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**VIA ELECTRONIC MAIL**

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RE: Draft Addendum V to Amendment 1 to the Atlantic Menhaden Fishery  
Management Plan for Public Comment

Dear Commissioners,

Thank you for the opportunity to offer comment on Draft Addendum V to Amendment 1 to the Atlantic Menhaden Fishery Management Plan, which proposes to change the Commission-mandated fishing mortality threshold and target for Atlantic menhaden.

As Attorney General of Maryland, it is my solemn obligation to protect Maryland's sovereign interest in its natural resources.<sup>1</sup> Chief among these are the natural resources found in the Chesapeake Bay, Maryland's most treasured waterway. These include all fish, birds, and other fauna and flora that rely on elements of the Bay ecosystem to flourish. When any one of these resources is threatened, the entire Bay ecosystem is put at risk, and with it the livelihoods of those Marylanders who rely on the Bay for their welfare.

One of the most critical natural resources within the Bay ecosystem is the Atlantic menhaden. The Atlantic menhaden has been called "the most important fish in the sea" because

<sup>1</sup> See, e.g., *Bruce v. Dir., Dep't of Chesapeake Bay Aff.*, 261 Md. 585, 598 (1971) ("the State holds the title to fish in public waters in trust for the public, and all members of the public, regardless of where they may live in the state").

of its key position as both a filter fish and forage fish.<sup>2</sup> As a fast-moving filter fish, the menhaden removes particulate matter and nutrients from the water at a high rate, thus playing an important role in cleansing Bay water and allowing fish and aquatic plants to access sunlight and dissolved oxygen. It has been estimated that an average adult menhaden can filter about 15.2 liters of water per minute, and thus about 8 billion liters of water per year.<sup>3</sup> Moreover, menhaden convert the nutrients they filter into highly nutritious fish tissue that has great value higher up the food chain. Indeed, as a forage fish, the menhaden serves as the staple food in the diet of many important Maryland species, in good years comprising over 50% of the diet of striped bass—Maryland’s state fish—and as much as 75% of the osprey diet, to give just two examples.<sup>4</sup>

As the Commission knows, the population of Atlantic menhaden is in the midst of an historic and unprecedented decline. Since 1985, the population of menhaden has fallen 88%.<sup>5</sup> This decline has coincided with major shifts in the diets of menhaden predators,<sup>6</sup> and has been linked with an increased incidence of mycobacteriosis in striped bass.<sup>7</sup> This decline has also coincided with the appearance of larger and more frequent algal blooms in the Bay, which cause substantial environmental harm.<sup>8</sup>

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<sup>2</sup> H. BRUCE FRANKLIN, *THE MOST IMPORTANT FISH IN THE SEA* 7 (2007).

<sup>3</sup> Sarah J. Gottlieb, *Nutrient removal by age-0 Atlantic menhaden (Brevoortia tyrannus) in Chesapeake Bay and implications for seasonal management of the fishery*, *Ecological Modelling* 111, 112 (1998). While other studies suggest that the amount of filtration each fish performs varies with the size of the phytoplankton prevalent in the specific waters evaluated, there is no dispute that the filtration they perform has a beneficial effect on water quality.

<sup>4</sup> J. H. Uphoff, Jr., et al., *Predation on Menhaden*, in *MENHADEN SPECIES TEAM BACKGROUND & ISSUE BRIEFS: ECOSYSTEM BASED FISHERIES MANAGEMENT FOR THE CHESAPEAKE BAY M/3-7 & M/3-9* (Maryland Sea Grant, 2009); see Gary A. Nelson et al., *Food Habits of Striped Bass (Morone saxatilis) in Coastal Waters of Massachusetts*, 32 *J. NORTHW. ATL. FISH. SCI.* 1, 3 & 14 (2003) (finding that menhaden comprised the dominant component of striped bass diets in Cape Cod Bay).

