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BEFORE THE
SUBCOMMITTEE ON CONSERVATION, ENERGY AND FORESTRY
COMMITTEE ON AGRICULTURE
UNITED STATES HOUSE OF REPRESENTATIVES

March 16, 2011

Good morning Chairman Thompson, Ranking Member Holden, and Members of the Subcommittee. Thank you for the opportunity to talk to you today about the Chesapeake Bay Total Maximum Daily Load (TMDL) and the important role that the agricultural community plays in protecting water quality throughout the Chesapeake Bay watershed.

I share the sentiments provided by Administrator Jackson in her testimony before the full committee last week. Administrator Jackson and I recognize the invaluable contributions farmers make to our economy, the critical work that farmers are doing to protect our soil, air, and water resources, and the challenging economic difficulties the agriculture community faces.

Today, I will provide you with an overview of the health of the Chesapeake Bay and describe the Total Maximum Daily Load (TMDL) for the Bay watershed, issued by EPA on December 29, 2010 to protect and restore the Bay highlighting the collaboration and science which informed its development. I will also discuss the innovative agricultural practices which the States included in their restoration plans for the Bay and its tributaries. And finally, I will provide an update on the implementation of the Strategy in response to the President's Executive Order on the Chesapeake Bay.

The Chesapeake Bay Watershed

The Chesapeake Bay watershed encompasses 64,000 square miles, parts of six States and the District of Columbia. Nearly 17 million people live in the watershed. Runoff from the Bay's enormous watershed flows into an estuary with a surface area of 4,500 square miles resulting in a land-to water ration of 14 to 1—the largest ratio of any major estuary in the world. That large ratio is one of the key factors in explaining why the drainage area has such a significant influence on the water quality in the Bay. The actions we take on the land have a significant impact on the health of our rivers, streams, and the Bay.

The Chesapeake Bay is the largest estuary in North America and is ecologically, economically and culturally critical to the region and the country. It is home to more than 3,600 species of fish, plants and animals. For more than 300 years, the Bay and its tributaries have sustained the region's economy and defined its traditions and culture. The economic value of the Bay is estimated at more than $1 trillion[1] and two of the five largest Atlantic ports (Baltimore and Norfolk) are located in the Bay.

Approximately 84,000 farms are located in the Chesapeake Bay watershed and form a vital part of the watershed's economy and way of life.[2] EPA believes that maintaining the viability of agriculture is essential to sustaining ecosystems in the Bay. Environmentally sound farming is a preferred land use in the Region and EPA is committed to working together with the United States Department of Agriculture (USDA) and the Bay states to help farmers produce abundant

[1] *Saving a National Treasure: Financing the Cleanup of the Chesapeake Bay*, A Report to the Chesapeake Bay Executive Council, Chesapeake Bay Blue Ribbon Finance Panel, October 27, 2004

[2] 2007 Census of Agriculture reported 83,775 farms in the Chesapeake Bay region.

and affordable foods while managing nutrients and soils in a manner that helps to protect and restore the Bay's water quality and the values and benefits that derive from clean water and a healthy, vibrant ecosystem.

The Health of the Bay

Each year, the Chesapeake Bay Program issues a health and restoration assessment of the Chesapeake Bay and watershed, known as the "Bay Barometer." The 2009 Bay Barometer affirmed that "despite the impressive restoration work done by the array of partners, the health of the Bay and watershed remains severely degraded." The data included in the report are sobering. Virtually all of the 13 measures which comprise Bay health showed conditions that fall short of restoration goals.[3]

Despite some significant progress in reducing pollution level over the past several decades, the Bay and many of its tributaries remain in poor health, failing to meet water quality standards. Populations of key species such as oysters are extremely low, and habitats such as underwater grass beds and wetlands are degraded.[4] The problems facing this unique watershed stem from human activity that has transformed the natural landscape, the impacts of which have accelerated due to rapid growth and development. The physical and scientific challenges facing the Bay are wide ranging: population growth, increased development, warmer temperatures, increased nutrients, loss of underwater grasses, and large dead zones devoid of oxygen.

