CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

Pennsylvania's Chesapeake Bay Restoration Strategy

Joint Hearing of the Pennsylvania Senate Agriculture and Rural Affairs Committee and Senate Environmental Resources and Energy Committee

Comments of Harry Campbell,
Pennsylvania Executive Director, Chesapeake Bay Foundation
to the House Democratic Policy Committee
October 18, 2016

Chairman Vogel, Chairman Yaw, Senator Schwank, Senator Yudichak, and other distinguished members of the Senate Agriculture and Rural Affairs and Senate Environmental Resources and Energy committees, my name is Harry Campbell and I am the Executive Director of the Pennsylvania Office of the Chesapeake Bay Foundation ("CBF"). I would like to thank you for the opportunity to discuss the important and challenging topic of Pennsylvania's efforts to meet its commitments under the Chesapeake Bay Total Maximum Daily Load and Watershed Implementation Plans ("Clean Water Blueprint"). My comments today center on a core concern for CBF—implementation of the Blueprint.

With the support of over 200,000 members, CBF is the largest non-profit organization dedicated to the protection and restoration of the Chesapeake Bay, its tributaries, and its resources. Since 1986, CBF's Pennsylvania office has worked with government officials, local decision-makers, farmers, landowners, and others to implement projects, policies, and programs that address pollution in our rivers, streams, and ultimately the Bay.

Over the last 19 years, CBF has directly invested more than $25 million in helping over 5,000 Pennsylvania landowners, primarily farmers, to implement cost-effective conservation measures—most importantly streamside forested buffers. CBF funds have leveraged well over $100 million in additional public and private resources and modeled innovative and cost-effective conservation strategies. This past year CBF's Pennsylvania Restoration Program won four awards, including the Governor's Award for Environmental Excellence and the national Arbor Day Foundation's Good Steward Award.

Today, the Committees seek to gather information on Pennsylvania's efforts on the Blueprint and the Chesapeake Bay Restoration Strategy which was released in January of this year. While attempting to summarize the status of these efforts from CBF's perspective, I would like to briefly address any potential funding sources which would help jumpstart the Commonwealth's efforts to not only to achieve Chesapeake Bay requirements, but also reduce pollution in Pennsylvania's rivers and streams.

The value of clean water

To begin, it's important to note the importance water has in Pennsylvania. Simply stated, clean water counts. Healthy families, strong communities, and a thriving Pennsylvania economy depend on it. For instance, according to The Pennsylvania State University, nearly 60 percent of

Pennsylvanians get their drinking water from surface water sources; specifically, 43,000 miles of streams, 2,300 reservoirs and 76 natural lakes.[1]

Clean and abundant water is also integral to supporting Pennsylvania's largest industry—agriculture. In addition to irrigation of the wide variety of crops grown by the state's farmers, each day every dairy cow requires an average of 35 gallons of water, 20 gallons for each steer, 12 gallons per horse, and 9 gallons per chicken, and 1.5 gallons for each swine.[2] In total, farms use approximately 120 million gallons a day in the Susquehanna River watershed alone.[3]

And Pennsylvania's recreational fishing economy is supported by over 1.1 million anglers, provides over $416 million in sales, nearly $243 million in salaries and wages, and almost $50 million in state and local tax revenue.[4]

With roughly 86,000 miles of identified rivers and streams, Pennsylvania is a water rich state. Unfortunately, according to scientific assessments by the Pennsylvania Department of Environmental Protection ("DEP") roughly 19,000 miles of rivers and streams do not meet water quality criteria in Pennsylvania.[5] These waters are on the Commonwealth's list of "impaired" waters much like the Chesapeake Bay and most require cleanup plans like the Bay. The leading sources of stream impairment are identified as agriculture (6,798 miles), acid mine drainage (5,607 miles), and urban and suburban stormwater runoff (4,729 miles). Sediment-laden runoff and erosion is cited by DEP as the leading cause of stream pollution in the Commonwealth. It causes impairment of over 9,600 miles of streams.

Roughly half of Pennsylvania drains to the Chesapeake Bay through the Susquehanna and Potomac River Basins as well as the Gunpowder, Elk and, Northeast watersheds. Pennsylvania makes up over one-third of the entire 64,000 square mile Chesapeake Bay watershed, more than any other state. Over 50 percent of the freshwater entering the Chesapeake Bay is from the Susquehanna River.