<sup>5</sup> ASMFC, *STOCK ASSESSMENT REPORT NO. 10-02* (March 2011) [hereinafter 2010 STOCK ASSESSMENT REPORT]; see ASMFC, *Press Release – Atlantic Menhaden Benchmark Assessment Indicates Stock is Not Overfished but Shows Signs of Concern*, May 6, 2010, at 1 (“Abundance [of Atlantic menhaden] has declined steadily since the peak observed in the early 1980s and recruitment (age-0 fish) has been relatively low.”). Particularly worrisome is the fact that, of the now-existing population, 91% are age-2 or younger. *Forecast for the 2011 Gulf & Atlantic Menhaden Purse-Seine Fisheries and Review of the 2010 Fishing Seasons*, *Nat’l Oceanic & Atmospheric Admin.* 3, Table 2 (March 2011). This is problematic because menhaden reach sexual maturity at about age-3, and thus are best capable of producing viable eggs at or beyond this point. See Jim Price, *Menhaden Population Being Harvested Before It Can Replenish Itself*, *CHESAPEAKE BAY J.* (July/Aug. 2005) (“Older menhaden, age-5+, are the most important component of the spawning stock because they produce up to 10 times more eggs than first-spawning age-3 females.”).

<sup>6</sup> J. H. Uphoff, Jr., *Predator-prey analysis of striped bass and Atlantic menhaden in upper Chesapeake Bay*, 10 *FISH. MGMT. & ECOLOGY* 313, 319 (2003) (showing shrinking incidence of menhaden in diet of striped bass); NOAA, *Research to Improve Management of Atlantic Menhaden in Chesapeake Bay* 4 (2010) (discussing decrease of menhaden in osprey diet from 74.7% in 1986 to 28% in 2007).

<sup>7</sup> J.M. Jacobs, et al., *A Review of Mycobacteriosis in Marine Fish*, 32 *J. FISH DISEASES* 119, 125 (2009) (reporting that between 50% and 75% of rockfish in the Bay may have mycobacteriosis, and linking this health impact to “declines in preferred prey species and a potential shift in [rockfish] diet composition”).

<sup>8</sup> See FRANKLIN, *THE MOST IMPORTANT FISH IN THE SEA*, at 137-40.

During this period of decline, removal of menhaden through the commercial fishery has nonetheless continued to occur at a tremendous volume. Reduction fishing, in particular, has accounted for the removal of hundreds of thousands of tons of menhaden annually, dwarfing removal from bait fishing, recreational fishing, and predation combined. For example, in 2008, the most recent year for which data is provided in the ASMFC 2010 Stock Assessment Report, 74.7% of all menhaden caught along the eastern seaboard – or 141,100 tons – were caught by a single reduction firm, Omega Protein, with only 25.1% of the catch – or 47,400 tons – attributable to the bait fishery, and only 0.002% – or 370 tons – caught by recreational anglers.<sup>9</sup> By contrast, natural finfish predation accounts for only 3,200 to 14,000 tons per year, or less than one tenth of what Omega Protein catches in any given year.<sup>10</sup> Research has shown that such harvesting of low-trophic level species like menhaden can have major impacts across the ecosystem.<sup>11</sup> Because menhaden, by nature, travel throughout much of the East Coast and are fished in many states, no one state can comprehensively reduce their decline from overfishing. For example, although Maryland banned commercial harvesting of menhaden with purse seine nets many decades ago, the practice continues to be permitted elsewhere.

Given the interstate nature of Atlantic menhaden and the menhaden fishery, and given that nearly 80% of menhaden are fished within state waters,<sup>12</sup> comprehensive management of this vanishing resource can only be implemented through the Commission, the entity tasked with creating and overseeing fishery management programs for interstate fisheries on the East Coast.<sup>13</sup> Indeed, the Commission was formed in part to “protect[] . . . such fisheries, and . . . prevent[] . . . the physical waste of the fisheries from any cause.”<sup>14</sup> Accordingly, the Commission has an obligation to help states protect against dramatic declines like the one the menhaden is facing, and specifically to take steps to prevent overfishing.<sup>15</sup> As the Atlantic Coastal Fisheries Cooperative Management Act states, fishery management plans overseen by the Commission “*shall* contain the conservation and management measures . . . which are

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<sup>9</sup> ASMFC, 2010 STOCK ASSESSMENT REPORT, at 133 & 189, Table 4.2 & Fig. 4.1.

<sup>10</sup> NOAA, *Research to Improve Management of Atlantic Menhaden in Chesapeake Bay* 4, Fig. 9 (2010)

<sup>11</sup> See, e.g., Anthony D.M. Smith, et al., *Impacts of Fishing Low-Trophic Level Species on Marine Ecosystems*, 333 Science 1147, 1148 (Aug. 26, 2011) (finding “widespread impacts” from harvesting low-trophic level species like forage fish, including “very severe impacts for some groups (.60% change in biomass) even at relatively low levels of depletion (25% below unfished levels – that is, biomass reduced to 75% of unfished levels) of the LTL species”).