[3] http://www.chesapeakebay.net/content/publications/cbp_50513.pdf
[4] Ibid

The main sources of nutrient and sediment pollution to the Chesapeake Bay and its tributaries are urban and suburban discharges and runoff, agriculture, wastewater, and atmospheric deposition. The agricultural sector has done much to reduce nutrient and sediment loadings in the Bay watershed. Both nitrogen and phosphorus loadings from agriculture have declined since 1985; however, significant additional reductions from agriculture and all sectors are needed to meet water quality standards.

Efforts to restore the Chesapeake Bay and its watershed have been underway for over 25 years. The Chesapeake Bay was the nation's first estuary targeted by Congress for restoration and protection. In the late 1970s, Congress funded a five year study, to analyze the rapid loss of aquatic life in the Bay.[5] The report identified excessive nutrients (excess nitrogen and phosphorus pollution) as a main source of the Bay's degradation. The publication of these initial research findings in the early 1980s led to the creation of the Chesapeake Bay Program (CBP) as the means to help restore this exceptionally valuable waterbody.

Since it was established, the CBP has had a long history of partnership, science and action to protect and restore the Bay watershed. The CBP brings together the intellectual and financial resources of various state, federal, academic and local watershed organizations to build and adopt policies that support a unified plan for Chesapeake Bay watershed restoration.

Over the past three decades, CBP partners have signed several agreements and directives that unite them in efforts to reduce pollutant loadings into the Bay and restore its living resources. In 2000, the partners signed Chesapeake 2000 (C2K).[6] This comprehensive, ecosystem-based approach set the course for the Bay's restoration and protection for the next

[5] http://www.chesapeakebay.net/historyofcbp.aspx?menuitem=14904
[6] http://archive.chesapeakebay.net/info/c2k.cfm

decade and beyond. When the partners signed C2K, they recognized that they would be required to develop a TMDL if the actions identified in the agreement were not successful in achieving water quality standards in the mainstem and tidal portions of the Bay.[7] While the partners made some important progress to reduce nutrient pollution from agriculture and wastewater treatment plants, it was not enough. In October 2007, when it became apparent that water quality standards would not be met, the Chesapeake Bay Program's Principals' Staff Committee (PSC), a group of state secretary-level representatives, requested that EPA establish the multi-state TMDL.[8]

Additional commitments also led to the decision to develop a TMDL for the Chesapeake watershed including a number of consent decrees and memorandums of understanding.[9] In addition, the Bay TMDL was included as a keystone commitment in the strategy developed by 11 federal agencies, including USDA, to restore and protect the Chesapeake Bay and its watershed—as directed in President Obama's Executive Order 13508, issued on May 12, 2009.[10]

TMDL Development

On December 29, 2010, EPA issued the final Chesapeake Bay TMDL establishing the maximum amount of pollution the estuary can receive and still meet water quality standards. Specifically, the Bay TMDL identifies the reductions of nitrogen, phosphorus and sediment from

[7] Chesapeake 2000 agreement page 5: http://www.chesapeakebay.net/content/publications/cbp_12081.pdf
[8] See PSC meeting minutes for October 1, 2007: http://archive.chesapeakebay.net/pubs/calendar/PSC_10-01-07_Minutes_1_9029.pdf
[9] For a detailed description of EPA's legal authority to issue the Bay TMDL including commitments made, see the Final Chesapeake TMDL section 1.4.2 on page 1-16 as well as Appendix W Part 1 starting on page 264 at: http://epa.gov/chesapeakebaytmdl/
[10] The Executive Order and Strategy are available at: http://executiveorder.chesapeakebay.net

point[11] and nonpoint sources[12] in Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia necessary to meet the Bay's water quality standards. It is by far the most comprehensive roadmap to water quality restoration for the Chesapeake Bay.

The Clean Water Act requires states, including the District of Columbia, to establish lists of impaired waters that fail to meet water quality standards and to establish TMDLs for listed water bodies. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet applicable water quality standards. Typically, it includes waste load allocations for point sources and load allocations for nonpoint sources and natural background. The 9th Circuit Court described TMDLs as "primarily informational tools" that "serve as a link in an implementation chain that includes federally regulated point source controls, state or local plans for point and nonpoint source pollutant reduction, and assessment of the impact of such measures on water quality, all to the end of attaining water quality goals for the nation's waters." [13] EPA and the Bay states have extensive experience in developing TMDLs and there are currently more than 12,000 TMDLs established within EPA Region III (Mid-Atlantic) alone.

