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Mr. Gary Setzer
Senior Advisor
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1800 Washington Blvd.
Baltimore, Maryland 21230
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Re: Maryland Water Quality Trading Program – Proposed Regulations
New Chapter COMAR 26.08.11

Dear Mr. Setzer:

On behalf of the Clean Chesapeake Coalition ("Coalition"), we respectfully submit the following comments and recommendations regarding the Maryland Water Quality Trading Program regulations proposed by the Maryland Department of the Environment (as published in the December 8, 2017 Maryland Register). We applaud the Hogan Administration and Secretary Grumbles for their leadership and commitment to adaptive management in meeting the 2010 Chesapeake Bay TMDL goals established by the U.S. Environmental Protection Agency (EPA), as evidenced the Water Quality Trading Advisory Committee, the Clean Water Commerce Act of 2017 and now the groundwork regulations for a nutrient trading/offset program in Maryland.

Nutrient trading is indeed a promising strategy for introducing cost-effectiveness and market-driven efficiencies to achieve meaningful nutrient reductions. In establishing its program; however, the State should not shortsightedly limit its focus on maintaining or reducing nutrient loading *into* the watershed at the source. In terms of finding the most cost-effective means of restoring water quality, equal attention must be given to enhancing natural nutrient assimilation processes (i.e., oysters and wetlands). In some cases, it may be cheaper to mitigate the effect of a pound of nutrient than to prevent its release at the source – with both improving water quality.

Since our inception in 2012, the Coalition's objective has been to raise awareness and pursue improvement to the water quality of the Chesapeake Bay in the most prudent and fiscally responsible manner possible – through research, coordination and advocacy.[1] Given that a prudently structured and well-managed nutrient trading/offset program can foster cost-effective water quality improvement activities and investments through market forces, the Administration's initiative is in tune with our collective interests to identify programs, policies and practices that will net measurable and lasting improvements to Bay water quality. A nutrient

[1] The current Coalition counties are Caroline, Carroll, Cecil, Dorchester, Kent and Queen Anne's.

trading program is acknowledgement that expensive "one size fits all" mandates in the name of saving the Bay can be ineffective and wasteful.

As stated in the promulgation of the proposed regulations, the purpose is to establish a trading program that provides greater flexibility and reduces the cost of achieving the 2010 Bay TMDL while being protective of local water quality; and the program is intended "to encourage cost efficiency, engage the private sector, and stimulate a restoration economy." To that end, the proposed regulations are too limiting and overly complex.

The proposed definition of "best management practice" (BMP) means "a practice, or combination of practices, that is determined by the Chesapeake Bay Program[2] to be an effective and practicable method of preventing or reducing pollutants generated by point or nonpoint sources so as the minimize the movement of pollutants into waters of the State or mitigate flooding." Limiting eligible BMPs to only certain practices that prevent or reduce pollution from moving **<u>into</u>** the waters of the State eliminates consideration of and investment in practices that reduce or remove pollution already in the water ("in stream") and thereby improve water quality. As detailed in the report titled "*Saving the Chesapeake Bay TMDL: The Critical Role of Nutrient Offsets*" prepared by the School of Public Policy of the University of Maryland (October 2012), there are circumstances where mitigating the effects of nutrient and sediment pollution already in the Bay and its tributaries will be more cost-effective than pollution reduction/prevention at the source. Oyster restoration and propagation is a prime example of a cost-effective activity of keen interest to Coalition counties that undeniability improves water quality and is beneficial to local economies; and yet under the proposed regulations such "practice" is not an eligible BMP. The regulations should be amended to permit consideration of in water practices that mitigate pollution through nutrient assimilation or otherwise, which would incentivize investments by local governments and the private sector that result in more oysters in the water.

