

**CHESAPEAKE BAY RESTORATION:
PROGRESS AND CHALLENGES**

FIELD HEARING
BEFORE THE
SUBCOMMITTEE ON WATER AND WILDLIFE
OF THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

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SEPTEMBER 3, 2013—GRASONVILLE, MD
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C O N T E N T S

	Page
SEPTEMBER 3, 2013	
OPENING STATEMENTS	
Cardin, Hon. Benjamin L., U.S. Senator from the State of Maryland	1
Vitter, Hon. David, U.S. Senator from the State of Louisiana, prepared statement	72
Boozman, Hon. John, U.S. Senator from the State of Arkansas, prepared statement	73
WITNESSES	
Sarbanes, Hon. John P., U.S. Representative from the State of Maryland	4
DiPasquale, Nicholas, Director, Chesapeake Bay Program, U.S. Environmental Protection Agency	5
Prepared statement	8
Baker, William C., President, Chesapeake Bay Foundation	31
Prepared statement	34
Spies, Paul, Agricultural Conservation Planner, Chester River Association	45
Prepared statement	48
Neuman, Laura, County Executive, Anne Arundel County, Maryland	53
Prepared statement	57

CHESAPEAKE BAY RESTORATION: PROGRESS AND CHALLENGES

TUESDAY, SEPTEMBER 3, 2013

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON WATER AND WILDLIFE,
Grasonville, MD.

The subcommittee met, pursuant to notice, at 11 a.m. at the Chesapeake Bay Environmental Center, Grasonville, Maryland, Hon. Benjamin L. Cardin, chairman of the Subcommittee, presiding.

Present: Senator Cardin.

OPENING STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR FROM THE STATE OF MARYLAND

Senator CARDIN. Let me welcome you all to the field hearing of the Environment and Public Works Committee's Subcommittee on Water and Wildlife.

I particularly want to thank Senator Boxer and Senator Vitter and Senator Boozman for their help in arranging this hearing. We have worked together on the Chesapeake Bay in our Committee, and we have had several hearings related to the health of the Chesapeake Bay. And I appreciate their willingness to allow me to hold—this is actually our second field hearing. We held one in 2009 in Annapolis, and this is the second field hearing we have held on the status of the Chesapeake Bay.

I particularly want to thank my colleague, John Sarbanes, for being here. I think it is very appropriate that this hearing is being held at the Chesapeake Bay Environmental Center. I say that with Congressman Sarbanes here. This center provides an educational experience for particularly young people to understand what we need to do in order to protect the Chesapeake Bay for future generations. Congressman Sarbanes has been the leader in our State in recognizing that children need to get out and understand the environmental responsibilities that we all have. And I thank him for his leadership and I thank him for being here today.

I have been involved with the Chesapeake Bay, I guess, my entire political life, but I particularly cherish the times that I spent with Governor Hughes in Maryland when he was Governor of our State and really initiated the Chesapeake Bay Program. It was started in Maryland as an understanding that our Chesapeake Bay is critically important to the State of Maryland, particularly important to our region, not just as an environmental treasure as it is. It is a national treasure. It is actually an international treasure as

Presidents have declared, but it is also critically important to our economy. And we have documented just how significant that is.

The Chesapeake Bay was in serious, serious trouble. There were parts of the coast that you did not even want to go near because of the amount of pollution that we saw in the 1970s when we first started this effort to clean up the Chesapeake Bay. And I do applaud Governor Hughes for his leadership in bringing together not just the State of Maryland but bringing together other States, all the States in the region, engaging the Federal Government, and particularly engaging the private sector as we came together with a strategy to improve the Chesapeake Bay. This hearing is going to concentrate on how far we have come and how far we still need to go on cleaning up the Chesapeake Bay.

We have two panels. One will include EPA, and I thank Mr. DiPasquale for being here. We will have a second panel that will deal with some of the principal stakeholders in our effort with the Chesapeake Bay.

The University of Maryland's most recent Chesapeake report card graded the Bay as a C, a marked improvement over the previous year with a D+. The report card noted several important indicators including decreased nitrogen and phosphorus pollution, an improvement of water clarity and dissolved oxygen. That is very important because it meant less dead zones in the Chesapeake Bay. So today is an opportunity celebrate those successes and to highlight the strong efforts of all stakeholders, our farmers, our cities, our counties who are working so hard to make a difference for the Chesapeake Bay.

