting a cap provides stability within the Bay, allowing for greater certainty in stock projections and

---

[6] Northeast Fisheries Science Center (NEFSC). 2019. 66th Northeast Regional Stock Assessment Workshop (66th SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 19-08; 1170 p. and NEFSC. 2019. Prepublication Copy (9-4-2019): Operational Assessment of the Black Sea Bass, Scup, Bluefish, and Monkfish Stocks, Updated Through 2018

[7] See, e.g., Kriebel, D., J. Tickner, P. Epstein, J. Lemons, R. Levins, E.L. Loechler, M. Quinn, R. Rudel, T. Schettler, and M. Stoto. 2001. The Precautionary Principle in Environmental Science. Environmental Health Perspectives 109(9): 871-876, available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240435/; V.R. Restrepo. 1998. Technical Guidance On the Use of Precautionary Approaches to Implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Technical Memorandum NMFS–F/SPO–31, available at https://www.st.nmfs.noaa.gov/Assets/stock/documents/Tech-Guidelines.pdf. NOAA Office of General Counsel, Precautionary Approach (collecting authorities), available at https://www.gc.noaa.gov/gcil_precautionary_approach.html.

[8] Gabriel, W.L., M.P. Sissenwine, and W.J. Overholtz. 1989. Analysis of Spawning Stock Biomass per Recruit: An Example for Georges Bank Haddock. North American Journal of Fisheries Management 9: 383-391.

increased certainty that management actions taken by the Board will meet the goals and objectives of the FMP. This includes maintaining the Atlantic menhaden stock at levels that sustain viable fisheries and support predators which depend on a healthy forage base.

Atlantic menhaden are a critically important – perhaps the most important – forage species for some of the Atlantic coast's most iconic species, including those that support valuable recreational and commercial fisheries. Science-based information reveals critical ecological linkages between menhaden and other species in the Bay, including striped bass, bluefish, and weakfish. The Bay is an important nursery ground for many of these predator species, and several studies confirm menhaden are a significant component of the diet of numerous predator species in the Bay during certain times and in certain areas.[9] This includes both fish and avian predators. Numerous studies have been conducted on the food habits of fish species within the Bay and concluded Atlantic menhaden are a commonly consumed prey item. Some recent studies show menhaden make up 90% of the diet of age-8+ striped bass during the winter and up to 50% of the diet of larger bluefish during the summer in the Bay.[8]

Atlantic menhaden are also consumed by other predators such as piscivorous birds. Mersmann found bald eagles consume fish almost exclusively during the summer, with most of their summer diet being comprised of Atlantic menhaden and gizzard shad.[10] In addition, McLean and Byrd found menhaden made up 75% of the diet of nesting ospreys in the Bay.[11] Many other avian species are thought to rely on menhaden; however, the diets of these non-fish predators within the Bay are not well studied. For example, cormorant and heron abundance within the Bay has increased over time and both species are known, from studies in other regions, to consume tidal freshwater fish like menhaden. However, there are no studies of their diet in the Bay.[12]

Numerous studies document Atlantic menhaden can comprise a significant proportion of many predators' diets for specific seasons, age classes and locations within the Bay, particularly when menhaden are abundant. However, understanding the impact of reduced menhaden abundance on predator population health is much more difficult. Some work has been done to estimate the predatory demand of individual species within the Bay but whether there is sufficient menhaden biomass in the Bay to support this demand cannot be determined from the current coastwide stock assessment.[13] As a first step, the Commission is developing scientifically-sound, peer-reviewed ecological reference points for Atlantic menhaden at the coastwide level, but spatially explicit models will require more work before they are ready for management use. This effort to integrate ecosystem considerations is consistent with the priorities identified in NOAA Fisheries Strategic Plan for 2019-2022.

Lower levels of menhaden recruitment in the Bay have been linked with negative population impacts for

---

[9] Southeast Data, Assessment, and Review (SEDAR). 2015. SEDAR 40 - Atlantic menhaden stock assessment report. SEDAR, North Charleston, South Carolina. SEDAR. 2015.

[10] Mersmann, T.J. 1989. Foraging Ecology of Bald Eagles on the Northern Chesapeake Bay with an Examination of Techniques Used in the Study of Bald Eagle Food Habits. Doctoral dissertation. Virginia Polytechnic Institute and State University, Blacksburg, Virginia

[11] McLean, P.K., and M.A. Byrd. 1991. The diet of Chesapeake Bay ospreys and their impact on the local fishery. Journal of Raptor Research 25: 109-112.

[12] Viverette, C.B., G.C. Garman, S.P. McInnch, A.C. Markham, B.D. Watts, and S.A. Macko. 2007. Finfish-Waterbird Trophic Interactions in Tidal Freshwater Tributaries of the Chesapeake Bay. Waterbirds 30: 50-62.

[13] Hartman, K.J., and S.B. Brandt. 1995. Predatory demand and impact of striped bass, bluefish, and weakfish in the Chesapeake Bay: applications of bioenergetics models. Canadian Journal of Fisheries and Aquatic Sciences 52: 1667-1687; Uphoff, J.H. 2003. Predator–prey analysis of striped bass and Atlantic menhaden in upper Chesapeake Bay. Fisheries Management and Ecology 10: 313-322.

some important predator species. Within the Bay, the prevalence of mycobacteriosis in striped bass increased and striped bass condition decreased when menhaden recruitment indices were low[14] (striped bass outside the Bay had lower levels of infection.)[15] Jacobs et al. found the progression and severity of mycobacteriosis in striped bass increased when the fish were not well fed.[16] In addition to striped bass, the weakfish population has continued to decline, even with greatly reduced fishing pressure.[17] As the population declined and natural mortality increased, recruitment indices remained relatively stable for weakfish, suggesting there is a mortality bottleneck around ages 1-2, when weakfish switch over to consuming fish. One hypothesis is that the increase in natural mortality is linked to reduced prey availability, including menhaden.[18] Osprey population growth rates in the Bay were higher during the late 1970s and early 1980s, a period when menhaden recruitment indices in the Bay were high, than they were during the late 1980s and in 2006 when the recruitment indices were low.[19]

While the Commission recognizes these correlations come with caveats, the body of work on this issue indicates a precautionary approach is warranted. The Board appropriately took a precautionary approach in managing the menhaden fishery as the Commission pursues development of ecological reference points to manage menhaden as a forage species. In doing so, the Board not only considered the stock status of menhaden but also the species' pivotal role in the marine environment.[20] In the case of the Bay, the cap was specifically developed to mitigate risk of negative consequences to the unique and sensitive Bay environment in order to assure the availability of menhaden as a critical forage resource on a long-term basis.

Prudent fishery managers often use precautionary techniques such as control rules or risk policies that are not based on direct or explicit quantifications supporting the need for a determinate reduction in fishing effort, but instead indicate a need to mitigate known but as yet unquantifiable risks. The need for such approaches occurs frequently in fisheries management, which often operates in a realm of high uncertainty due to the complexity of marine ecosystems and the difficulty of assembling complete and current data. The approach the Commission has taken for menhaden is not different from protective approaches employed in similar circumstances for other fisheries. For example, in the Atlantic herring fishery, also an important forage fish, the New England Fishery Management Council established a seasonal gear restriction in an area addressing potential impacts of midwater trawling on schools of herring in the Gulf of Maine (GOM). There was a concern the concentrated fishing effort of trawlers could cause localized depletion in the GOM. In the face of scientific uncertainty and in the absence of definitive data, as is the case with menhaden, the Council chose to be precautionary and implement measures intended to address or prevent a resource problem. Given the importance of herring as a forage species and its role in the GOM ecosystem, NOAA Fisheries agreed it was appropriate to enact the measure to maintain the health of the resource in the GOM, the

---

[14] Overton, A.S., F.J. Margraf, C.A. Weedon, L.H. Pieper, and E.B. May. 2003. The prevalence of mycobacterial infections in striped bass in Chesapeake Bay. Fisheries Management and Ecology 10: 301 – 308; see also Mersmann (1989).

[15] Matsche, M.A., Overton, A., Jacobs, J., Rhodes, M.R. and Rosemary, K.M., 2010. Low prevalence of splenic mycobacteriosis in migratory striped bass *Morone saxatilis* from North Carolina and Chesapeake Bay, USA. Diseases of aquatic organisms, 90: 181-189.

[16] Jacobs, J.M., C.B. Stine, A.M. Baya, and M.L. Kent. 2009. A review of mycobacteriosis in marine fish. Journal of Fish Diseases 32: 119-130

[17] ASMFC. 2016. Weakfish Benchmark Stock Assessment and Peer Review Report. Arlington, VA

[18] Northeast Fisheries Science Center (NEFSC). 2009. 48th Northeast Regional Stock Assessment Workshop (48th SAW) Assessment Report. US Department of Commerce, NEFSC Reference Document 09-15.

[19] Watts, B.D., and B.J. Paxton. 2007. Ospreys of the Chesapeake Bay: Population Recovery, Ecological Requirements, and Current Threats. Waterbirds 30: 39-49.

[20] ASMFC. 2017. Atlantic Menhaden Management Board Proceedings. Arlington, VA. http://www.asmfc.org/uploads/file/5d2f56c4AtlMenhadenBoardProceedingsNov2017.pdf

resources that depend on herring as prey, and the businesses that are sustained by a healthy GOM ecosystem.[21] Similar to one of the cap's goals to prevent concentrated harvest, the Atlantic Herring FMP establishes area specific quotas to distribute harvest throughout the range of the species.