The establishment of the Chesapeake Bay TMDL began in earnest when, on September 11, 2008, EPA sent official letters to the states detailing a plan for the TMDL, including: criteria for establishing nitrogen, phosphorus and sediment allocations; schedules for establishing the TMDL and pollution reduction plans; EPA's expectations and evaluation criteria for state plans to meet the TMDL pollution limits; EPA's expectations for demonstrating reasonable assurance

[11] Point sources are discrete sources such as wastewater treatment plants and industrial facilities that are regulated under the Clean Water Act

[12] Nonpoint sources are diffuse sources such as runoff from land and atmospheric deposition not regulated under the Clean Water Act. Most agriculture is defined as a nonpoint source. The exception is Concentrated Animal Feeding Operations which are included in the definition of point source in Section 502(14) of the Clean Water Act.

[13] *Prosolino v. Nastri*, 291 F .3d 1123, 1129 (9th Cir. 2002)

for controlling nonpoint source pollution; and contingency actions that EPA could take to ensure progress.[14]

Watershed Implementation Plans

Integral to the Bay TMDL are the state's Watershed Implementation Plans (WIPs) or road maps for how and when the seven Bay states, in partnership with federal and local governments, will achieve and maintain pollutant allocations (reductions) under the TMDL. EPA worked closely with the states to ensure that each WIP achieved the basin-state pollution allocations and provided reasonable assurance that nonpoint source reductions will be achieved and maintained. The states were in the lead for developing the WIPs and a significant amount of flexibility was afforded to the states. WIPs must include enough detail to create a high degree of accountability for reducing water pollution, including assurance that point source permits will be issued consistent with the TMDL pollution allocations.

EPA released a draft Chesapeake Bay TMDL on September 24, 2010 and began a 45-day public comment period that concluded on November 8, 2010. After issuing the draft TMDL, EPA continued to work closely with each state holding weekly discussions to assist them in revising and strengthening their plans.

In developing the TMDL, our plan was always to have allocations based on states' strategies (i.e. WIPs) and to provide the states with flexibility to let them lead the way in determining how to reduce pollution and from what sectors. The final TMDL is a product of close EPA-state collaboration and is largely based on the allocations and actions included in each of the state's final Phase I WIPs.

[14] Chesapeake Bay TMDL letters to states are available at:
http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/ResourceLibrary.html#keydocs

Outreach

Throughout the two-year development of the final TMDL, EPA conducted an extensive outreach campaign throughout the watershed. Outreach to the agriculture community was particularly focused and occurred throughout the region. EPA staff met with representatives of the American Farm Bureau Federation (national and state level), agribusiness organizations, as well as state agricultural agencies and conservation districts.

In 2011, EPA will work with the Bay states on Phase II WIP development. Phase II WIPs will include additional detail to facilitate implementation of nutrient and sediment controls at the local level. The Phase I and Phase II WIPs will inform the 2-year milestones established by the TMDL.

Economic Benefits and Financial Assistance

The implementation of the TMDL is designed to be as flexible as possible. EPA allowed and encouraged states to develop a Watershed Implementation Plan that meets the TMDL allocations in the best way for any given State.

It is important to recognize that there are economic benefits to improving local and Bay water quality and that the agricultural practices that states are committing to implement can be very good for the producer's bottom line. For example, many farmers implement continuous no-till systems without seeking federal or state cost share funding because it reduces fuel and labor costs from not having to till cropland, and long-term, it can improve soil quality. Also, excluding livestock from streams is another example of a conservation practice that is economically beneficial to the dairy farmer from the standpoint of reducing the costs associated with waterborne illnesses, mastitis, and foot rot.