Now, the Chesapeake Bay help is critically important to our ecology. It is important also to our economy. The Chesapeake Bay Foundation estimates that the Bay is worth \$1 trillion to our fishing, tourism, properly values, and shipping activities. Between just Maryland and Virginia, the commercial seafood industry equals \$2 billion in sales, \$1 billion in income, and more than 41,000 jobs per year.

But like most watersheds in this Nation, the Bay has had to deal with challenges that come from a growing and expanding population. It is just a great place to live. More people want to live here. We are proud that people are coming from all over the world to live in the Chesapeake Bay watershed. In the 30 years since the Chesapeake Bay Program started, the number of people living in the watershed has exploded. The population of the Chesapeake Bay watershed has grown from 12 million when the program started to nearly 18 million residents today. That is a 50 percent increase.

With people come environmental challenges. Because of this dramatic growth, the amount of impervious surfaces has increased by about 100 percent during that same 30-year timeframe.

Among the impacts of this increased regional growth is an excess of nitrogen and phosphorus flowing into the Bay, causing the concentration of dissolved oxygen in water to decrease to a level that no longer supports living aquatic organisms, creating vast dead zones.

The problems that plague the Bay are stark but they are not unique. The same challenges exist in many of our watersheds around the Nation from the Gulf of Mexico to the San Francisco

Bay. So what we do here is not just important for the Chesapeake Bay, but it gives us a model for other watersheds around our Nation. And we have been at this a lot longer than many of the other communities. But what we have done here has certainly helped our national effort.

If we want to improve the health of the Bay and continue to develop practices that can be applied across the country, we need to increase our commitment and become more creative in our solutions. And the question cannot be whether the Federal Government should take more responsibility. It is how it should take that responsibility.

One way I believe the Federal Government can make a difference is by supporting our farmers in their conservation efforts. Agricultural runoff represents the largest proportion of nutrient pollution for the Bay and, therefore, offers the greatest opportunity for achieving meaningful nutrient reductions.

In Maryland, our farmers have been at the forefront of working with us in conservation efforts to reduce the impact on our environment. They are some of our best stewards of the land. In the past 2 decades, Maryland farmers have spent millions of dollars to install and maintain conservation practices on their farms to protect natural resources and the health of the Chesapeake Bay.

But more needs to be done. That is why I worked so hard on the Farm Bill. I know we are looking at a new way to deal with conservation programs that can help the Chesapeake Bay watershed. The bill that was reported out by the Senate incorporates new opportunities for us to help farmers so that they cannot only do the right thing with the Bay but they can have a viable business and be able to compete in today's global agricultural economy.

Beyond the potential to support agricultural efforts to improve the Bay, the Federal Government has a critical role to play to make sure our water infrastructure is in a good state of repair. Even as the demand for clean water has increased, we have been underfunding investments in our infrastructure at the Federal level which, in turn, presents major challenges for local water authorities.

During this month of August, I visited some of our water authorities and seen firsthand the challenges they have with aging facilities, with the fact that they basically rely on the ratepayers for a lot of their improvement. And the rates have gone up and there is a limit as to how much you can charge the ratepayers. And our densely populated cities are served by pipes that are least 100 years old. The task of meeting the challenges generally falls on the shoulders of local municipalities.

EPA has estimated that more than \$630 billion will be needed over the next 20 years to meet the Nation's drinking water and wastewater infrastructure needs. Most of this will need to be funded locally. Well, we have got to step up and help. We have got to do a better job. As I said a little bit earlier, we need to find new, creative ways to help deal with the challenges that we have in the Bay.

But here is the good news. The United States Department of Commerce estimates that each job that we create in the water infrastructure will create almost four jobs in the private sector. So

this is a jobs issue. By investing in water infrastructure, we help our economy not only directly but also indirectly. It has been estimated that for every dollar we spend in water infrastructure, there will be almost a \$3 economic output in other industries.

Since water infrastructure is critical to everything from reducing runoff and pollutants to creating good paying jobs, I firmly believe the Federal Government has an important role in ensuring that local governments can continue to provide clean and safe water. The public demands that when they turn on their tap, they have safe water. We have to help the local governments make sure that is maintained. It is critical to the health of our communities and for the health of the Chesapeake Bay.

So today we know the Bay is making progress, but we still have a way to go. I look forward to hearing from the experts today so that we can develop a strategy to move forward for the future.