Water quality is improving, but Pennsylvania must accelerate efforts

Since Pennsylvania joined the efforts to "Save the Bay" in the mid-1980s, notable progress has been made. According to the United States Environmental Protection Agency's (EPA) Chesapeake Bay Program ("CBP"), Pennsylvania has reduced nutrient and sediment pollution by roughly 11.3 million pounds of nitrogen, 1.7 million pounds of phosphorus, and 540 million tons of sediment.[6]

More importantly, according to the United States Geological Survey ("USGS"), 17 of 23 water quality monitoring stations in the Susquehanna River watershed demonstrated statistically significant

---

[1] Pennsylvania State University. Pennsylvania Impact: Cleaner Water for Pennsylvania. Website: http://paimpact.cas.psu.edu/agr9973.html

[2] Pennsylvania State University. Agricultural Water Needs and Sources Water Supply. Website: http://extension.psu.edu/natural-resources/water/conservation/consumption-and-usage/agricultural-water-needs-and-sources-water-supply

[3] Pennsylvania Department of Conservation and Natural Resources. Susquehanna River Basin Facts. Website: http://dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20031260.pdf

[4] American Sportfishing Association. 2013. Sportfishing in America. Website: http://asafishing.org/uploads/2011_ASASportfishing_in_America_Report_January_2013.pdf

[5] Pennsylvania Department of Environmental Protection. 2016 Draft Integrated Water Quality Monitoring and Assessment Report. Website: http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-13014

[6] USEPA Chesapeake Bay Program. CBP Model 5.3.2 output from 2015 implementation.

decreasing trends in nitrogen pollution loads between 2005 and 2012. During that same time period 19 monitoring stations saw trends in phosphorus pollution loads reduction.[7]

And progress is being seen the Chesapeake Bay. Recent field surveys have found submerged aquatic vegetation—a key factor in protective habitat for young crabs and fish and a natural reoxygenator of water— in the Bay to be at levels not seen by scientists in decades[8], dissolved oxygen levels are at their second highest level in three decades[9], and in 2015 water clarity is fourth best seen since 1985.[10]

Yet, although decades of investments by Pennsylvania in clean water are producing real and measurable returns, the Commonwealth remains significantly behind in meeting its Clean Water Blueprint and progress in restoring the Chesapeake Bay remains tenuous.

In fact, recent assessments by the CBP[11] have indicated that the Commonwealth is notably behind on implementing its commitments under the Clean Water Blueprint for agricultural and urban and suburban polluted runoff and is at "Backstop Action Level" for both source sectors.

Furthermore, of the current 2017 nitrogen pollution reduction shortfall of 22 million pounds, Pennsylvania's share of that shortfall is roughly 19 million pounds, or 86 percent. Of that underperformance, agriculture represents roughly 16.3 million pounds.[12]

So while notable progress has been made and investments in reducing pollution entering into the Chesapeake Bay are having real and measurable returns, in order to solidify the gains made, Pennsylvania must jumpstart its Clean Water Blueprint efforts.

With intention of refocusing Chesapeake Bay efforts in the Commonwealth due to longstanding concerns by the CBP and others, in January 2016 DEP released the Chesapeake Bay Restoration Strategy, or the "Reboot Strategy."

The main focus of the Reboot Strategy, in our opinion, is to stimulate meaningful efforts to assure agricultural producers are meeting basic, long-standing, clean water statutes under Pennsylvania's Clean Streams Law, specifically Chapter 102 (Erosion & Sedimentation) and Chapter 91 (includes Manure Management). There are 33,600 farms in the Pennsylvania portion of the Chesapeake Bay watershed. According to DEP, they inspected less than two percent of farms in 2014. Unfortunately, a series of watershed-specific inspections by DEP and EPA found that on average only about 30 percent of farming operations had the necessary plans to meet existing regulations.

---

[7] Moyer, D. 2016. Nitrogen, Phosphorus, and Suspended-Sediment Loads and Trends Measured at the Chesapeake Bay Nontidal Network Stations. U.S. Geological Survey, Richmond, VA.
[8] Dietrich, T. "Chesapeake Bay grasses surge to levels not seen in decades." The Daily Press. May 3, 2016. Online.
[9] Dance, S. "Chesapeake Bay oxygen levels rise to second-highest since 1985." The Baltimore Sun. July 15, 2016. Online.
[10] Blankenship, K. "2015 Bay water quality was fourth best since 1985." The Chesapeake Bay Journal. September 21, 2016. Online
[11] USEPA Chesapeake Bay Program. Evaluation of Pennsylvania's 2014-2015 and 2016-2017 Milestones June 17, 2016. Website: https://www.epa.gov/sites/production/files/2016-06/documents/pa_2014-2015_-_2016-2017_milestone_eval_06-17-16.pdf
[12] Chesapeake Bay Foundation. The Pennsylvania Gap Chart. Website: http://www.cbf.org/image/area---how-we-save-the-bay/chesapeake-clean-water-blueprint/Pennsylvania-Gap-Chart-REV-June-2016.png?dm=636089692510330000