An economic analysis conducted by the University of Virginia this year found that implementation of the agricultural practices to reduce runoff pollution called for in Virginia's Chesapeake Bay "tributary strategy," such as livestock stream exclusion, buffers, and cover crops, would generate significant economic benefits. For example, the report found that every public dollar spent on implementing the practices will produce $1.56 in new economic activity. Further, the practices would generate nearly 12,000 new jobs over the course of the cleanup effort.[15]

The Fiscal Year 2012 President's Budget includes $25.3 million for programmatic and implementation grants to states and $10.0 million for innovative and small watershed grants available to states, local governments, and other organizations. All told, about $40 million of the $67 million request, or about 60 percent, will be available to state and local entities. These grants can be used to help producers implement key conservation practices that are not only good for the Bay, but also for producers' economic bottom-line.

Chesapeake Bay Program Watershed Model

The Chesapeake Bay Program (CBP) Watershed Model (hereinafter CBP Model) was integral to developing the Bay TMDL. The CBP Model, a product of the Bay Partnership (not EPA), is actually a suite of models developed specifically for the scale of the Chesapeake Bay watershed and its 92 major waterbody segments. The CBP Model is a critical tool that will help

[15] *Economic Impacts of Implementing Agricultural Best Management Practices to Achieve Goals outline in Virginia's Tributary Strategy*, Center for Economic and Policy Studies, Weldon Cooper Center for Public Service, University of Virginia, February 23, 2010

inform the allocation of pollution reductions among states and sources of pollution, and help decision makers make informed management decisions.

The CBP Model is well established and an effective means for assessing environmental impacts over larger landscapes and watersheds. As a sophisticated analytical tool, the CBP Model helps advance our ability to understand the effectiveness of actions on the land in reducing nutrient and sediment loads to the Chesapeake Bay watershed.

The suite of models used for the TMDL are among the most sophisticated, studied and respected in the world, and represent the cutting edge of estuary restoration science.[16] The models provide a comprehensive view of the Chesapeake ecosystem, from the depths of the Bay to the upper reaches of the watershed, and from the development occurring on land to the air over the region. The CBP Model has gone through numerous peer reviews by modeling experts and has been widely endorsed as a useful TMDL model—most recently by the Chesapeake Research Consortium (CRC), the CBP Scientific and Technical Advisory Committee, the Virginia Institute of Marine Science, the University of Maryland and others.[17] In a November 8, 2010 memorandum, the CRC stated, "the substantial majority of knowledgeable environmental scientists in the region agree with the premise that the modeling framework used to develop the Draft TMDL represents the best current incorporation of available science with which to set and allocate maximum loads within the watershed."[18]

Over the past 20 years, the CBP Model has improved significantly in precision, scope, complexity and accuracy. For example, the current CBP Model is calibrated to monitoring

[16] http://www.chesapeakebay.net/committee_msc_projects.aspx?menuitem=16525#peer
[17] Ibid.
[18] http://cbf.typepad.com/files/scientistletter-2.pdf

stations in the region, with the number of linked stations expanded from 20 in the previous version to nearly 300 in the current version. The segments in the model have grown from 94 to 2,157, providing information at the watershed, county and conservation district level. The types of land uses that can feed into the model were increased from 9 to 25. By working with partners and stakeholders, the CBP continues to improve the quality of the data for land use, agricultural practices, precipitation, wastewater, urban and suburban runoff and air pollution.

The CBP Model suites have been developed and utilized through collaboration with federal, state, academic and private partners. This includes extensive input from agricultural agencies and organizations including state agricultural agencies, and agricultural organizations on the CBP Agriculture Workgroup. Use and development of the models is fully transparent and open. All decisions and refinements to the model are made at public meetings of the Chesapeake Bay Program. The CBP Model suites undergo extensive independent scientific peer review by a wide spectrum of federal, state and academic scientists, as well as modeling experts. Bay watershed states use the CBP Model to determine the appropriate mix of nutrient and sediment reduction practices that will achieve their allocations from a suite of management practices such as wastewater treatment plant upgrades, urban stormwater controls, and implementation of various agricultural conservation practices.

Crediting the Agricultural Community in the Model

EPA recognizes the agriculture community has done much to reduce pollution in the watershed over the last few decades. Since 1985, much of the reduction has been achieved through implementation of nutrient management and conservation practices, and changes in

land use. Continued implementation of conservation practices and development of new conservation strategies are crucial to restoration of the Chesapeake Bay.

