



Atlantic States Marine Fisheries Commission

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Patrick C. Keliher (ME), Chair

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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 fishery¹.

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 compliance².

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. McNinch, 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 low¹⁴ (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 U.S.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>

Honorable Wilbur Ross

November 15, 2019

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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