Before turning to Mr. DiPasquale, let me first turn to my colleague, Congressman Sarbanes, once again thanking him for being here but, more importantly, thanking him for the leadership that he has shown on protecting our Chesapeake Bay.

**STATEMENT OF HON. JOHN P. SARBANES,
U.S. REPRESENTATIVE FROM THE STATE OF MARYLAND**

Representative SARBANES. Thank you very much, Senator Cardin. It is a real privilege to be here today for this very important hearing.

I want to first off salute the Senator for his leadership with respect to restoring the health of the Chesapeake Bay. No one is doing more nationally for any treasure of the kind like the Chesapeake Bay than Senator Cardin is, and we certainly have benefited from his leadership in Maryland and in the Congress.

The third district, the newly drawn third district, has even greater portions of the coastline of the Chesapeake Bay now, not from the eastern shore but from the western shore, including Annapolis and the coastline coming down from Gibson Island. So as much as I was focused on the health of the Bay before, I am even more keenly concerned that we continue to move forward with respect to our efforts to improve the health of the Bay.

The Chesapeake Bay Program is a critical partnership for years now and has focused the efforts of these resources and many, many different players in making sure that we are achieving this progress. And we are looking forward to your testimony today on this important issue.

You know, having the EPA's involvement in the health of the Bay is so important because you get that overarching perspective. Different States within the Chesapeake Bay watershed and the six States and the District of Columbia, obviously, which directly affect the health of the Bay, are all engaged in their own efforts to contribute to this important project. But you need that national perspective because there are things that nature crosses State lines, and in the absence of that perspective, we are losing critical components. That is why I am happy to have the EPA's perspective at this hearing and it is so important.

My particular focus—and the Senator was gracious in alluding to my efforts on behalf of citizen stewardship, particularly reaching

out to the next generation and making sure they understand what is at stake and connecting them to the environment, to environmental literacy, to the Chesapeake Bay if they happen to live in Maryland or one of these other important States that are part of the watershed so that they grow up with that value instilled in them and they become stewards in the future. And I have supported strongly the efforts to connect young people to nature across the country in terms of integrating environmental literacy with the full needs of instructional programming.

I am also very interested generally in how we involve ordinary citizens as partners in our efforts to clean up the Chesapeake Bay and environment and have sponsored legislation such as “The Chesapeake Bay Homeowners Act” where we give homeowners the opportunity to contribute in quantifiable ways through credits that local jurisdictions and States are trying to achieve with respect to the pollution diet put in place by the EPA.

To close, I will just echo what Senator Cardin said at the outset of his remarks and at the end, which is this is about the economy of this region. If you invest in the things that clean up Chesapeake Bay, you are also investing in things that create jobs and help to produce a very important economy of our region and the State of Maryland. And that is why this is so critically important.

So I appreciate the opportunity to be a guest and participate in the hearing today. Thank you, Senator Cardin.

Senator CARDIN. Thank you, Congressman Sarbanes.

Our first witness is Nick DiPasquale, who is the Director of the Chesapeake Bay Program at the United States Environmental Protection Agency. Mr. DiPasquale previously served as Deputy Secretary of the Pennsylvania Department of Environmental Protection and Director of the Environmental Management Center for the Brandywine Conservancy in Chadds Ford, Pennsylvania and as Secretary of the Delaware Department of Natural Resources and Environmental Control. So he brings a lot of experience not just at the Federal level but also at the State level. It is good to have EPA lead off this discussion.

The Obama administration in 2009, by Executive order, really elevated the Federal Government’s commitment and partnership to the Chesapeake Bay, and this gives us a chance to review the current status of the Federal commitment to the Chesapeake Bay.

STATEMENT OF NICHOLAS DiPASQUALE, DIRECTOR, CHESAPEAKE BAY PROGRAM, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. DiPASQUALE. Good morning, Mr. Chairman, and Congressman Sarbanes. I am Nick DiPasquale, Director of the EPA’s Chesapeake Bay Program Office in Annapolis.

I want to thank you for the opportunity to testify about the progress the Chesapeake Bay Program Partnership is making to restore the watershed. The partnership, as you know, has a long history of bringing together the intellectual and financial resources of various State, Federal, academic, and local watershed organizations to develop and adopt policies that support a unified plan for watershed restoration.

This year, we recognize the 30th anniversary of the partnership and celebrate many of its successes. Our accomplishments and scientific developments are studied and used as a model throughout the United States and, as you recognized, throughout the world actually internationally.