<sup>12</sup> ASMFC (Toni Kerns pers. comm., Oct. 28, 2011).

<sup>13</sup> ATLANTIC STATES MARINE FISHERIES COMPACT [hereinafter COMPACT], Pub. Law 77-539 & 81-721, art. IV & amend. 1 (Aug. 19, 1950); Compact Rules & Regulations, art. VI § 3 (2003); see ATLANTIC COASTAL FISHERIES COOPERATIVE MANAGEMENT ACT [hereinafter ACFCMA], 16 U.S.C. §§ 5101 et seq. (1993), at § 5101(a)(4) (Congress noting in its findings that states carry out their responsibility for managing Atlantic coastal fisheries through the Commission).

<sup>14</sup> COMPACT, art. I.

<sup>15</sup> See Compact, art. IV (“The Commission shall have power to recommend the coordination of the exercise of the police powers of the several states within their respective jurisdictions to promote the preservation of those fisheries and their protection against overfishing, waste, depletion or any abuse whatsoever”); see also ACFCMA, 16 U.S.C. § 5101(a)(2) (Congress noting in its findings that “[i]ncreased fishing pressure, environmental pollution, and the loss and alteration of habitat have reduced severely certain Atlantic coastal fishery resources”).

necessary and appropriate for the conservation and management of the fishery, to *prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery.*"<sup>16</sup>

The Commission's interstate fishery management plan (FMP) for the menhaden has so far failed to adequately protect the menhaden fishery, particularly from overfishing. Despite menhaden's historic decline, the Commission has allowed menhaden to be fished down to 8% of their maximum spawning potential,<sup>17</sup> even though established science suggests that such a level is unsustainable, as will be discussed below. The Commission acknowledges that, even under this generous management plan (where removing over 90% of fish is not considered overfishing), "overfishing is occurring"<sup>18</sup> and that "overfishing has occurred in 32 of the last 54 years."<sup>19</sup> The Commission also acknowledges that its current management plan for menhaden is "not based on a scientifically quantified harvest threshold, fishery health index, or fishery population level study,"<sup>20</sup> even though its rules require it to base its fishery management plans on "the best scientific information available."<sup>21</sup> Nonetheless, the Commission has so far failed to adjust its management of menhaden to address this troubling situation.

With Draft Addendum V, the Commission has taken a positive and much-needed step toward improving the way in which it manages the menhaden fishery, a step that has the potential to bring it in line with its own regulations for other forage fish and align its management practices with those endorsed by the federal government and the international scientific community as sustainable. Specifically, the Commission has included in Draft Addendum V proposals to change the fishing mortality threshold –  $F_{\text{threshold}}$  – from approximately 8% MSP to 15% MSP ("Threshold Option 2") and the fishing mortality target –  $F_{\text{target}}$  – from approximately 20% MSP to either 30% MSP ("Target Option 3") or 40% MSP ("Target Option 4").

**Our Office strongly recommends that the Commission adopt, at a minimum, Threshold Option 2 and Target Option 4. These options move the Commission's menhaden fishery management plan in the direction of sustainability.**

Threshold Option 2 brings the FMP for menhaden more closely in line with the Commission's more prudent management plans for other forage fish, like shad and river herring. When the East Coast populations of shad and river herring underwent a noticeable decline in the 1980s and 1990s, the Commission established an  $F_{\text{threshold}}$  of 30% MSP in order to prevent

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<sup>16</sup> ACFCMA, 16 U.S.C. § 1853(a) (emphasis added).

<sup>17</sup> ASMFC, DRAFT ADDENDUM V TO AMENDMENT I TO THE ATLANTIC MENHADEN FISHERY MANAGEMENT PLAN 3 (Aug. 2011) [hereinafter ADDENDUM V].

<sup>18</sup> 2010 STOCK ASSESSMENT REPORT at 91.

<sup>19</sup> *Id.* at 7.

<sup>20</sup> ASMFC, ADDENDUM IV TO AMENDMENT I TO THE ATLANTIC MENHADEN FISHERY MANAGEMENT PLAN 2 (Nov. 2009).