There is no dispute over the ecological value of the oyster - Mother Nature's best filter - to the water quality of the Chesapeake Bay. The health and vitality of the Bay oyster population is essential to cleaning up the Bay. Indeed, in Appendix U of the 2010 Bay TMDL the EPA directed Maryland and Virginia to address filter feeder (i.e., oyster) management in their WIPs and said it would work with the states to establish a strategy for crediting filter feeder benefits. EPA says this in Appendix U (copy attached):

> "Filter feeders [oysters] play an important role in the uptake of nutrients from the Chesapeake Bay and have the potential to significantly improve water quality, if present in large numbers. The current goal for the Chesapeake Bay is to increase the native Eastern oyster, *Crassostrea virginica*, population tenfold. A population increase of that magnitude could remove 10 million pounds of nitrogen annually."[3]

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[2] Hopefully under new leadership in U.S. EPA the process for review and approval of BMPs will be streamlined, as heretofore that process has been cumbersome and unkind to innovation.

[3] Maryland's current TMDL final target for nitrogen reduction by 2025 is 11.8 million pounds.

Per Bay TMDL Appendix U, research shows that 700 to 5,500 pounds of total nitrogen are removed annually per 1,000,000 market-sized oysters harvested from the system. Some estimate the cost of total nitrogen reduction from oyster assimilation at $0-$100 per pound. The efficiency of oysters in filtering water is credible and verifiable.

In their 2012 "*Native Oyster Restoration Master Plan*" for the Bay, the U.S. Army Corps of Engineers estimated that if the oyster density in the Choptank River was increased to 10 oysters per square meter over approximately 5,000 acres, 50% of the summer input of nitrates and 350% of the summer inputs of phosphates entering the Choptank River from stormwater runoff would be removed from the river. There is nothing more cost effective to improve water quality by filtering than a thriving natural oyster bar. At this formative stage of Maryland's nutrient trading program, the ecological value of the oyster, especially in large numbers, should not be overlooked or over-analyzed.

The BMP definition (.03 (B)(9)) should be amended to include in stream practices (i.e., oyster and SAV propagation, wetland restoration) that are proven to improve water quality; and the definition of "pollutant reduction" (.03 (B)(39)) should be amended to allow for the assimilation (uptake) of nutrients and other pollutants attributable to in stream BMPs.

Given the major sources of pollution loading to the Maryland portion of the Chesapeake Bay from upstream states by way of the Susquehanna River, it is shortsighted to limit the potential for interstate trading among Bay watershed states. Maryland's Water Quality Nutrient Trading Policy envisions trading not only between sectors within the State, but also between Maryland and other Bay states. Such a regional framework may be the key to seriously addressing the Conowingo Dam factor, which can no longer be ignored by the drafters/re-calibrators of the Bay TMDL if we want Maryland to achieve its water quality improvement goals. If the ongoing impacts from the operation and maintenance (or lack thereof) of Conowingo Dam and the other power projects in the lower Susquehanna River are not addressed, the downstream efforts and expenditures undertaken by Marylanders will not achieve meaningful and lasting improvement to the upper Bay or overall Bay water quality. At this formative stage of Maryland's nutrient trading program, and with historic decisions pending related to the long-term relicensing of the Conowingo Dam (i.e., Maryland's CWA §401 water quality certification), the opportunity to consider pollution reduction and mitigation investments in the larger Bay watershed context (particularly between Maryland, Pennsylvania and the owner/operator of Conowingo Dam) should not be foreclosed.

Thank you for your attention and consideration these comments.

Sincerely,

Ronnie Fithian

Ronald H. Fithian,
Chairman and Kent County Commissioner

Attachment (Appendix U, 2010 Bay TMDL)

Appendix U.
Accounting for the Benefits of Filter Feeder Restoration Technical Documentation

Strategies for Allocating Filter Feeder Nutrient Assimilation into the Chesapeake Bay TMDL

Prepared for U.S. Environmental Protection Agency
Prepared by Tetra Tech, Inc., 10306 Eaton Place, Suite 340, Fairfax, VA 22030

Introduction

Filter feeders play an important role in the uptake of nutrients from the Chesapeake Bay and have the potential to significantly improve water quality if present in large numbers. The current goal for the Chesapeake Bay is to increase the native Eastern oyster, *Crassostrea virginica*, population tenfold. A population increase of that magnitude could remove 10 million pounds of nitrogen annually (Cerco and Noel 2005). Menhaden fish, *Brevoortia tyrannus,* are another filter feeding organism in the Chesapeake Bay. This paper explores the options for incorporating the effects of filter feeders into the Chesapeake Bay TMDL and implementation plans. As a way of fostering management and restoration of filter feeders, the U.S. Environmental Protection Agency (EPA) intends to investigate future monitored levels of filter feeder populations and incorporate that into EPA's model-based tracking of State progress in achieving the 2-year milestones.