During the last 30 years, actions taken at the Federal, State, and local level have made a significant impact. Activities such as improved controls in wastewater treatment plants, enhanced conservation practices to reduce nutrients and sediment runoff from farms, more effective stormwater controls in both urban and suburban areas, and better requirements and technologies that reduce air deposition of nutrients.

However, increased impervious surfaces, as again you recognized, the changing environmental conditions, and other developments that support a growing population have lessened the impact of these achievements.

Although the ecosystem generally remains in a degraded condition, the Bay's health has slowly improved in a number of areas, and we are witnessing clear signs of continuing recovery across the watershed. Data from actual water quality monitoring locations show a trend of improving water quality condition in many parts of the watershed. During the past 25 years, nitrogen and phosphorus concentrations have decreased at almost 70 percent at the monitoring sites within the watershed and sediment has decreased by about 30 percent at these sites. A 2011 study by Johns Hopkins and the University of Maryland showed that summer dead zones leveled off in the Bay's deep channels during the 1980s, and they have been declining ever since.

The Bay ecosystem is showing other signs of recovery such as progress in rockfish restoration, better managed crab populations, restored grass beds despite heavy rains and more frequent and severe storms. These signs of progress show an ecosystem that is regaining its resilience. This is an important aspect of the restoration effort. But challenges do remain.

Other collaborative efforts that are making a difference include the Chesapeake Bay total maximum daily load, or TMDL, and President Obama's Chesapeake Bay Executive order strategy.

With involvement from States, local governments, and numerous stakeholders, the EPA issued its final Chesapeake Bay TMDL in December 2010. Through the TMDL, States are putting in place practices for reducing nutrient and sediment from urban lands, including measures to limit runoff through storm flow capture and draining initiatives and the creation of stormwater utilities to help finance these improved control measures.

Additionally, many wastewater treatment plants have reduced nutrients down to the limits of technology.

The agricultural sector has done much to reduce pollution to the watershed as well and continues to do so through the use of new technologies and practices such as cover crops.

With the continued effort of all of these sectors, these actions will help ensure that we maintain our progress.

The positive effects of these efforts are already being seen in the watershed simulation showing that the partnership has achieved more than 25 percent of reductions in nitrogen, phosphorus, and

sediment that are going to be required by the 2025 deadline in the TMDL. The partnership also agreed to a series of 2-year milestones to measure its progress, and I am pleased to say that all of the Bay's jurisdictions are largely on track to achieve their reductions for this year.

We have also seen progress as Federal agencies have implemented the President's Executive order on the Chesapeake Bay restoration. For example, Federal agencies have added new monitoring stations to non-tidal areas of the watershed. They planted nearly 100 acres of oyster reefs in Harris Creek. They have implemented conservation practices on more than 342,000 acres of high priority working lands, and they have protected more than 1,300 acres at defense installations within the watershed.

But even with these recent developments, in July 2011, the Chesapeake Bay partners agreed that after 13 years, the Chesapeake 2000 agreement needed to be updated. We are now in the process of developing a new agreement. This new plan will clarify our shared goals and outcomes, and it is intended to be more flexible to increase transparency and accountability and to allow greater participation by all partners, including the watershed States of West Virginia, New York, and Delaware.

Finally, the partnership continues to address complex and emerging issues that can adversely affect the Chesapeake Bay watershed through a process called "adaptive management." Examples of some of the emerging issues include a continued increase in impervious development, impacts related to climate change, the development of new technologies, new scientific understandings about the effects of dams, invasive species, and the effects of weather on the watershed. The partnership is committed to considering these issues to best inform our restoration strategies.

In closing, I want to reiterate that while we have made progress, additional reductions are still needed from all sectors to meet water quality standards in the Bay and in local waterways. Despite these signs of progress, the job is far from complete, and major water quality and ecosystem challenges remain.

The EPA and the Chesapeake Bay Partnership remain committed to working with all stakeholders to achieve a healthy Chesapeake Bay watershed. Working together, we can have thriving communities, productive and profitable farms and restored waters.

Again, I want to thank you for the opportunity to testify today, and I would be pleased to answer any questions that you may have.