<sup>21</sup> Compact Rules and Regulations, art. VI § 3, as amended Dec. 18, 2003.

overfishing.<sup>22</sup> That is more than double the  $F_{\text{threshold}}$  being proposed here (and more than triple the current  $F_{\text{threshold}}$ ).<sup>23</sup> The Commission clearly sees the need to more prudently manage forage fish in other contexts; we recommend it take a more prudential approach with menhaden as well.

Threshold Option 2 also brings the FMP for menhaden more in line with relevant federal guidelines. The National Marine Fisheries Service recommends that, for forage fish, biomass should be maintained *above* the biomass' maximum sustainable yield ( $B_{\text{MSY}}$ ) for the fish in order to "protect the marine ecosystem."<sup>24</sup> And yet, menhaden have often been regulated such that its biomass is *at or below*  $B_{\text{MSY}}$ .<sup>25</sup>

Target Option 4 moves the menhaden FMP toward the federal and international targets recommended for forage fish. For federally-managed forage fish, the Magnuson-Stevens Act<sup>26</sup> has recommended that no more than 36.8% to 50% of the unfished stock size should comprise the yield, thus leaving 50% or more unfished over the long term.<sup>27</sup> The only internationally-managed forage fish, krill, is managed with a 75% unfished target.<sup>28</sup> This target represents a precautionary approach to the krill fishery, an approach recommended for all fish for which complete data on fishery impact is lacking, like menhaden.<sup>29</sup> This 75% precautionary target is also recommended for low-trophic level species like menhaden by environmental organizations like the Marine Stewardship Council, in order to reduce the impact of their depletion on other species within the ecosystem while maintaining sustainable yields.<sup>30</sup>

In general, the scientific community advocates using the precautionary principle for management of species that are at risk, especially where data is incomplete as to the exact causes of the decline, given the high possibility of error.<sup>31</sup> This approach was endorsed by the United

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<sup>22</sup> ASMFC, AMENDMENT 1 TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR SHAD & RIVER HERRING 32 (April 1999).

<sup>23</sup> More recently, in the face of continuing decline of these forage fish, the ASMFC has adopted FMP amendments that require all states to close their shad and river herring fisheries unless they are able to demonstrate that their fisheries can "support a commercial and/or recreational fishery that will not diminish potential future stock reproduction and recruitment." ASMFC, AMENDMENT 2 TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR SHAD & RIVER HERRING (River Herring Management) 92 (May 2009); *see* AMENDMENT 3 TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR SHAD & RIVER HERRING (Shad Management) (Feb. 2010).

<sup>24</sup> 74 Fed. Reg. 3,208 (Jan. 16, 2009).

<sup>25</sup> *See* ASMFC, AMENDMENT I TO THE ATLANTIC MENHADEN FISHERY MANAGEMENT PLAN iii (July 2001) (setting the  $F_{\text{target}}$  for menhaden at a level that corresponds with  $B_{\text{MSY}}$ , and the  $F_{\text{threshold}}$  at a level that corresponds with approximately 17,000 metric tons less than  $B_{\text{MSY}}$ ); 2010 STOCK ASSESSMENT REPORT at 7.

<sup>26</sup> 16 U.S.C. §§ 1801-1884. The Act no longer provides a specific percentage target, but it has not discounted these previously provided targets. *See* 74 Fed. Reg. 11,3187 (Jan. 16, 2009).

<sup>27</sup> 63 Fed. Reg. 24,219 (May 1, 1998).

<sup>28</sup> Roger P. Hewitt, et al., *Setting a Precautionary Catch Limit for Antarctic Krill*, 15 OCEANOGRAPHY 3, 27 (2002).

<sup>29</sup> *Id.* at 32.

<sup>30</sup> MARINE STEWARDSHIP COUNCIL, ASSESSMENT OF LOW TROPHIC LEVEL (LTL) FISHERIES 2-3 (June 3, 2011).

<sup>31</sup> *See* UN FAO, 4 TECHNICAL GUIDELINES FOR RESPONSIBLE FISHERIES, Suppl. 2 Add. 1 (2008) ("The precautionary approach requires that where there are threats of serious irreversible damage, lack of full scientific

Nations Food & Agriculture Organization (UN FAO) in its Code of Conduct for Responsible Fisheries, which states that “the precautionary approach [should be applied] widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment.”<sup>32</sup> In this vein, several scientists recommend aiming for a target as high as 75% unfished because a high target best improves the chances for a fish to regain biomass, and so represents a strong precautionary measure.<sup>33</sup>

The 40% MSP target presented in Option 4 is still below what may be needed to truly return the menhaden population to health. It is thus the minimum target at which the Commission should aim when it adopts Addendum V. Nevertheless, given the range of alternatives, our Office recommends adoption of Option 4 as the best way to move toward a sustainable menhaden fishery.