In developing a plan to address these deficiencies, DEP and the Pennsylvania Department of Agriculture, along with other stakeholders, developed the approach of enlisting the County Conservation Districts to perform inspections. In some ways, this approach proposed a process akin to the regulatory responsibilities many Conservation Districts have for new land development activities under Chapter 102 (Erosion & Sedimentation).

In noteworthy step towards assuring farms progress towards meeting existing regulations, DEP announced in late September that 28 County Conservation Districts, or roughly 70 percent within Pennsylvania's Chesapeake Bay watershed, had agreed to participate and will receive funding to support bay technician staff from DEP. Nine conservation districts failed to meet application criteria or declined to participate. Three counties have very small portions of the area draining to the Bay and will be covered by DEP inspectors.

Some County Conservation Districts and their boards, farmers, legislators, and others have questions about how this new paradigm may alter District relationships with the agricultural community. We respectfully offer our assistance in collaboratively working through these questions with the General Assembly and others.

It's important to note two important aspects of the Reboot Strategy:

1. It does not replace Pennsylvania's Clean Water Blueprint. Rather, it simply re-establishes a commitment to assuring the reasonable expectation of assuring that the agricultural community is achieving compliance with existing and long-standing regulatory requirements. In that regard, it's a step, albeit a vital step, in a process toward meeting the states commitments.

2. Any plan is only as good as its implementation. Adequate resources toward outreach and education and financial and technical assistance are as key as any other aspect, to the success of this plan. Without the necessary resources to administer, track, and implement the Reboot Strategy, and the Clean Water Blueprint as well, it will falter.

If the Reboot Strategy has a weakness, it is in identifying sustainable funding sources to assure its and the Clean Water Blueprint's implementation.

A focused investment to jump start the Commonwealth's efforts

Earlier this month, a commitment of $28.7 million in newly dedicated federal and state funding was announced as a welcome down payment for what needs to be meaningful progress in Pennsylvania's pollution reduction efforts, which have not been on pace to meet the Commonwealth's Clean Water Blueprint goals.

Central to this new investment is concept of focused and precision-based investment. In March, Pennsylvania State University College of Agriculture and 120 diverse agriculture stakeholders agreed that resources should be invested in areas of high priority and agricultural practices with the most potential to reduce pollution.

The conference also highlighted "the 3 Ps"—place, practices, and people—and the need for additional investment of public and private funding. The "3 P" approach would ensure strategic use

of funds to achieve the greatest nutrient and sediment reductions to benefit both local water quality and the Chesapeake Bay.

Building on this concept, CBF analyzed federal agency data and concluded that if the Lancaster, York, Franklin, Cumberland and Adams counties fully met their 2025 Blueprint pollution-reduction commitments, the Commonwealth would achieve about a 14.1 million pound nitrogen reduction. That is more than half of the entire state's 2025 nitrogen pollution-reduction goal. These counties have approximately 1,400 miles of streams impaired due to agricultural activities, according to DEP, which would simultaneously be improved.

These counties would achieve these reductions by employing the top six agricultural conservation practices relied upon by the Commonwealth in the Clean Water Blueprint. Those practices are: conservation tillage; advanced nutrient management; cover crops; animal waste storage systems; forested buffers; and cropland conversion to pasture, hay, or other vegetation.

The Chesapeake Conservancy, Susquehanna University, Bloomberg University, DCNR, and CBF are partnering on a three-year initiative funded by the National Fish and Wildlife Foundation that will pilot a new approach to conservation with local partners in Pennsylvania's Centre and Clinton counties to reduce nutrient and sediment pollution from farmland. The effort focuses on employing newly available satellite imagery and topographic data to determine precisely where streamside forested buffers should be placed on the ground to achieve the greatest water quality improvement. Once complete, the project may serve as a national model.
There is also evidence that many of these types of practices are among the most cost-effective. For example, a 2009 report[13] by the World Resources Institute found that agricultural practices which rely on the planting of permanent and temporary vegetation (primarily trees, grasses and shrubs) and land preservation were far less costly to install than technology-based practices which required large amounts of capital investment.