[The prepared statement of Mr. DiPasquale follows:]

TESTIMONY OF

NICHOLAS A. DIPASQUALE
DIRECTOR
CHESAPEAKE BAY PROGRAM OFFICE
REGION III
U.S. ENVIRONMENTAL PROTECTION AGENCY

BEFORE THE
SUBCOMMITTEE ON WATER AND WILDLIFE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

Grasonville, MD
September 3, 2013

Good morning Chairman Cardin and members of the Subcommittee. I am Nick DiPasquale, the Director for the Environmental Protection Agency's Chesapeake Bay Program Office. Thank you for the opportunity to testify about the progress we are making—in collaboration with our state and local partners and other federal agencies—to restore the Chesapeake Bay watershed.

Today, I will provide you with an overview of the health of the Chesapeake Bay, the complex challenges and some of the progress we are making to protect and restore the watershed, and some of the key initiatives we are undertaking to protect and restore this vital resource including: the Chesapeake Bay Total Maximum Daily Load (TMDL) (also known as the pollution diet), President Obama's Chesapeake Bay Executive Order, and the development of a new Chesapeake Bay Program Partnership Agreement.

The Chesapeake Bay Program

This year we recognize the 30th anniversary of the Chesapeake Bay Program (CBP) Partnership. Established by Congress, the CBP is a comprehensive cooperative effort by federal, state, and local governments, non-governmental organizations, academics, and other entities that share the mission of restoring and protecting the Chesapeake Bay and its watershed. The Partnership includes the original

signatories to the Chesapeake Bay Agreements – Maryland, Pennsylvania, Virginia, the District of Columbia, the Chesapeake Bay Commission (a tri-state legislative assembly representing Maryland, Virginia and Pennsylvania), and the EPA on behalf of the federal government. The headwater states of Delaware, New York and West Virginia joined the Partnership through a water quality memorandum of understanding (MOU) in 2000 when the Partnership recognized the participation of those states was necessary to get the nutrient and sediment reductions necessary to meet water quality standards in the Bay watershed.

The CBP has a long history of partnerships, science and action that directs and conducts the restoration of the Chesapeake 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. The success of this large scale ecosystem restoration program and its many accomplishments and scientific developments are studied and used as a model throughout the United States and internationally.

The Chesapeake Bay Watershed

More than 100,000 streams and rivers thread through the Chesapeake Bay watershed which encompasses 64,000 square miles, parts of six states and the District of Columbia. It is home to more than 3,600 species of fish, plants and animals. Nearly 17 million people live in the watershed and approximately 150,000 new people move into the watershed each year. Everyone in the watershed lives within a few miles of one of these tributaries, which connect our communities to the Bay.

The Bay's enormous watershed drains into an estuary with a surface area of 4,500 square miles resulting in a land-to water ratio 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 local rivers and streams, as well as the Bay.

As the largest estuary in North America, the Chesapeake is ecologically, economically and culturally critical to the region and the country. For more than 300 years, the Bay and its tributaries have sustained the region's economy and defined its traditions and culture. The Bay has accounted for over 500 million pounds on average of seafood harvested annually since 2000. There are nearly 18,000 local governments in the Bay watershed, including towns, cities, counties and townships. 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.¹ The economic value of the Bay has been estimated at more than \$1 trillion² and two of the five largest Atlantic ports (Baltimore and Norfolk) are located in the Bay.

The Health of the Bay

The Chesapeake Bay is a complex, sensitive and dynamic ecosystem. During the last 30 years, actions taken by the CBP Partners, at the federal, state and local levels have made a significant and positive impact; however, increased impervious cover, changing environmental conditions, and other developments to support the growing population have lessened the impact of these achievements. Although the ecosystem generally remains in poor condition, the Bay's health has slowly improved in a number of areas and we are beginning to see signs of hope as a result of our continuing efforts and new initiatives.

¹2007 Census of Agriculture reported 83,775 farms in the Chesapeake Bay region.

²*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

Still, many challenges remain. The Bay's water quality remains degraded. Too much nutrient and sediment pollution flows to the Bay and its streams, creeks and rivers. Data from 2010-2012 indicate that only 35 percent of the water volume of the Bay and its tidal tributaries met dissolved oxygen water quality standards during summer. In 2011, only 5 percent of the Bay's tidal waters met the water quality standard, and only 18 percent of the Bay's tidal waters had chlorophyll *a* concentrations that met standards.³ Climate change and sea level rise are significant ecological drivers that will likely impact fisheries, habitat, and the built environment. Even in the face these challenges, we are beginning to see improvement in water quality in certain sub-watersheds which is a trend we expect to see increase as more on-the-ground pollution reduction actions are implemented.