Current Harvest Situation

The Atlantic States Marine Fisheries Commission (ASMFC) reports that the reduction[1] fishery harvested 85,000 metric tons of menhaden from the Chesapeake Bay in 2008 and 21,150 metric tons from bait landings (ASMFC 2009b). The vast majority of the catch is in the Virginia portion of the Chesapeake Bay using the purse seining method. Purse seining has been banned in the Maryland portion of the Chesapeake Bay for decades, where menhaden are primarily harvested via pound nets.

Addendum IV to Amendment 1 to the Atlantic Menhaden Fishery Management Plan (Chesapeake Bay Reduction Harvest Cap Extension) extends the annual harvest cap established under Addendum III at 109,020 metric tons on reduction fishery harvests from the Chesapeake Bay (ASMFC 2009a). That will extend the cap through 2013. The cap was extended to allow further investigation into the abundance of menhaden in the Chesapeake Bay. There is concern that localized depletion of menhaden in the Bay is occurring. Stock assessments are conducted on a coast-wide basis and not on the Bay individually, so the Bay population is unknown.

According to the National Marine Fisheries Service (NMFS) Annual Commercial Landings Statistics (NMFS 2010), 249,485 pounds of eastern oyster were harvested in Maryland in 2008, and in Virginia, 352,678 pounds of eastern oysters were harvested. Current oyster populations are about 1 percent of the historic population. This is because of a number of factors including,

[1] A reduction fishery takes the harvested fish and processes or "reduces" the fish into non-food products, typically to fish meal and oil.

historical overharvesting, disease, loss of habitat, excess sedimentation from deforestation, agricultural practices, urban development, and natural predation (CBP 2009).

Strategies to Increase Filter Feeder Populations in the Chesapeake Bay

Menhaden Nutrient Assimilation

According to Brush et al. (2009), the Chesapeake Bay larval menhaden appear to feed on zooplankton, then transition to phytoplankton as juveniles and return to higher zooplankton consumption rates as adults (age 1+). Given calculated consumption rates for menhaden, based on age, "adults are unlikely to significantly impact phytoplankton biomass and production on a baywide basis" (Brush et al. 2009). Juvenile consumption of algae is estimated to be a few percent of the daily phytoplankton biomass in the summer and fall, and up to 5 percent and 20 percent of daily productivity in the summer and fall, respectively" (Brush et al. 2009). Menhaden might influence water quality on a smaller scale, such as an individual tributary, Bay segment, or menhaden school (Brush et al. 2009). A menhaden simulation is fully operational in the Water Quality and Sediment Transport Model of the Chesapeake Bay, and the model corroborates the findings of Brush et al. (2009). Although the influence of menhaden on water quality is estimated to be less than that of oyster filter feeders, even a small percentage of nutrient assimilation or chlorophyll reduction in the Chesapeake Bay would ease the pressure in meeting 2-year milestones.

Oyster Nutrient Assimilation

Research shows that 700 to 5,500 pounds of total nitrogen are removed annually per 1,000,000 market-sized oysters harvested from the system. That is a wide range of biomass needed for offsets. Assuming the 2:1 reduction requirement under Virginia's trading program, 3.6–28.5 million oysters would be needed to offset 10,000 pounds of total nitrogen (Stephenson 2008).

Stephenson (2009) estimates the cost of total nitrogen reduction from oyster assimilation at $0–$100 per pound. In comparison, agricultural best management practices (BMPs) costs in Virginia range from $4 to $200 per pound and urban stormwater BMPs can be $25 to more than $1,000 per pound or more (Stephenson 2009).

Oyster Restoration and Preservation

Sanctuaries are already part of the planning process in the Virginia Oyster Restoration Plan and Maryland Priority Restoration Areas. Sanctuary areas could provide spawning areas to increase the population of wild oysters.