Working toward an environmentally sound target of 40% MSP would allow menhaden to return to a healthy abundance, which would in turn allow the menhaden fishery to thrive. With more fish – and with replacement of fish outpacing their removal – there will be the potential for larger commercial, recreational, and bait catches. Thus, while the Commission has suggested that a 45% reduction in fishing (from 2010 levels) would be needed to reach Target Option 4, movement toward this target could be accomplished without significant change to the bait or recreational fishery, and would still leave the reduction fishery with ample tons of menhaden to catch per year, and likely many tons more in subsequent years after the population of menhaden improves.

The Chesapeake Bay ecosystem has already seen this type of success with blue crabs, a species whose spawning practices mirror those of menhaden. Blue crabs were being fished down to very low levels and at risk of collapse as recently as 2008. That year, Maryland, Virginia, and the Potomac River Commission recognized that current practices in the blue crab fishery were unsustainable, and reduced female blue crab catch limits by 34% in the Chesapeake Bay.<sup>34</sup> The once-depleted crab population has since doubled in size,<sup>35</sup> enabling greater commercial blue crab catches,<sup>36</sup> thus demonstrating both the power and the positive economic potential of strong fishery management.

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certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”) (internal quotation and citation omitted).

<sup>32</sup> UN FAO, CODE OF CONDUCT FOR RESPONSIBLE FISHERIES, para. 7.5.1 (1995).

<sup>33</sup> See, e.g., Smith, et al., *Impacts of Fishing Low-Trophic Level Species on Marine Ecosystems*, 333 SCIENCE at 1149 (recommending a target of 75% unexploited biomass for low-trophic level species like menhaden); V.R. Restrepo & J.E. Powers, *Precautionary control rules in US fisheries management: specification and performance*, 56 ICES J. MARINE SCIENCE, 846, 851 (1999); see also V.R. Restrepo et al., *Technical Guidance on the Use of Precautionary Approaches to Implementation National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act*, NOAA Technical Memorandum NMFS-F/SPO-## (July 17, 1998).

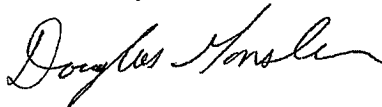
<sup>34</sup> William Goldsborough, *Atlantic Coast menhaden population at lowest point in 54 years*, CHESAPEAKE BAY J. (July/Aug 2010).

<sup>35</sup> *Id.*; see NOAA, *2011 Blue Crab Stock Assessment Released*, Aug. 9, 2011, <http://chesapeakebay.noaa.gov/fisheries-hot-topics/2011-blue-crab-assessment>.

<sup>36</sup> Md. Dep’t of Natural Resources, *New Chesapeake Bay Blue Crab Stock Assessment Shows Rebuilding Efforts Should Continue*, Aug. 9, 2011, [http://www.dnr.state.md.us/fisheries/news/story.asp?story\\_id=179](http://www.dnr.state.md.us/fisheries/news/story.asp?story_id=179).

We commend the Commission for recognizing that the current FMP for menhaden is unsustainable and working to adopt and implement stronger protections for this critically important fish. We hope the Commission, in adopting Amendment V, offers stronger protections both in its setting of fishing mortality thresholds and targets and in its implementing of new management tools. Adoption of Threshold Option 2 and Target Option 4 are important first steps, but further steps need to be taken to ensure adequate protection and the return of menhaden to sustainable levels. We also hope that the Commission continues to seek ways to improve the data available on the menhaden fishery, and the interaction among menhaden and other fish and wildlife in the Chesapeake Bay ecosystem. Only through strong, comprehensive, and continuing Commission management, informed by ecosystem-wide data, can this key natural resource be saved from collapse, and returned to a population level that allows for a fishery that is both robust and sustainable.

Sincerely,

A handwritten signature in cursive script, reading "Douglas F. Gansler".

Douglas F. Gansler  
Attorney General