Under Amendment 3, the Commission committed to managing menhaden in consideration of its role as a forage fish, and in the absence of a quantitatively derived cap in the Bay. Historical fishery performance was used not as an arbitrary measure, but as a precautionary approach to mitigate risk to the Bay's ecosystem and to achieve the management objectives of the plan. Conserving menhaden takes on an even greater role as other important forage species on the Atlantic coast, such as Atlantic herring and Atlantic mackerel, have suffered significant declines.

Notably, the cap allows viable prosecution of the reduction fishery yet limits removals. By using the average annual harvest in setting the cap, the approach mitigated economic harm as it provided the fishery with adequate access to menhaden to maintain current fishing levels while new approaches to managing this pivotal forage species are developed. In addition, the reduction fleet has the opportunity to fish in other areas. The Commonwealth of Virginia is privileged to have over 78.66% of the coastwide quota. This certainly allows the reduction fleet the opportunity to focus its efforts outside the Bay when cap has been reached. Because menhaden are a key forage species for some of the most important recreational and commercial fisheries on the East Coast, an approach that seeks to avoid further harm while transitioning to a more advanced ecosystem-based management regime, is particularly appropriate in this context.

When considering whether a state is in noncompliance with an FMP, the Commission must decide whether the state in question has "not implemented and enforced" the mandatory provisions of the FMP within the prescribed time period, 16 U.S.C. § 5105(a). Before transmitting a noncompliance determination for the Secretary's independent determination under *id.* § 5106, the Commission also considers it appropriate to express its own judgment concerning whether the relevant plan provisions are necessary for conservation of the menhaden fishery. *See* 16 US.C. §5104(a)(2)(A) (requiring that Commission FMPs "promote the conservation of fish stocks throughout their ranges and [be] based on the best scientific information available; 16 U.S.C. §5102(4) (defining "conservation" for purposes of the Atlantic Coastal Act to mean "the restoring, rebuilding, and maintaining of any coastal fishery resource and the marine environment, in order to assure the availability of coastal fishery resources on a long-term basis."). For reasons set forth above, the Commission does, indeed, consider the Bay cap necessary for conservation.

The Commonwealth of Virginia's failure to implement the bay reduction fishery cap will negatively impact the Commission's ability to achieve the goals and objectives of the FMP. Its persistent noncompliance threatens the Commission's ability to maintain the Bay's marine environment to assure adequate availability of menhaden within the ecosystem on a long-term basis. Indeed, failure of any state to fully comply with the mandatory provisions of a Commission interstate FMP has the ability to undermine the cooperative nature of the Commission's entire fisheries management process.

---

[21] National Marine Fisheries Service (NMFS). 2007. Fisheries of the Northeastern United States Atlantic Herring Fishery Amendment 1. 72 Federal Registry 11251. https://www.federalregister.gov/documents/2007/03/12/E7-4163/fisheries-of-the-northeastern-united-states-atlantic-herring-fishery-amendment-1

The Atlantic Coastal Act requires all Atlantic coastal states to implement and enforce fishery management plans adopted by the Commission. 16 U.S.C. § 5104(b). If the Commission determines a state is out of compliance with one of its FMPs, the Act requires the Commission to report this determination to you, as the Commission hereby does in this instance. I have also transmitted this letter to the Secretary of the Interior.

Sincerely,

Robert E. Beal

cc: Patrick Keliher, ASMFC Chair
A.G. "Spud" Woodward, ASMFC Vice-Chair
ASMFC Commissioners
Atlantic Menhaden Management Board

From: Cieri, Matthew
Matthew.Cieri@maine.gov
Subject: Re: YOUR REMARK ??
Date: Aug 2, 2020 at 10:17:54 AM
To: Tom Lilly foragematters@aol.com

Hi Tom,

Yes, that is correct. That is what our work showed. At the current striped bass fishing mortality, striped bass won't rebuild no matter how low they set menhaden fishing mortality.

Any meaningful rebuilding of striped bass has include reductions in the striped bass fishing mortality from where it currently is. They can get part of the way there with reductions in menhaden fishing, but it won't be enough to rebuild the stock to target levels without reductions in striped bass fishing mortality.

Matt

From: Tom Lilly <foragematters@aol.com>
Sent: Sunday, August 2, 2020 12:06:20 AM
To: Cieri, Matthew <Matthew.Cieri@maine.gov>
Subject: YOUR REMARK ??

The Center for Conservation Biology

William & Mary

P.O. Box 8795
Williamsburg, VA
23187-8795

Phone
(757) 221-1645

Fax
(757) 221-1650

E-mail
info@ccbbirds.org

Dr. Bryan D. Watts
Director
(757) 221-2247

Dr. Mitchell A. Byrd
Director Emeritus
(757) 221-2236

www.ccbbirds.org

20 August 2020

The Honorable Ralph Northam
Governor, State of Virginia
PO Box 1475
Richmond, VA 23218

Dear Governor Northam,

The menhaden is a keystone fish within the Chesapeake Bay ecosystem. Many of our most iconic species including the bald eagle, osprey, great blue heron and brown pelican depend on menhaden stocks to sustain their breeding populations within the Bay. Other species such as common loons and northern gannets that stage within the Chesapeake also depend on menhaden to fuel their migrations. Approximately 30% of the North Atlantic gannet population comes into the Bay during the spring to feed on menhaden before flying north to breeding grounds in Newfoundland.

Deep withdraws of menhaden stocks for the reduction fishery is having an impact on consumer species. We have conducted fieldwork with osprey throughout the lower Chesapeake Bay for 50 years and data demonstrate ongoing impacts. Through three generations of graduate students (1975-2006) we have observed shifts in diet and an associated reduction in productivity. Fish delivery rates were more than three times higher in 1975 compared to 2006. Menhaden, once the dominant fish in the diet now represents less than 30%. Shifts in diet away from menhaden have been coincident with a 90% reduction in menhaden stocks (Maryland, DNR haul surveys). No other fish species available to consumers provides the energy content of menhaden. Reductions in menhaden stocks have caused osprey productivity to decline to below DDT-era rates. These rates are insufficient to support the osprey population within the main stem of the Bay.

Menhaden provide critical ecosystem services within the Chesapeake Bay. We request that the needs of the broader ecosystem be considered when setting harvest policy and that menhaden stocks be maintained at levels that support a healthy Chesapeake Bay ecosystem.

Sincerely,

Bryan Watts

Bryan D. Watts, Ph.D.
Mitchell A. Byrd Professor of Conservation Biology
Director, Center for Conservation Biology
College of William and Mary

ATLANTIC MENHADEN

C41 9/05 0350

The Most Important Fish in the Bay

UPDATE: August 5, 2020—the Atlantic States Marine Fisheries Commission has taken the first step to formally consider the importance of menhaden to other predators, including striped bass, bluefish, and weakfish, in its management framework. This is the first time that ASMFC has committed to including Ecological Reference Points, the value of the species to the ecosystem, in its fishery management plans. *(Read CBF's press release)* (http://www.cbf.org/news-media/newsroom/2020/all/asmfc-adopts-groundbreaking-change-to-menhaden-fishery-management.html)

Atlantic menhaden, *Brevoortia tyrannus*, are small, nutrient-packed fish that are central to the Chesapeake Bay's food chain and support one of the largest commercial fisheries on the Atlantic coast. As a result of their environmental and economic importance, management of the menhaden fishery is a political flashpoint across the region.

Why are menhaden (also called bunker or pogy) important in the Chesapeake Bay?

Menhaden have been called the "most important fish in the sea." In the Bay, they create a vital connection between the bottom and top of the food chain. They eat tiny plants and animals, called plankton, by filtering them from the water. In turn, menhaden are a rich food source for many predator fish—including rockfish (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/rockfish/) (striped bass), bluefish, and weakfish—as well as ospreys (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/ospreys/), bald eagles, dolphins, and whales. (See our video, *Why Whales Follow Menhaden into the Bay (http://www.cbf.org/news-media/multimedia/video/why-whales-follow-menhaden-into-the-bay.html).*)

Rockfish, in particular, historically relied on menhaden for a large portion of their diet. Researchers have raised concerns that a lack of menhaden could make rockfish more vulnerable to disease.

Why should I care about menhaden?

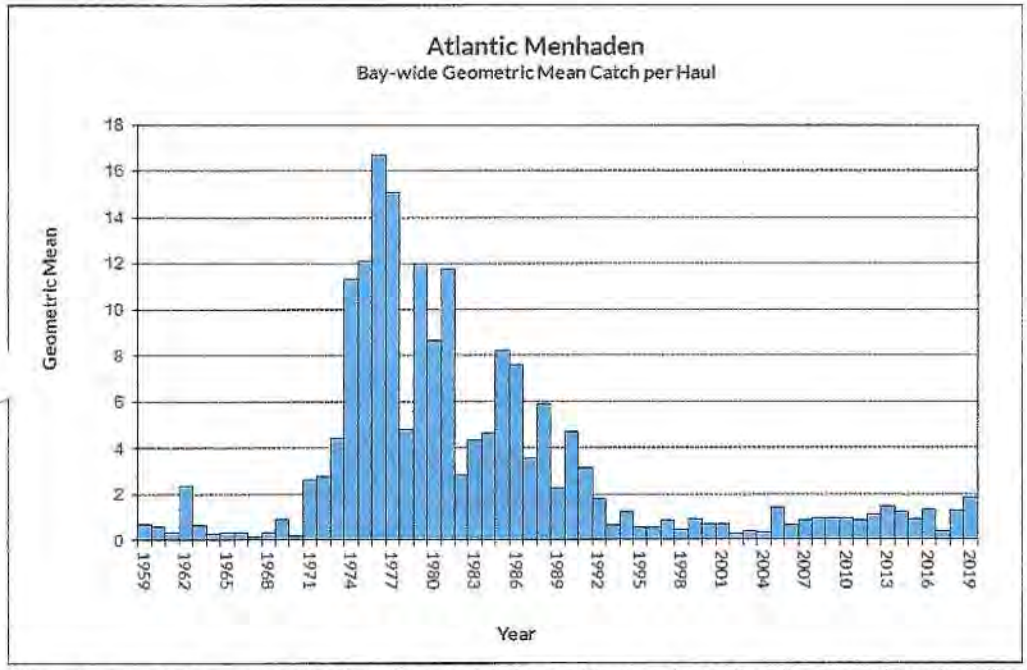
MENHADEN (/ABOUT-THE-BAY/MORE-THAN-JUST-THE-BAY/CHESAPEAKE-WILDLIFE/MENHADEN

- American Shad (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/american-shad/)
- Blue Crabs (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/blue-crabs/)
- Cormorants (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/cormorants-the-miraculous-comeback-of-a-misunderstood-bird.html)
- Cownose Ray (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/misunderstood-the-cownose.html)
- Eastern Oysters (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/eastern-oysters/)
- Lined Seahorse (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/the-lined-seahorse-a-rare-romantic.html)
- Loon (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/call-of-the-loon.html)
- Menhaden (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/)
  - A Timeline of Menhaden Conservation (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/timeline-