And U.S. Department of Agriculture ("USDA") economists found that implementation of a combination of cover crops, nutrient management, and erosion controls (which included strip cropping and streamside forested buffers) on Pennsylvania farmland vulnerable to nutrient losses and adjacent to water, would meet the Blueprint goals at a quarter of the cost of implementing the full suite of management practices on all cropland.[14]

Finally, the successful focusing of geography and practices will depend on strategic coordination and collaboration among existing federal, state, local, non-governmental, and private partners, as well as more efficient delivery of conservation programs. Increased support for outreach and technical assistance capacity—areas that are currently insufficient to keep up with existing demand in some locations—will also be crucial.

Sustainable and meaningful investments are necessary
Yet, while focused application of investments pursuant to the 3 P's could have substantial water quality and cost benefits beyond the status quo, it is widely acknowledged that additional resources

[13] Jones, Cy, et al. 2010. How Nutrient Trading Could Help Restore the Chesapeake Bay. WRI Working Paper. World Resources Institute, Washington DC. http://www.wri.org/stories/2009/12/how-nutrient-trading-can-helprestore-chesapeake-bay
[14] Ribaudo, Marc, Jeffrey Savage, and Marcel Aillery. An Economic Assessment of Policy Options To Reduce Agricultural Pollutants in the Chesapeake Bay, ERR-166, U.S. Department of Agriculture, Economic Research Service, June 2014.

are needed in order for the Commonwealth to meet its local and regional clean water commitments. The challenging fiscal situation the Commonwealth faces necessitates creative and new approaches to this situation.

Therefore, we have been advocating for the development of a voluntary and new funding stream that citizens of Pennsylvania can direct toward cleaning up Pennsylvania's rivers and streams. Specifically, a check-off on state personal income tax form or annual vehicle car registration form would be a small, but important step in helping to provide additional resources toward conservation programs.

An educational initiative can accompany such an approach so as to raise awareness and explain what the revenue is employed toward and why restoring and protecting clean water is important to our health and welfare.

Another example of a new approach would be a state license plate focusing on Pennsylvania rivers and streams and directing revenue from the purchase of a special fund plate toward clean water restoration efforts. Many special fund plates currently exist in Pennsylvania, including the Wild Resource Conservation Fund registration plate that became available in 1999. Proceeds from this plate support the management of the Commonwealth's unique flora and fauna. While the total revenue generated may not be very large, issue-oriented plates can serve as an important passive educational tool.

Development of a state cost-share program to help farmers improve soil health, retain nutrients and sediments on the land, and improve local stream health is another option employed by a number of states. A program of this nature would provide funding to farmers to assist them in implementing a variety of practices that could help meet and exceed compliance with existing regulations, local stream impairment, and the Clean Water Blueprint.

Finding a sustainable and sufficient source of funding for a cost-share program could include water consumption fee. Currently, ideas around this concept rely on the Pennsylvania constitution to say that water is a vital resource in the Commonwealth. Legislation has introduced to look at the issue more closely as a potential revenue generator. We support these ideas and hope that we can at least move forward and take a closer look at the type of funding that could be brought in and how to make such a fee equitable.

And in late September, Senator Tom Killion introduced new Growing Greener legislation that would provide $315 million package that would provide approximately $177 million towards clean water initiatives. Senator Killion is joined by 12 colleagues from both sides of the aisle in support of this legislation. CBF supports the package as a down payment towards helping to address a broad array of environmental issues the Commonwealth. A funding source has yet to be identified.

One often cited avenue for accelerating water quality improvements is Pennsylvania's Nutrient Credit Trading Program. The primary purpose of the program is to provide National Pollutant Discharge Elimination System ("NPDES") permitted point source discharges to meet their effluent limits for nutrients in the Chesapeake Bay Watershed through the purchasing of approved "credits" instead of or in combination with upgrading their treatment technologies.

In April 2014, the EPA began objecting to the issuance of NPDES permits that had language enabling the use of nutrient credits. The objections were based on EPA's concerns with the nonpoint source agricultural baseline requirements in the nutrient trading regulations. EPA asserted that DEP had not made a quantitative demonstration that these requirements achieve the load allocations for agricultural sources in the Chesapeake Bay TMDL. DEP has made substantial improvements to the program, but additional regulatory changes are necessary in order to assure the credits are verifiable and scientifically defensible and thus in compliance with the federal Clean Water Act. Unfortunately, DEP has delayed initiating the regulatory process for those changes a number of times.