While agricultural lands make up about 22% of the total watershed area, current model estimates show that agricultural lands are responsible for about 45% of the total N loadings, 44% of the total P loadings and 65% of the total sediment loadings entering the tidal Chesapeake Bay.[19]

The CBP Model currently credits more than 40 agricultural practices. These include such practices as: enhanced nutrient management, continuous no-till, conservation tillage, livestock exclusion from streams, cover crops, forest buffers, poultry phytase, and more. I applaud these and the many other efforts currently being implemented by the Agricultural community.

As States work to further reduce nutrients and sediment from agricultural operations, they have committed to implement new and innovative technologies for achieving the load reduction goals. EPA continues to work with the states to add these additional "new" practices for credit in the Model. Two examples of these are more advanced nutrient management technologies and technologies for using excess manure nutrients for uses such as energy production.

EPA and USDA Models

Both USDA and EPA use models to help describe the effectiveness of actions on the land and to inform decision making.

[19] 2009 data from CBP Watershed Model Phase 5.3.0

While the Chesapeake Bay Program Partnership's Bay Watershed Model (CBP Model) and USDA's Conservation Effects Assessment Project (CEAP) have both been extensively peer-reviewed and represent state-of-the-art modeling approaches, they were developed for different purposes.

CEAP was built to give an estimate, at a large basin scale, of the effectiveness of conservation activities on the landscape and their impact on nutrient loads to the Chesapeake Bay.

The CBP Model was designed to account for all nutrient and sediment loading sources to the Chesapeake Bay in the context of the Bay TMDL and focus specifically on describing how actions on the land from all sources affect nutrient loadings to the Bay and the associated Bay water quality.

Although these and other technical differences exist in the models, they both show that the agricultural sector has done much to reduce nutrient and sediment loadings in the Bay watershed, and also that there is more to do.

Now that the CEAP report is completed, USDA and EPA will work together to further understand and coordinate the different approaches used in the two modeling efforts and to continue improving the data available for use by both models.

Executive Order

USDA and EPA have a long history of collaborating on the Chesapeake Bay restoration to ensure both a healthy Bay and viable agriculture in the Chesapeake Bay watershed.

Both agencies agree that maintaining the viability of agriculture is an essential component to sustaining ecosystems in the Bay. Both acknowledge the enormous contribution that farmers are making to improve Bay water quality. And, both are committed to strong partnerships and collaboration with states and local governments, urban, suburban and rural communities, and the private sector to achieve environmental objectives for the Bay.

For example, senior officials from USDA and EPA met with the state agricultural and environmental secretaries several months ago to discuss a framework to provide certainty to farmers who implement practices that protect water quality in the Chesapeake Bay. Following that meeting, in December 2010, USDA Deputy Secretary Kathleen Merrigan and I sent letters to each of the State Agriculture and Environmental Secretaries asking them to confirm their interest in pursuing a certainty program. It is our hope that we have developed a constructive framework that states can use in providing to producers incentives and recognition that accelerate the adoption of conservation practices and advance the objectives of the state Watershed Implementation Plans. We are continuing to follow up with interested states to advance this concept.

USDA and EPA have committed to look for opportunities to leverage and better align our collective federal resources to support the states in implementing the commitments outlined in their TMDL Watershed Implementation Plans. One example of funding coordination is the 2010 effort to align our agencies' innovation grants programs to support key priorities for addressing some of the biggest water quality challenges facing agriculture. This resulted in $5.5 million being targeted towards innovative agricultural projects in the Bay watershed last year. Let me describe two examples:

Reducing Ammonia Emissions and Runoff from Broiler Litter

EPA is spending $700,000 to fund demonstrations of technologies to reduce ammonia emissions and runoff from poultry litter such as (1) ammonia scrubbers which are attached to exhaust fans on poultry houses, (2) addition of alum to poultry litter inside poultry houses, and (3) using a litter incorporator to make litter applications. The project team, including personnel from Virginia Tech, Virginia Cooperative Extension, Virginia Department of Conservation and Recreation, USDA/NRCS, Soil and Water Conservation Districts, the University of Maryland – Eastern Shore and USDA/ARS, will work with local growers to demonstrate the effects of these technologies on ammonia losses to the atmosphere, phosphorus runoff and crop growth on two farms in the Shenandoah Valley and two farms on the Eastern Shore of Virginia.