If you enjoy feeling the tug of a big rockfish on the end of your line (and savoring the taste of it at dinner) or watching osprey snatch a silvery fish from the water, you have menhaden to thank! These small fish are the unsung heroes of the Chesapeake Bay, providing a rich food source for many of our favorite critters.

What are the threats facing menhaden?

The Bay is one of the most important nurseries for menhaden, helping to sustain the population along the Atlantic coast. Menhaden eggs hatch in the open ocean before drifting on currents into the Bay, where juvenile fish live and grow for their first year of life. But long-running scientific surveys show the number of young menhaden in the Chesapeake Bay dropped dramatically in the early 1990s and remains low.



This graph represents the average number of juvenile menhaden available ("abundance"), which has a direct impact for predators like striped bass and osprey. Unfortunately, the number of young menhaden produced in the Bay each year has been poor for the last 20 years.

DURELL, E.Q., AND WEEDON, C. 2019. STRIPED BASS SEINE SURVEY JUVENILE INDEX WEB PAGE. DNR.MARYLAND.GOV/FISHERIES/PAGES/JUVENILE-INDEX.ASPX. MARYLAND DEPARTMENT OF NATURAL RESOURCES. FISHERIES SERVICE

At the same time, almost three-quarters of all menhaden caught on the East Coast are harvested by the Omega Protein Corporation—a Canadian-owned company that fishes largely in or near the mouth of the Bay. Omega operates the sole remaining menhaden reduction facility on the U.S. East Coast in Reedville, Virginia. The plant reduces (cooks and grinds up) the fish for a variety of uses, such as nutritional supplements, food additives, and feed for livestock and fish farms.

Menhaden by the Numbers

70%

The amount of an adult rockfish's diet historically filled by menhaden.

The amount of an adult rockfish's diet currently filled by menhaden.

of-menhaden-conservation.html)

Northern Green Frog (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/northern-green-frog-at-home-in-the-bog.html)

Ospreys (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/ospreys/)

Pelicans (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/moving-on-up-pelicans-are-at-home-on-the-bay.html)

River Otters (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/aquatic-ambassadors-river-otters-are-poster-pups-for-conservation.html)

Rockfish (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/rockfish/)

Sea Nettles (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/sea-nettles.html)

Smallmouth Bass (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/smallmouth-bass.html)

Sturgeon (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/sturgeon.html)

Terrapins (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/terrapins-swimming-for-shore.html)

Tundra Swans (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/tundra-swans-a-fading-winter-chorus-in-the-chesapeake.html)

Stay up to date about the Bay!

8%	*The rockfish population in the Chesapeake Bay is showing signs of malnourishment and increasing mortality.*
75%	The amount of an osprey nestling's diet filled by menhaden in the 1980s.
28%	The amount of an osprey nestling's diet filled by menhaden today. *Though the number of nests throughout the Bay region has improved, nestling mortality is as high as it was in the DDT era.*
65%	The annual removal of adult menhaden from East Coast waters.
2,500	The number of jobs supported by menhaden-dependent species in Virginia alone.
$236	In millions, the total amount fishing for menhaden-dependent species contributes to Virginia's economy.
8%	The current Atlantic menhaden population compared against historical levels.

Why is there a harvest cap for menhaden in the Bay?

Menhaden migrate along the Atlantic coast from Florida to Maine. An interstate governing body—the Atlantic States Marine Fisheries Commission (ASMFC)—manages the fishery for the 15 states that share the coastline.

Over the past two decades, **fishery managers have raised concerns that the concentration of fishing effort in Bay waters could disrupt the Bay's food chain**, harming populations of rockfish and other predator species. As a precaution, the ASMFC first set a cap for Omega's industrial menhaden harvest in the Bay in 2006. In 2017, the ASMFC voted to update the cap to reflect more recent menhaden harvest levels in the Bay.

In blatant disregard for the fishery management process, Omega knowingly exceeded the cap in 2019 (http://www.cbf.org/news-media/newsroom/2019/virginia/cbf-expresses-deep-concern-with-omega-proteins-announcement-it-will-violate-the-bay-menhaden-cap.html). The violation resulted in a unanimous ASMFC vote (http://www.cbf.org/news-media/newsroom/2019/virginia/fisheries-board-finds-virginia-out-of-compliance-with-menhaden-harvest-cap.html) referring Virginia to the U.S. Department of Commerce for noncompliance with interstate fishery rules. The Secretary of Commerce decided to uphold the ASMFC decision (http://www.cbf.org/news-media/newsroom/2019/virginia/us-commerce-department-takes-action-after-virginia-menhaden-limit-exceeded.html). The new harvest cap approved by the VMRC in April 2020 lowers the amount of menhaden that

SIGN UP (HTTP://WWW.US/STAY-UP-TO-DATE-ABOUT-THE-BAY.HTML)

In the News

08/05/20: ASMFC Adopts Groundbreaking Change to Menhaden Fishery Management (http://www.cbf.org/news-media/newsroom/2020/all/asmfc-adopts-groundbreaking-change-to-menhaden-fishery-management.html)

04/28/20: New Menhaden Limits Approved by VMRC, Preventing Fishery Shutdown (http://www.cbf.org/news-media/newsroom/2020/virginia/r menhaden-limits-approved-by-vmrc-preventing-fishery-shutdown.html)

02/27/20: Menhaden Legislation Approved by Virginia House And Senate (http://www.cbf.org/news-media/newsroom/2020/virginia/n legislation-approved-by-virginia-house-and-senate.html)

01/29/20: Menhaden Legislation Approved by Virginia House and Senate Committees (http://www.cbf.org/news-media/newsroom/2020/virginia/n legislation-approved-by-virginia-house-and-senate-committees.html)

12/19/19: U.S. Commerce Department Takes Action after Virginia Menhaden Limit Exceeded (http://www.cbf.org/news-media/newsroom/2019/virginia/u commerce-department-takes-action-after-virginia-menhaden-limit-exceeded.html)

11/21/19: CBF Statement on Gov. Northam's Call for Action on Menhaden (http://www.cbf.org/news-media/newsroom/2019/virginia/c

can be caught in the Chesapeake Bay to 51,000 metric tons per year. Due to Omega Protein's excess harvest during the 2019 fishing season, this year's level will be further lowered to 36,192 metric tons. The VMRC's action avoids a shutdown of the menhaden ishery due to noncompliance with the ASMFC.

statement-on-gov-northams-call-for-action-on-menhaden.html)

VIEW MORE (HTTPS://WWW MEDIA/NEWSR PRIMARY_ISSUI

How can better management protect menhaden and the Bay?