Throughout the Trading Program's existence demand has been a concern. Many large point source dischargers found there to be more certainty and predictability in borrowing funds to offset the costs of upgrading their treatment facilities, or had concerns about contract enforcement and other liabilities and uncertainties despite DEP's, and eventually PennVEST's, efforts to ameliorate them.

Although this is pointed to by some as a failure of the program, it's important to note that nutrient credit trading was never intended to be a comprehensive solution to meeting the Clean Water Blueprint or local stream impairments. Rather, it is an option available to NPDES permittees.

Additionally, in order to offset predicted growth in sewage discharges and address the nutrient limits in smaller community plants, the Nutrient Credit Trading Program will continue to be a vital clean water program.

One area of potential growth in demand is NPDES Municipal Separate Storm Sewer ("MS4") Phase II permits. According to DEP, there are 204 MS4 communities in Pennsylvania's' Chesapeake Bay Watershed.[15] Many of these MS4s are adjacent to each other and have open spaces, such as parks, or even empty lots that could serve as green infrastructure stormwater management if properly retrofitted.

Although technical and legal challenges abound, if properly located and designed, community collaboration could result in cost-efficiencies that transcend municipal boundaries. York County is spearheading an innovative comprehensive stormwater pollution reduction plan that includes over 40 MS4s and non-MS4s.[16] Pennsylvania's Nutrient Credit Trading Program could serve as an incentive for expanding regional and cost-effective stormwater pollution reduction initiatives.

Another potential opportunity lies with interstate nutrient credit trading; however, in this situation the technical, programmatic, and regulatory complexities are substantial. It is for this reason that the concept has not been operationalized to date. That being said, a 2010 analysis by the World Resources Institute found that Pennsylvania farmers could see meaningful profits from such a program assuming it focused on cost-effective conservation practices like cover crops and streamside forested buffers.[17]

---

[15] Pennsylvania Department of Environmental Protection. 2016. A DEP Strategy to Enhance Pennsylvania's Chesapeake Bay Restoration Effort. http://files.dep.state.pa.us/Water/ChesapeakeBayOffice/DEP%20Chesapeake%20Bay%20Restoration%20Strategy%20012116.pdf

[16] York County Planning Commission. 2014. York County Regional Chesapeake Bay Pollutant Reduction Plan. http://yorkcity.org/user-files/file/City%20Council/BillsResolutions/2015Bills/Chesapeake-Bay-Pollutant-Reduction-Plan.pdf

[17] Talberth, John, et al. 2010. "How Baywide Nutrient Trading Could Benefit Pennsylvania Farms." WRI Working Paper. World Resources Institute, Washington, DC.

There is no magic bullet, no simple solution
That said, there is no magic bullet, no simple solution. We must avoid the temptation to believe that a single technology, practice, or approach will solve the diverse challenge of achieving Pennsylvania's Blueprint and restoring the 19,000 miles of impaired rivers and streams in the Commonwealth. We must focus on the practices demonstrated by scientists, policy makers, and practitioners to not only work, but to have the most benefits as the least-cost.

We must prioritize our limited resources and new funding, to those places, practices, and engaging the right people and communities in order to achieve results-oriented and cost-effective solutions that count.

We must do it in way that stacks the benefits of clean water, productive soils, healthy livestock, reduced flooding, thriving communities, and others. In fact, doing so could result in $6.2 billion in benefits to Pennsylvanians every year.[18]

In summary, today Pennsylvania's efforts to "Save the Bay" stand at the threshold of success. Investments of the last decades are paying off. The recent dedication of state and federal investments promises to jumpstart the efforts of Pennsylvania getting back on track with its Clean Water Blueprint. But in order to achieve the states clean water obligations, the Commonwealth must do more. We believe the ideas presented in our testimony can serve as the foundation for discussions. We look forward to working the General Assembly and the Administration in exploring these opportunities.

Thank you for the opportunity to share our views. I am happy to answer any questions the Committee may have about my testimony here today.

[18] Chesapeake Bay Foundation. 2014. The Economic Benefits of Implementing the Blueprint in Pennsylvania. file:///C:/Users/hcampbell/Downloads/0929%20Final%20PA%20fact%20sheet%20(4).pdf