Conewago Creek Watershed in Pennsylvania

As part of the Executive Order described below, EPA is aligning its resources with the USDA Farm Bill funding in priority watersheds to accelerate cost-effective nutrient and sediment reductions from agricultural areas. EPA has provided $800,000 in the USDA's "showcase watershed" to support a diverse partnership of Federal, state and local government agencies, academics, watershed groups, farmers and businesses in comprehensively restoring the Conewago Creek watershed. The collaborative partnership has set goals that include:

- 100% of agricultural producers have current and implemented nutrient management plans;
- 100% of homeowners have identified and implemented on-site opportunities for improving stormwater retention and infiltration, septic system management, water conservation, riparian buffers, and protection of private drinking water systems;
- riparian forest buffers are established for all non-buffered areas of the stream;

- the TMDL for phosphorus and sediment is met.

The partnership will monitor early signals of changes in stream quality, and has committed to transfer this process to other watersheds.

Continued EPA/USDA collaboration will be critical to continue to refine modeling tools, improve agricultural conservation tracking and verification, and accelerate agricultural nutrient and sediment reductions necessary to meet the Bay TMDL.

Implementing the *Strategy for Protecting and Restoring the Chesapeake Bay Watershed,* is another area of strong collaboration between USDA and EPA. On May 12, 2009, President Obama issued Executive Order 13508 on Chesapeake Bay Protection and Restoration. The *Strategy* developed in response to the Executive Order ushered in a new era of shared federal leadership, action and accountability. This comprehensive and highly coordinated ecosystem-based strategy deepens the federal commitment to improve our results in protecting and restoring the Chesapeake Bay and its watershed.

The strategy includes a number of actions and initiatives related to farming and agriculture. For example, EPA will collaborate with USDA, other federal agencies, state governments and conservation districts to identify watersheds with the highest nitrogen, phosphorus and sediment delivery to the Bay and its tributaries. In addition, EPA and USDA committed to develop and implement mechanisms for tracking and reporting voluntary, non-cost share practices installed on agricultural lands. And, EPA will coordinate funding opportunities with USDA to accelerate nitrogen, phosphorus and sediment reductions in priority watersheds and tackle key agriculture challenges. To increase accountability, the

agencies will establish milestones every two years to ensure progress toward measurable environmental goals.

In order to provide additional transparency and accountability to the work identified in the *Strategy* and specifically, the Bay TMDL, EPA has developed a system to track and verify progress in meeting cleanup commitments. At this early stage, the Chesapeake Bay TMDL Tracking and Accounting System (BayTAS) displays geographically the 2009 baseline levels of nitrogen, phosphorus and sediment pollution and the allocations of pollutant reductions called for in the final Bay TMDL—specifically, allocations by state, by water body segment and by source sector.[20] State specific data reflecting progress, measured against the 2009 figures, will be added to the system on an ongoing basis, starting in 2011.

A tenet of the Executive Order is Federal leadership, action and accountability. In developing the *Strategy,* EPA stated its belief that "maintaining the viability of agriculture is an essential component to sustaining ecosystems in the Bay. A goal of the Strategy is to work with producers to apply new conservation practices on four million acres of agricultural working lands in high priority watersheds by 2025 to improve water quality in the Chesapeake Bay and its tributaries. Environmentally sound farming is a preferred land use in the region and we are committed to strong partnerships and collaboration with states and local governments, urban, suburban and rural communities, and the private sector to achieve environmental objectives for the Bay."[21]

[20] http://stat.chesapeakebay.net/BayTAS

[21] *The Next Generation of Tools and Actions to Restore Water Quality in the Chesapeake Bay: A Revised Report Fulfilling Section 202a of Executive Order 13508*, November 24, 2009, U.S. Environmental Protection Agency

CLOSING

In closing, I commend the conservation practices developed and implemented by the agriculture community. The efforts have improved the health of local streams, rivers and the Bay. Federal agencies and the states are relying on the efforts of the agricultural industry in both the restoration efforts identified in the Executive Order strategy and in the implementation of the states' restoration plans which are the basis for the Bay TMDL.

I appreciate the opportunity to meet with you today, I look forward to continuing our work with you and I am pleased to answer any questions you might have.