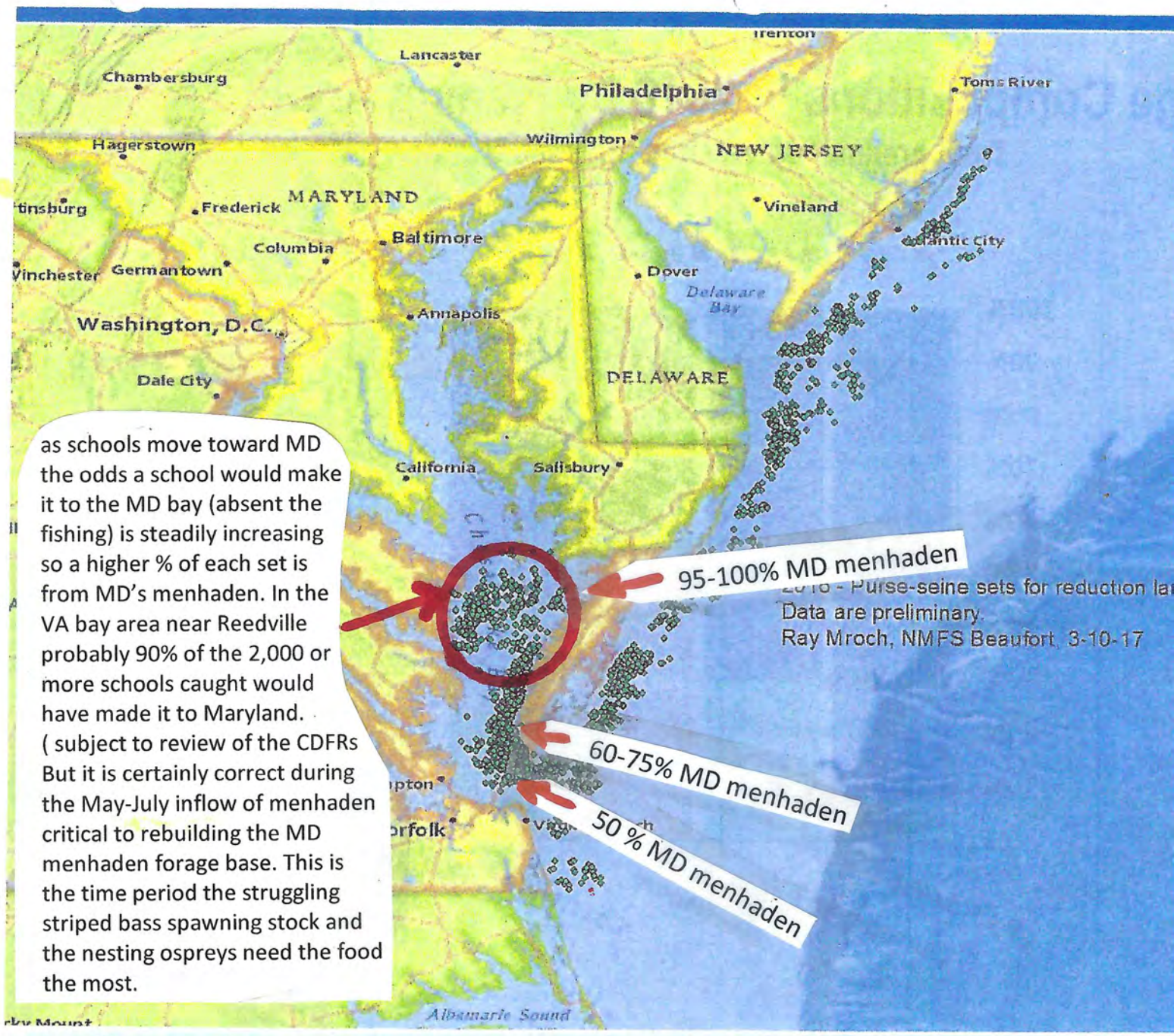
For more than 25 years (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/timeline-of-menhaden-conservation.html), CBF has worked with partners toward a healthy menhaden population in the Chesapeake Bay to ensure that this nutrient-packed fish can fulfill its key role in the food chain. In 2012, ASMFC's Benchmark Stock Assessment showed the total menhaden population was at its lowest level on record. Peer-reviewed population estimates showed menhaden have been overfished for 32 of the past 54 years. A strong fisheries management plan was needed to rebuild the population, and once rebuilt, to maintain it. (See *A Timeline of Menhaden Conservation* (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/timeline-of-menhaden-conservation.html).)

For decades, management decisions and catch limits relied on "single species" stock assessments, independent of other species. In other words, **they accounted for demand from the fishing industry, but did not account for demand from rockfish, osprey, and other animals that rely on menhaden for food.** This did not necessarily mean there would be sufficient stock to sustain the larger ecosystem needs.

That changed in August 2020, when the ASMFC adopted benchmarks, known as ecological reference points (http://www.cbf.org/blogs/save-the-bay/2017/10/a-historic-opportunity-for-fish-and-fishermen.html), that will allow managers to **account for menhaden's role in the food chain** and set catch limits accordingly. CBF has been a strong proponent of this process and will continue to advocate for an ecosystem-based approach to menhaden management.

SAVE THE BAY

Founded in 1967, the Chesapeake Bay Foundation (CBF) is the largest independent conservation organization dedicated solely to saving the Bay.



NOAA FISHERIES

U.S. Department of Commerce | National Oceanic and Atmospheric Admin

Tina Berger

From: Tom Lilly <foragematters@aol.com>
Sent: Friday, July 23, 2021 1:56 PM
To: Tina Berger; kroots-murdy@asmfc.com
Subject: [External] Material for Menhaden board Summer meeting etc
Attachments: 2020-06-02_144500 amendment 3 comparison.pdf; 2021-01-26_182617 pages 13-29 of site.pdf; VA ALLOCATION.pdf; 2020-07-08_124852 Beal letter to Ross.pdf; CBF Press Release.pdf

Tina will you please include this in the briefing materials for the Commissioners, the menhaden board and the Policy board. ?..I have sent it to the menhaden work group members Thanks Tom Lilly

-----Original Message-----
From: Tom Lilly <foragematters@aol.com>
To: joseph.cimino@dep.nj.gov <joseph.cimino@dep.nj.gov>; megan.ware@maine.gov <megan.ware@maine.gov>; nichola.meserve@state.ma.us <nichola.meserve@state.ma.us>; acolden@cbf.org <acolden@cbf.org>; pat.geer@mrc.virginia.gov <pat.geer@mrc.virginia.gov>; chris.batsavage@ncdenr.gov <chris.batsavage@ncdenr.gov>; robert.lafrance@quinnipiac.edu <robert.lafrance@quinnipiac.edu>; kr00ts-murdy@asmfc.com <kr00ts-murdy@asmfc.com>; rbeal@asmfc.org <rbeal@asmfc.org>; swoodward1957@gmail.com <swoodward1957@gmail.com>; patrick.keliher@maine.gov <patrick.keliher@maine.gov>
Cc: Tom Lilly <foragematters@aol.com>; flypax@md.metrocast.net <flypax@md.metrocast.net>
Sent: Fri, Jul 23, 2021 1:39 pm
Subject: Answer to Joe Cimino ...request for reply

For Joe Cimino and the work group.and the board..First to Joe ...thanks you for being willing to discuss the merits of things...very refreshing.... again thanks...
... This is a reply to Joe's recent comments about Chesapeake bay and the advice given by Dr. Matt Cieri, Dr. Bryan Watts and Dr.Tom Miller

Chesapeake Bay is the largest estuary in the United States with an area of 4,480 square miles,150 rivers,1,684 miles of shoreline. ...24 billion dollars spent on air and water quality..Half ot the bay watershed's 18 million residents try to act in ways that benefit the bay. Regulations affect the use and value of real estate owned by millions of people. 427 wastewater plants are impacted. Rules about nitrogen and phosphoros levels in ag soils , timing of fertilizer application etc. have impacted yields, expenses,land values and the survivability of 87,000 farms.Business in the watershed is subject to bay regulations that impact labor, expenses and a business's value. So,millions of people and 100s of thousands of businesses and farms adjust their daily lives and business practices to save Chesapeake Bay for the common good.The point is. Should the Commission and this menhaden board continue to exempt the three owners of the 12 purse seine boats in Virginia from making changes to benefit the common good as all the other residents,businesses and farms in six states are required to do? Is that where this is going? I think the public deserves an answer to that question, will you please answer that?

According to the Commission Director striped bass sport fishing on the Atlantic coast affects 104,867 jobs and has an impact of $7.7 billion,74 times the value of the

commercial fishery. (scan Ross letter page 2) There are about 10 captains and 100 crew at Omega versus 3,700 crew and about 1,867 captains in finfish and charters.just in Virginia and Maryland.Over 400 thousand recreational fishermen and a potential for a 100 thousand kids fishing if fishing got good again.Scan Amend 3 Comparisons,

Only this group and the board can act to increase the third thing wildlife need...their food supply, no one else can do that . Moving the purse seine fishing into the US Atlantic north of Cape Charles VA, the kind of time and area control recommended by your own consultant 12 years ago (top of page 3 Beal ltr) and exactly what each of your states but Virginia has done would guarantee the bay received an additional 51,000 tons of menhaden forage a year.(scan single concept and VA Allocation.) Does the work group dispute this estimate of forage saved?

You have the advice of three of our top marine and avian scientists that right now bay fish and wildlife are being damaged and need more menhaden. You also have advice from your own Director that where there is uncertainty and the the bay's wildlife is in poor condition you must act under the protective principle. (Beal ltr page 4 par 2) Either way the result seems to be the same...Act to move the fishing into the Atlantic..no loss of jobs or quota. Isn't that an approach tobe considered?

Joe..will you take another look at what the experts had to say.? Matt Cieri corrected a quote in Bay Journal to add his opinion that it will take both conservation and a reduction in menhaden fishing to restore the striped bass. CBF says menhaden diet went from 80% to 8%.

Dr. Bryan Watt's comments seen very clear. Ospreys in the main bay stem are dying out due to inadequate menhaden leading to widespread nesting failures. Are you aware of any equally qualified avian scientist that has read this letter and disagrees with Dr.Watts? Are not his conclusions supported by the CBF press release?

According to one source "Seabirds are the most vunerable (of avian,fish and marine mammals species) See Ecosystem-based Management Objectives North Sea , Collas et al ICES Journal of Marine Science, Vol 71,isssue 1,(2014) page 13/45. We submit the osprey evidence from these two sources shows probable chronic depletion. Do you agree?

Dr, Tom Miller said that Dr. Cieri and Dr. Watts gave good advice. The important question for the work group and the board is whether or not they will act of Dr. Miller's advice. He said:

" ...there will likely have to be compromise on all sides to reach a solution that will sustain the ecosystem services provided by menhaden. Restrictions on fisheries both menhaden and striped bass will likely improve the provision of ecosystem services.A central challenge is how to allocate these cuts among the different fisheries sectors equitably" Does the group and the board agree with the advice Dr. Miller has given them?

There are several different motions you could make to bring this to a head now that 17 years have passed since it was on your radar. One is:

That the Board explore the need for and the possible ecological, social and economic benefits to Chesapeake Bay and the people of Virginia and Maryland of

various management measures such as seasonal,capacity and area controls on the purse seine fishery in Virgina.