The *2009 Maryland Oyster Restoration and Aquaculture Development Plan* would increase sanctuary areas from 9 percent to 24 percent of the remaining quality habitat (36,000 acres) in certain locations: Magothy River, Chester River, the area between Patapsco and Back Rivers, Upper St. Mary's River, Point Lookout, Little Choptank River, Upper Patuxent River, and the area between Hooper Strait and Smith Island.

The *Maryland Oyster Restoration and Aquaculture Development Plan* also outlines 600,000 acres newly available for bottom leasing, including 95,524 acres of formerly off-limits natural oyster bars, and develops Aquaculture Enterprise Zones, which are areas preapproved for leasing (MDNR 2009).

Challenges to Increasing Oyster Populations

A limited amount of bottom is suitable and available as oyster habitat. The *Oyster Management Plan* (CBP 2004) suggests that there are 10,000 to 20,000 acres of restorable habitat in Maryland and about 28,500 acres in Virginia. Even within suitable habitat areas, disease mortality and reduced fecundity are major inhibitors to population expansion.

There is a need to provide greater incentives for aquaculture of native oysters. Oyster aquaculture is limited by the supply of disease-resistant seed oysters. Expansion of aquaculture investment is not likely until more seed is available, which is limited by cost-effective market production from seed (CBP 2004).

Accounting for Filter Feeders in the TMDL

EPA has based the filter feeder component of the TMDL on the current population of filter feeders. Potential future population changes are not accounted for in the TMDL itself. Restoration efforts have been underway for years to increase filter feeder populations with minimal observed population change. The combined factors of disease, lack of suitable substrate and excess nutrients fuel the growth of algae blooms that deplete oxygen in deeper waters and can hinder the development of oysters. Until some of the stressors on the oyster population are alleviated it is not practical to heavily rely on filter feeders to address the water quality issues in the Chesapeake Bay. If future monitoring data indicate changes in the filter feeder population, the 2-year milestone delivered load reductions can be adjusted accordingly. The adjusted loads will be compared to the 2-year milestone commitments to ensure each state is meeting its obligations.

Crediting Filter Feeder Benefits

During the 2-year milestone evaluation of filter feed populations, credits or debits for changes in populations and associated nutrient assimilation can be assigned in one of two ways that EPA is considering.

Under Option A, only the state responsible for the filter feeder changes would obtain a credit/debit towards reaching its 2-year milestones. It would be possible for any state or the District of Columbia to receive credit toward increasing filter feeder populations. Maryland and Virginia can implement their programs directly. Nontidal states and the District of Columbia could provide support to Maryland and Virginia programs to increase filter feeder populations. Maryland and Virginia would have to ensure that any projects funded by other jurisdictions are in addition to activities planned by Maryland or Virginia or both. To eliminate double counting, each project credit must be properly assigned to the jurisdiction paying for the project.

Under Option B, any nutrient credit/debit associated with a change in filter feeder populations would be distributed proportionally across all the states and the District of Columbia, regardless of the jurisdiction responsible for funding or implementing the project.

Under both options, the changes in filter feeder populations would be based on monitoring data. To accurately assign credits to the appropriate jurisdiction and ensure milestones are reached, restoration activities and population increases must be tracked and verified. Regardless of the crediting option chosen, Maryland and Virginia should address filter feeder management in their watershed implementation plans. EPA and the jurisdictions will work together to establish a future strategy for crediting filter feeder benefits.

Other Issues of Concern

While increasing filter feeder populations can provide nutrient assimilation to mitigate the effects of excess nutrients, it is not a method of pollutant source reduction. Because nutrient assimilation can be considered an in-stream treatment technology by some regulators, there is some concern that it might be used in lieu of advanced wastewater treatment technologies (Stephenson 2009). Additionally, filter feeders reduce the pollutant downstream and pollutants are not reduced at or near the source. Reliance on filter feeders to reduce nitrogen downstream could create a problem with meeting local water quality standards in the upstream jurisdictions. Further consideration should be given to address these issues.

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