A second challenge here is whether the board should start another 5-7 years research on Chesapeake bay when your Charter and Amend. 3 both say action is to be based on the information you have now (n.1).There will never be decisions made for conservation if you keep saying you need more research to make up your mind. Isn't it correct that Dr. Maguire, your own consultant, said you can use "time and area" controls without more quanitative research to do a fair and equitable division of menhaden in Chesapeake Bay? Does this group or the board dispute that moving the factory fishing into the US Atlantic zone north of Cape Charles would likely allow 51,000 tons of menhaden forage to get into Chesapeake bay,forage now being caught... That's the bottom line here...do you agree or disagree?

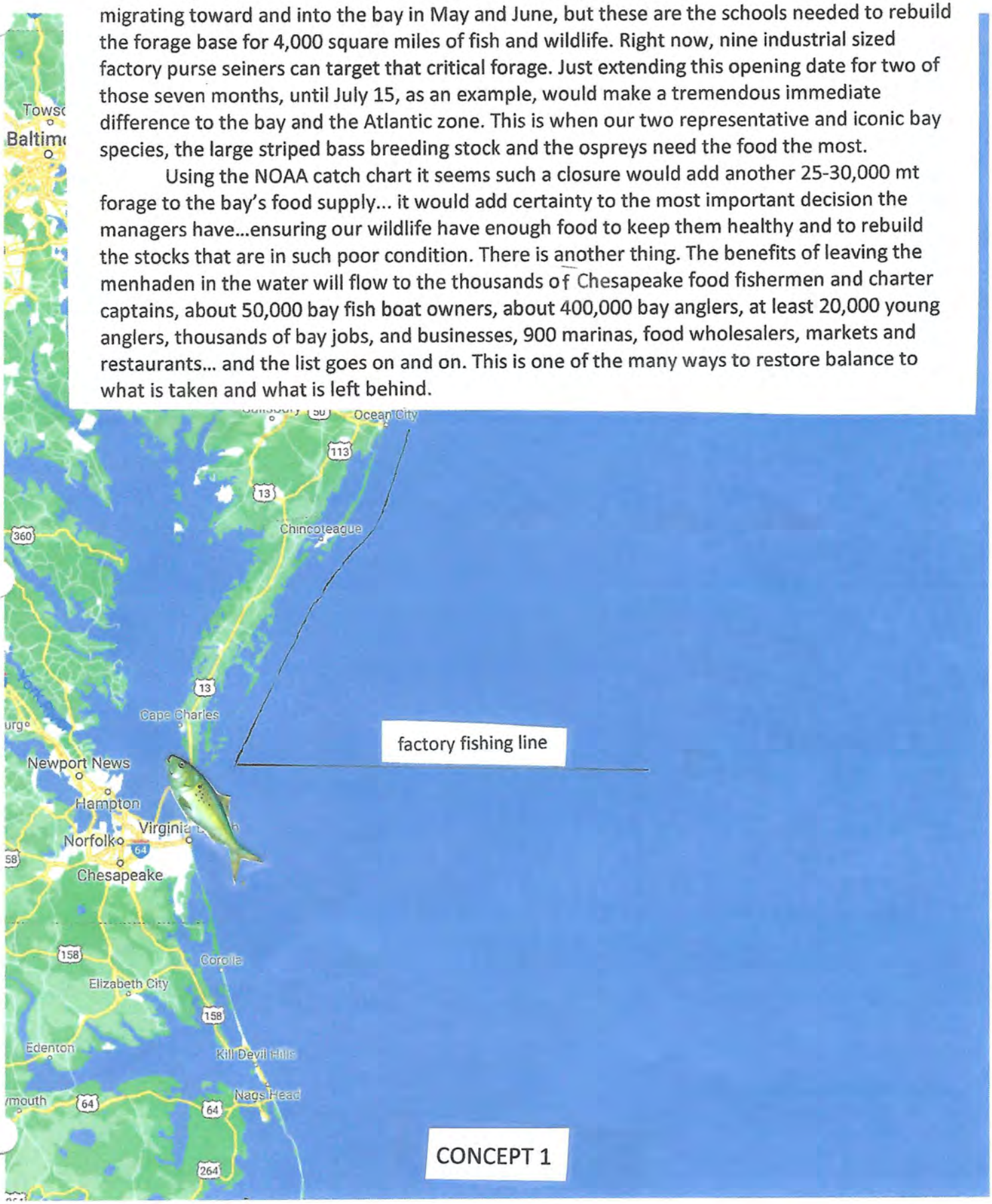
Thank you for your consideration. References on request Tom Lilly 443 235 4465

Charter Section Six (a)(2) " Conservation...and management plans shall be based on the best scientific information available"

CONCEPT...DELAY OPENING THE SEASON FOR A TIME THE MANAGERS FIND APPROPRIATE, THEN ALLOW FACTORY FISHING ONLY IN THE US ATLANTIC ZONE NORTH OF CAPE CHARLES

The factory menhaden season is seven months starting in May. Relatively few schools are migrating toward and into the bay in May and June, but these are the schools needed to rebuild the forage base for 4,000 square miles of fish and wildlife. Right now, nine industrial sized factory purse seiners can target that critical forage. Just extending this opening date for two of those seven months, until July 15, as an example, would make a tremendous immediate difference to the bay and the Atlantic zone. This is when our two representative and iconic bay species, the large striped bass breeding stock and the ospreys need the food the most.

Using the NOAA catch chart it seems such a closure would add another 25-30,000 mt forage to the bay's food supply... it would add certainty to the most important decision the managers have...ensuring our wildlife have enough food to keep them healthy and to rebuild the stocks that are in such poor condition. There is another thing. The benefits of leaving the menhaden in the water will flow to the thousands of Chesapeake food fishermen and charter captains, about 50,000 bay fish boat owners, about 400,000 bay anglers, at least 20,000 young anglers, thousands of bay jobs, and businesses, 900 marinas, food wholesalers, markets and restaurants... and the list goes on and on. This is one of the many ways to restore balance to what is taken and what is left behind.



https://www.google.com/maps/@37.6879379,-74.586276,8z

13

MOVE FACTORY FISHING TO US ATLANTIC ZONE North of TOWN OF CAPE CHARLES

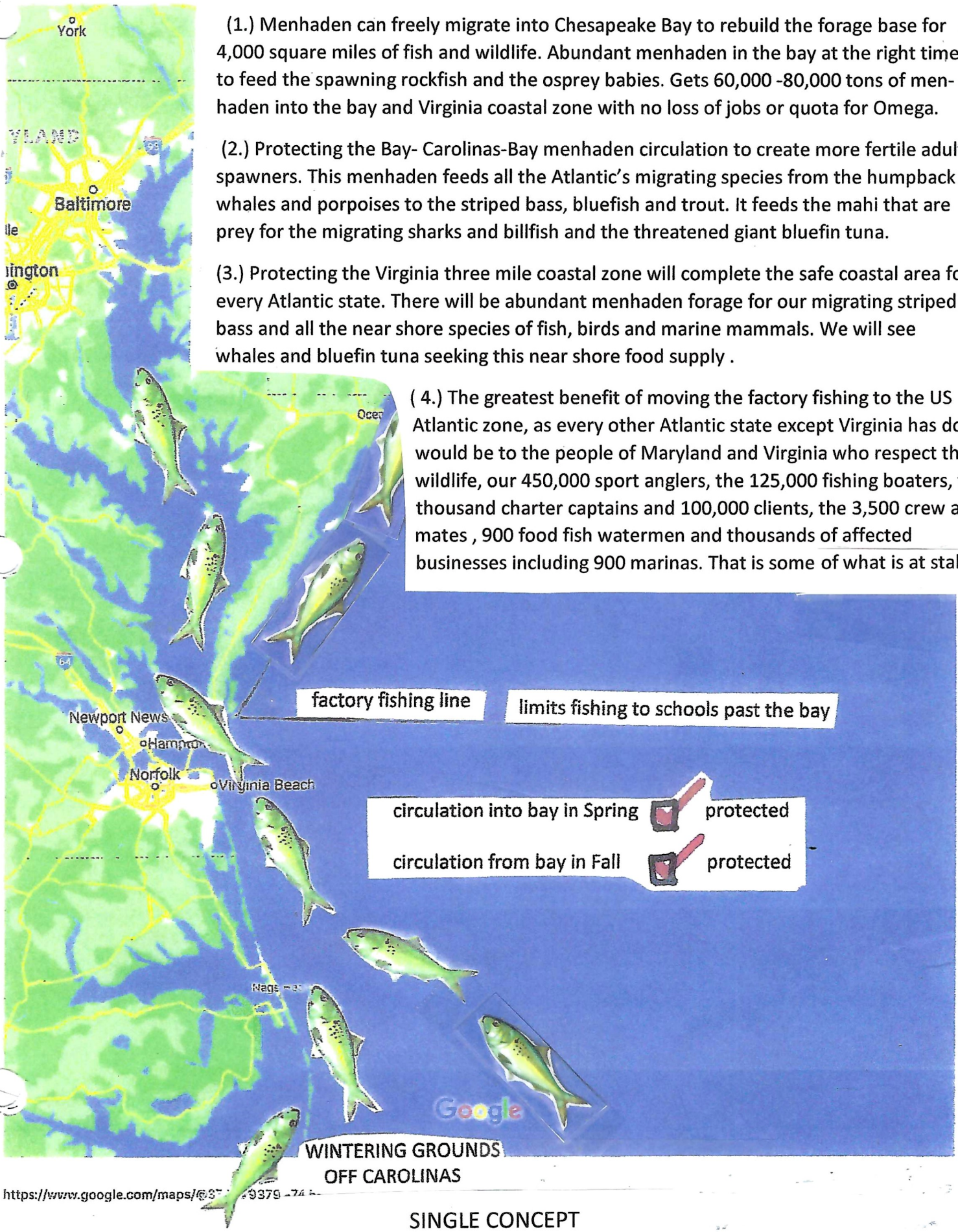
WHAT THIS ACCOMPLISHES:

(1.) Menhaden can freely migrate into Chesapeake Bay to rebuild the forage base for 4,000 square miles of fish and wildlife. Abundant menhaden in the bay at the right time to feed the spawning rockfish and the osprey babies. Gets 60,000 -80,000 tons of menhaden into the bay and Virginia coastal zone with no loss of jobs or quota for Omega.

(2.) Protecting the Bay- Carolinas-Bay menhaden circulation to create more fertile adult spawners. This menhaden feeds all the Atlantic's migrating species from the humpback whales and porpoises to the striped bass, bluefish and trout. It feeds the mahi that are prey for the migrating sharks and billfish and the threatened giant bluefin tuna.

(3.) Protecting the Virginia three mile coastal zone will complete the safe coastal area for every Atlantic state. There will be abundant menhaden forage for our migrating striped bass and all the near shore species of fish, birds and marine mammals. We will see whales and bluefin tuna seeking this near shore food supply .

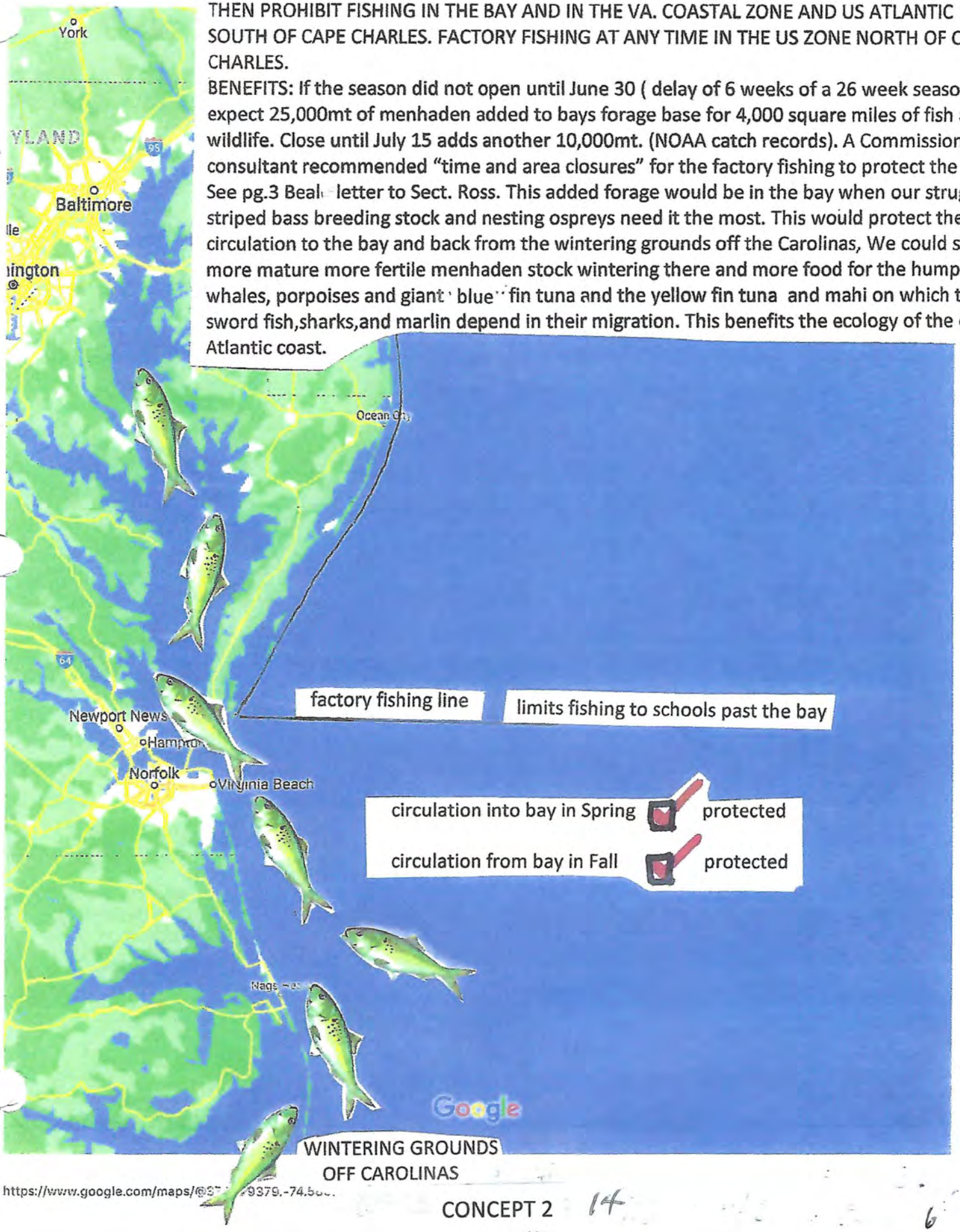
(4.) The greatest benefit of moving the factory fishing to the US Atlantic zone, as every other Atlantic state except Virginia has done, would be to the people of Maryland and Virginia who respect their wildlife, our 450,000 sport anglers, the 125,000 fishing boaters, the thousand charter captains and 100,000 clients, the 3,500 crew and mates , 900 food fish watermen and thousands of affected businesses including 900 marinas. That is some of what is at stake.



SINGLE CONCEPT

CONCEPT 2. (least change) DELAY OPENING FACTORY FISHING IN THE VIRGINIA BAY AND VA ATLANTIC ZONE FOR ENOUGH TIME TO HAVE THE BAY'S MENHADEN FORAGE BASE RECOVER THEN PROHIBIT FISHING IN THE BAY AND IN THE VA. COASTAL ZONE AND US ATLANTIC ZONE SOUTH OF CAPE CHARLES. FACTORY FISHING AT ANY TIME IN THE US ZONE NORTH OF CAPE CHARLES.

BENEFITS: If the season did not open until June 30 (delay of 6 weeks of a 26 week season) expect 25,000mt of menhaden added to bays forage base for 4,000 square miles of fish and wildlife. Close until July 15 adds another 10,000mt. (NOAA catch records). A Commission consultant recommended "time and area closures" for the factory fishing to protect the bay. See pg.3 Beal letter to Sect. Ross. This added forage would be in the bay when our struggling striped bass breeding stock and nesting ospreys need it the most. This would protect the circulation to the bay and back from the wintering grounds off the Carolinas, We could see a more mature more fertile menhaden stock wintering there and more food for the hump-back whales, porpoises and giant blue fin tuna and the yellow fin tuna and mahi on which the sword fish,sharks,and marlin depend in their migration. This benefits the ecology of the entire Atlantic coast.



https://www.google.com/maps/@3[illegible]9379,-74.5[illegible]

Date: Fri. Dec 11, 2020 8:41 am

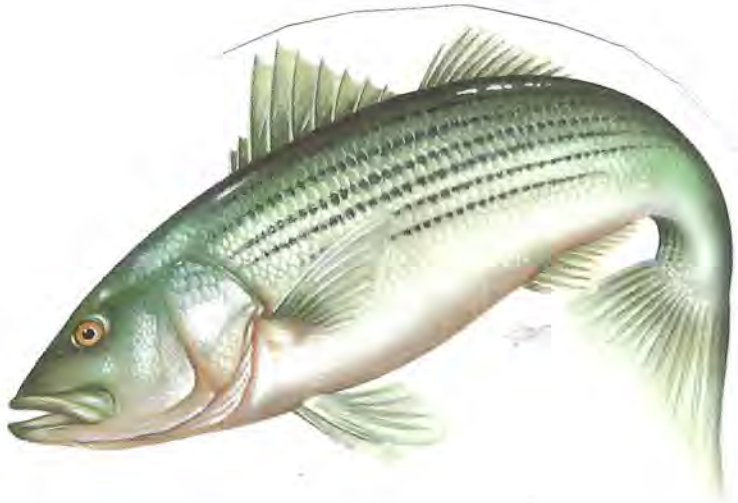
Phil, I would like to add per our conversation last week, that as long as the CBBT is considered the demarcation line for the Chesapeake Bay as set up by ASMFC per the direction of Omega and/or they can fish within the 3 mile EEZ line along the coast then even if the Bay Cap was 0 fish they can still catch a majority of every group of schools migrating into and out of the Bay. They just have to put a little more fuel in their ships.

Moving them out to the EEZ is the only option that will reestablish the menhaden biomass within the Bay. This statement is based on daily observation os Omega's fishing practices of following the schools as they migrate into and out of the Chesapeake Bay by tracking their movements, radio communications discussing the quantity and size of schools as well as class of fish (age groups) that are seen, catch amounts per ships made as reported via radio back to Reedville and learning the migration patterns of the schools after years of watching them follow the groups of schools. While not exact "science " is observed in these daily tracking reports they show the patterns and results of Omega's efforts and are a good representation of what's happening in the local depletion of our state's waters.

If you have followed my post starting this year on https://www.facebook.com/ Chesapeake-Bay-Defenders-1890352121190102 it is apparent that these groups of schools have been dropping off at an alarming rate from the previous 5 years and are in deep decline that is simply not shown or represented in ASMFC's coastal biomass figures. There are 5K people that follow this page and it reaches over 7K people so there are a lot of people that are concerned about these issues as they personally see the results of this depletion out on the water by the lack of menhaden schools seen.

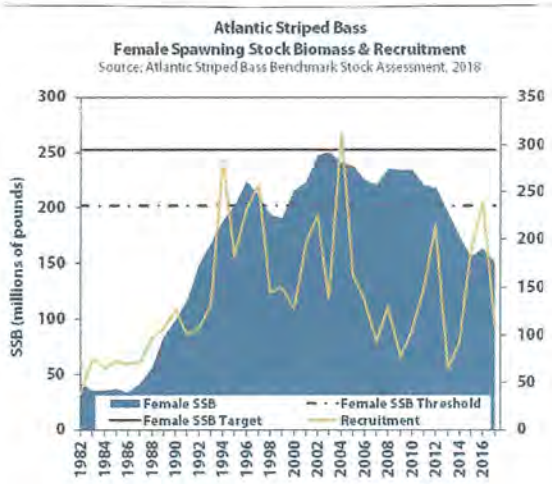
Respectively,

Bill Dunn



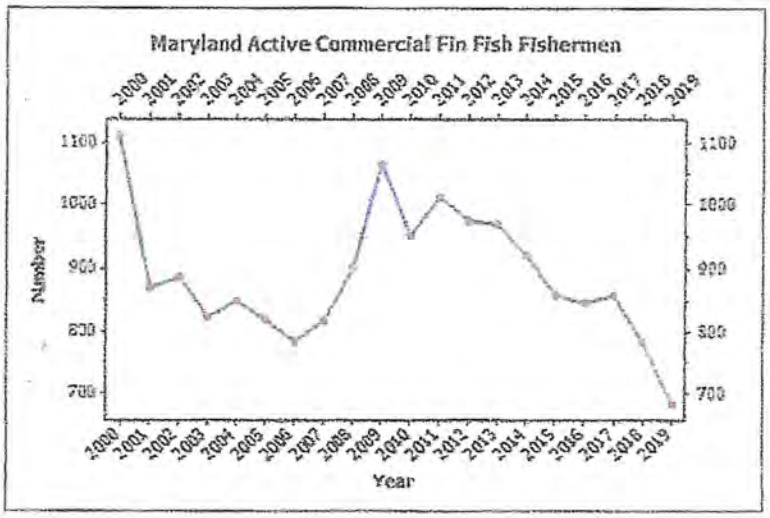
MATERIAL FROM ASMFC ATLANTIC STRIPED BASS MANAGEMENT SECTION

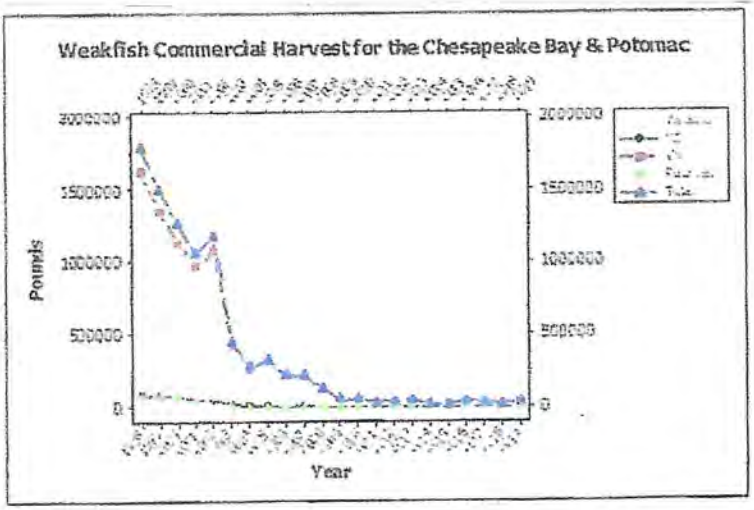
SPAWNING STOCK AND RECRUITMENT STATUS FROM ASMFC STRIPED BASS INTRODUCTION PAGE 2

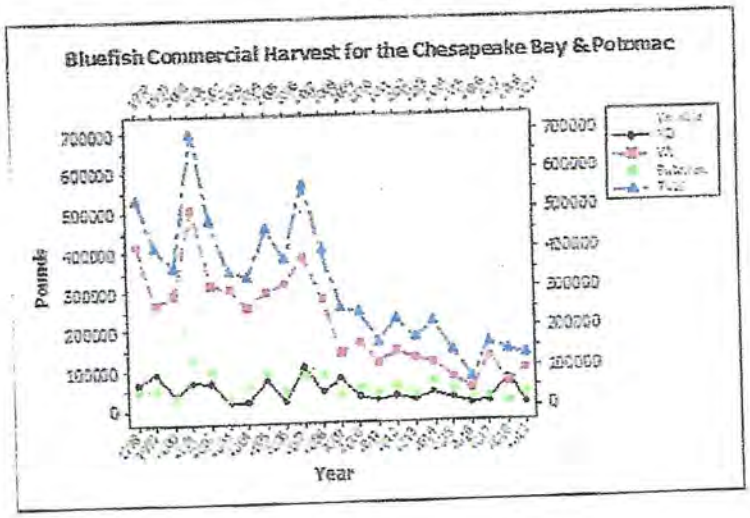


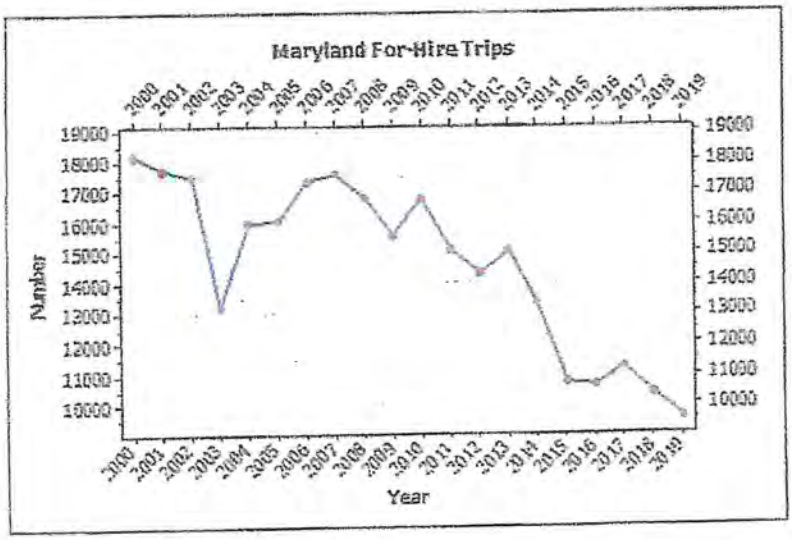
STOCK STATUS FROM SECTION 2.2.1 OF ADENDUM VI TO AMENDMENT 6 STRIPED BASS MANAGEMENT PLAN PAGE 2 (2019) Stock overfished with substantial declines in juveniles

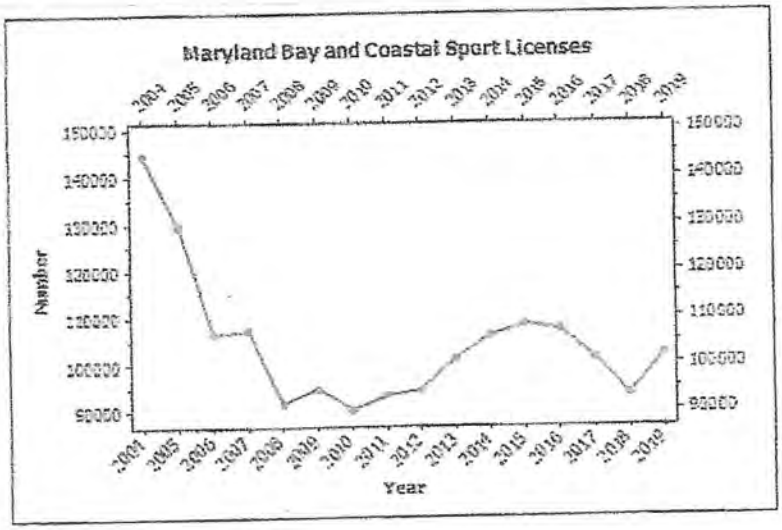
The results of the 2018 benchmark indicate that the Atlantic striped bass stock is overfished and overfishing is occurring. Female SSB in 2017 was estimated at 68,576 metric tons (151 million pounds), which is below the SSB threshold of 91,436 metric tons (202 million pounds) (Figure 1). Female SSB peaked in 2003 and has been declining since then; SSB has been below the threshold level since 2013. Total F in 2017 was estimated at 0.31, which is above the F threshold of 0.24 (Figure 2). Total F has been at or above the threshold in 13 of the last 15 years of the assessment (2003-2017). Recruitment in 2017 was estimated at 108.8 million age-1 fish, which is below the time series average of 140.9 million fish (Figure 1). Striped bass experienced a period of lower recruitment from 2005-2011 which contributed to the decline in female SSB that the stock has experienced since 2010. Recruitment was high in 2012, 2015, and 2016 (corresponding to strong 2011, 2014, and 2015 year classes), but estimates of age-1 striped bass were below average in 2013, 2014, and 2017.


Maryland Active Commercial Fin Fish Fishermen
Number
Year


Weakfish Commercial Harvest for the Chesapeake Bay & Potomac
Pounds
Year


Bluefish Commercial Harvest for the Chesapeake Bay & Potomac
Pounds
Year


Maryland For-Hire Trips
Number
Year


Maryland Bay and Coastal Sport Licenses
Number
Year

VALUE LOST AND VALUE GAINED WHO IS PAYING THE PRICE HERE?

What is the real cost to Maryland and Virginia when Omega annually takes about 100,000 tons of menhaden forage from the Chesapeake Bay area?

Forage fish stocks all over the world are under unrelenting pressure from multinational fishing conglomerates like Cooke and Omega who can use highly efficient purse seiners to harvest forage fish. This is not a crop they plant, fertilize or cultivate...there is no land rent to pay ..it is just harvested. They get free high protein feed for their growing salmon fish farming operations. There are many other sources of protein for fish farming. This just boils down to what is the cheapest. In Omega's case the cheapest is menhaden forage from the Chesapeake Bay. There is a price to pay, there always is, but the price is being paid by Chesapeake Bay wildlife and the people of Virginia and Maryland.

Using feed conversion ratios of 1.2 pounds feed to one pound gain in salmon fish farming we should be able to get a glimpse of the amount of trout, bluefish, drum and rockfish that 100,000 tons of menhaden forage could be creating in Chesapeake Bay and the Atlantic coast. This is not happening because this huge amount of forage ends up in a purse seine net. If the managers were to change this more of the benefits of abundant and healthier fish and wildlife would be realized by not just one foreign company but by the all the people and businesses described at page 14-15 of this site...Amendment 3 comparisons

REQUIEM FOR TANGIER SOUND
R.I.P. 2008

It is never pleasant to read an obituary. It is equally, if not more difficult, to write one for someone, in this case some thing, that you care about. When I think back on all the memories I have a good many of them are about good times on the river and the sound with friends and family. If you spend much time fishing you know what has happened to Chesapeake bay.

Tangier sound was a very busy place 20 years ago. Lots of fisherman, charter and head boats. It was also a noisy place with hundreds of birds working over schools of "bait"when the fish were feeding. On a typical day during the spring and fall trophy seasons you would see 25 to 30 private boats and a number of charters off the Deal Island bridge. Lots of nice rockfish were being caught. There were also some very good speckled trout to be caught off Crisfield. Dave's tackle shop sold a lot of umbrella rigs. That is all gone now.

I personally date the disappearance of our fish as follows , trout 10 years, flounder 10 years, hardheads eight years, well-nourished young rockfish 2 to 5 years, schools of juvenile menhaden in the fall - steady decline for the last 10 years with practically nothing the last two years.

I spoke to Arby Holland who owns the store and fuel dock in Wenona. Ten years ago they had 18 charter boats. Many ran two charters a day on weekends. Now there are three or four left. During the week "one to none" go out, there are a few that will get a charter on a weekend. These captains are aging and there is no interest in the younger people. Arby's Tackle and restaurant business is just "hanging on".

I also spoke to Mary Taylor about Somers Cove Marina in Crisfield. With the decrease in fish over the last ten years their charter boats have gone from ten to three or four. Now, as with Wenona, the captains are older and have other jobs during the week. It's just a weekend charter here and there. There are no head boats anymore. There were four. The last one to leave was the Barbara Ann and the one before that was four or five years ago.

The Barbara Ann was sold for whale watching in Maine where there are plentiful menhaden for whales and tuna to feed on. As the menhaden stock has moved north and increased off New England there are whale watching excursion boats operating from Maine south and several are taking customers into the Atlantic just outside Manhattan.

We made survey flights over Tangier sound last summer with an experienced menhaden spotter pilot covering Pocomoke sound and the area from Tangier Island Virginia to Hoopers Straights Maryland. We did not see a single school of menhaden in four surveys. When we covered the bay from Cape Charles, Virginia to the Annapolis bridge we saw a strand of menhaden here and there and a few small schools. What we observed was probably one hundredth or less of the menhaden Chesapeake Bay needs to support its fish and wildlife based

on the Rhode Island ecological guidelines.

We have five osprey nests at Whitehaven. Two are in my front yard on the river. I have watched these nests for over 40 years. For the last three or four years or more these birds have struggled to raise even a single chick. Years ago they would find large menhaden almost daily to feed the brood. This year I saw one menhaden caught in the entire season. The nesting eagles have left the area. There was a large blue heron rookery behind the old Whitehaven Hotel but almost all of those birds are gone now. One of the primary foods for the herons is the juvenile menhaden . If the juveniles were there the herons would be as well.

The absence of juvenile menhaden in Chesapeake Bay for over twenty years is an established fact. Since all of our juvenile fish species, the rockfish trout and bluefish etc. are dependent on these juveniles I would expect to hear much more discussion at the commission and Maryland DNR on ways to restore this population. I do not hear this discussed. I do not hear any proposals to solve this problem. If you look at the original menhaden plan you see the menhaden spawn in the ocean in April, May and June. It is right off Cape Charles and the Outer Banks. There is no protection for these spawning schools , no closed season and no sampling of the catch for stage of spawn.

Tangier sound, it's people, fisherman, captains and small businesses are just an unwilling poster child for what is happening all over Chesapeake Bay. We should see this very clearly in the fact there are nearly 100,000 fewer fisherman now than there were eight or ten years ago. Omega corporation is allowed to take a huge volume of menhaden forage out of the Virginia by, shipload by shipload, day by day during the entire time the schools are in the Virginia bay. This amount is allocated without any survey of the number of menhaden left behind for the rock fish and other wildlife to eat.

What does the future hold for the fish and wildlife of Tangier sound and Chesapeake Bay? This is a difficult question to answer. We have a test approaching with the Commission's decision on whether or not to enforce the reduced bay cap. The Charter and Amendment 3, require the Commissioners to look at the menhaden as forage, food for our declining Chesapeake Bay fish stocks and to fairly allocate the fair share of menhaden to the recreational fisherman and the fish and wildlife.

July 2019

GRANDSON ALEX TAKEN ABOUT TEN YEARS AGO. MOST OF THE KIDS AND THEIR PARENTS HAVE LOST INTEREST .....FISHING JUST "ISN'T FUN ANYMORE"

Lets do the math. The bay's 400,000 fishing families aren't fishing much these days..the fishing has gotten worse and worse. Lets get the Chesapeake Bay the food their fish and wildlife need and deserve. Let's add more healthy fish to the equation. These families might get out on the bay a few more times a Summer and maybe have some great adventures. That could be another one million more precious days each year these parents and grandparents would have together enjoying the great sights and sounds Chesapeake bay has to offer. That is what is at stake here.

IF YOU CAN " REMEMBER WHEN" the bay was a noisy vibrant place with plenty of adult and baby bunker or if this material has given you enough information and you want to express your opinions to the Maryland and Virginia ASMFC delegates please do so ASAP urging them to ask the board to consider measures, such as time and area controls over the menhaden harvest in Virginia.You can also speak to this during the public comment time at the ASMFC meeting Feb 2nd.We can send you more information on proposals and social-economic data .... just call or contact us on email

CONTACT INFORMATION

The Maryland ASMFC menhaden delegates are

Allison Colden
CBF
Acolden@cbf.org
410-268-8816

Lynn Fegley and Bill Anderson
DNR
lynn.fegley@maryland.gov
bill.anderson@maryland.gov
410-260-8286
443-223-9279

Russel Diez
mjdize@verizon.net
410 886-2249

Virginia Marine Resources Commission....log on the home site for complete Staff and meeting and names of the VMRC Commissioners. There is a menhaden Advisory group. The eight citizens of Virginia comprising the VMRC have complete control over menhaden in Virginia under Virginia Code 28.2-203 as of April 2020 but they have not acted in any meaningful way to date.

The complete story of menhaden regulation is on the ASMFC site...go to management for all the board minutes, the technical committees . the assessments , press releases. Board members from each state, etc.---its all there

You can contact Menhaden Project at foragematters@aol,com and at flypax@metrocast.net

---

MENHADEN PROJECT

CHESAPEAKE BAY

Phil Zalesak
240-538-3626
flypax@metrocast.net

Tom Lilly
443-235-4465
foragematters@aol.com

Tom Lilly foragematters@aol.com 443 235 4465

The Most Important Fish in the Bay

UPDATE: August 5, 2020—the Atlantic States Marine Fisheries Commission has taken the first step to formally consider the importance of menhaden to other predators, including striped bass, bluefish, and weakfish, in its management framework. This is the first time that ASMFC has committed to including Ecological Reference Points, the value of the species to the ecosystem, in its fishery management plans. *(Read CBF's press release)* (http://www.cbf.org/news-media/newsroom/2020/all/asmfc-adopts-groundbreaking-change-to-menhaden-fishery-management.html)

Atlantic menhaden, *Brevoortia tyrannus*, are small, nutrient-packed fish that are central to the Chesapeake Bay's food chain and support one of the largest commercial fisheries on the Atlantic coast. As a result of their environmental and economic importance, management of the menhaden fishery is a political flashpoint across the region.

Why are menhaden (also called bunker or pogy) important in the Chesapeake Bay?

Menhaden have been called the "most important fish in the sea." In the Bay, they create a vital connection between the bottom and top of the food chain. They eat tiny plants and animals, called plankton, by filtering them from the water. In turn, menhaden are a rich food source for many predator fish—including rockfish (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/rockfish/) (striped bass), bluefish, and weakfish—as well as ospreys (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/ospreys/), bald eagles, dolphins, and whales. (See our video, *Why Whales Follow Menhaden into the Bay (http://www.cbf.org/news-media/multimedia/video/why-whales-follow-menhaden-into-the-bay.html)*.)

Rockfish, in particular, historically relied on menhaden for a large portion of their diet. Researchers have raised concerns that a lack of menhaden could make rockfish more vulnerable to disease.

Why should I care about menhaden?

MENHADEN (/ABOUT-THE-BAY/MORE-THAN-JUST-THE-BAY/CHESAPEAKE-WILDLIFE/MENHADEN

- American Shad (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/american-shad/)
- Blue Crabs (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/blue-crabs/)
- Cormorants (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/cormorants-the-miraculous-comeback-of-a-misunderstood-bird.html)
- Cownose Ray (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/misunderstood-the-cownose.html)
- Eastern Oysters (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/eastern-oysters/)
- Lined Seahorse (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/the-lined-seahorse-a-rare-romantic.html)
- Loon (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/call-of-the-loon.html)
- Menhaden (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/)
  - A Timeline of Menhaden Conservation (http://www.cbf.org/about-the-bay/more-than-just-the-bay/chesapeake-wildlife/menhaden/timeline-

82 CBF Press Release 07/07