The status of the Bay's fish and shellfish populations is mixed, though they continue to be stressed by pollution, diseases, overharvesting, lack of food and loss of habitat. For example, oyster populations, which provide critical habitat for fish, remain at very low levels—less than one percent of historic levels. But, improved scientific understanding has helped us develop new performance metrics to better target, plan, implement and monitor tributary-scale oyster restoration projects and evaluate progress. Populations of striped bass, or rockfish, which rebounded from historic lows in the late 80's are still at risk due to disease and concerns remain about adequate food supply.

Overall, the Bay's habitats and lower food web remain far below what is needed to support thriving populations of aquatic life. In 2012, there were an estimated 48,191 acres of underwater grasses in the Chesapeake Bay, achieving only 26 percent of the Program's 185,000-acre goal and 45 percent of the

³ *Bay Barometer: Spotlight on Health and Restoration of Chesapeake Bay and Watershed*;
<http://www.chesapeakebay.net/track/health/bayhealth>

Bay and its tidal tributaries met the goal for having acceptable bottom habitat.⁴ However, while 2012 witnessed an overall loss of underwater grasses in the upper and middle Bay zones —most likely the effects of Hurricane Irene and Tropical Storm Lee in the fall of 2011—two areas showed notable resilience and expansion. First, although, the large grass bed at the head of the Bay on the Susquehanna Flats decreased in size, the grasses there remained robust and very dense. Second, grasses continued to increase in the main stem of the James River.

Chesapeake Bay TMDL/Pollution Diet

Among the many initiatives we are undertaking to help restore and protect this impaired watershed is the Chesapeake Bay Total Maximum Daily Load (TMDL), which some have referred to as a pollution diet. The action of using a TMDL, as authorized in section 303(d) of the Clean Water Act to address impaired waterbodies, is not a new or recent idea; it is merely the next step in this decades-long restoration partnership effort and is a tool to help improve the Bay.

In June 2000, when the CBP Partners signed the Chesapeake 2000 (C2K) agreement, they committed to meeting water quality standards in the tidal waters of the Bay by 2010. They recognized, however, that a TMDL would need to be developed if the actions identified in the agreement were not successful in achieving water quality standards in the main stem and tidal portions of the Bay.⁵ Despite progress in reducing pollution levels, the Partners were not successful in meeting water quality standards by 2010. The Bay continued to have degraded water quality, degraded habitats, and low populations of some fish and shellfish species.

⁴*Bay Barometer: Spotlight on Health and Restoration of Chesapeake Bay and Watershed;*
<http://www.chesapeakebay.net/track/health/bayhealth>

⁵ Chesapeake 2000 agreement page 5: http://www.chesapeakebay.net/content/publications/cbp_12081.pdf

Therefore, in October 2007, when it became apparent that water quality standards would not be met by 2010, the CBP state partners decided that they preferred to have the EPA work with them to establish a multi-state TMDL.⁶ After more than three years in development, with intense involvement from states, local governments and numerous stakeholders, the EPA issued the final Chesapeake Bay TMDL on December 29, 2010. It established the maximum amounts of nitrogen, phosphorus and sediment pollution the estuary can receive and still meet water quality standards. It also allocated those amounts among 92 geographic segments in the Bay watershed. The Bay TMDL relies significantly on state developed strategies to inform the allocations as well as the measures the EPA and the states adopted to ensure accountability for reducing pollution and meeting deadlines for progress.

The final TMDL is based on state-defined strategies called Phase I Watershed Implementation Plans (WIPs), along with input received through extensive outreach efforts across the watershed. The WIPs are the road maps for how and when, in partnership with federal and local governments, states will reduce pollution in order to achieve and maintain pollutant allocations under the Bay TMDL. In developing the TMDL, the plan was to have the pollutant allocations based on WIPs and to provide the jurisdictions with flexibility to let them lead the way in determining how to reduce pollution from specific source sectors (e.g. wastewater treatment, urban stormwater and agriculture).

Unlike previous efforts with a distant end line, the Partnership agreed that a series of two-year milestones be used to gauge progress and that a commitment to ensure all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025, with measures in place by 2017 that are expected to achieve at least 60 percent of the load reductions. The first set of milestones cover the period from 2012-2013 and I am pleased to say that all of the Bay jurisdictions are largely on track to

⁶ See PSC meeting minutes for October 1, 2007: http://archive.chesapeakebay.net/pubs/calendar/PSC_10-01-07_Minutes_1_9029.pdf

achieve the pollutant reduction commitment over that period. The TMDL is supported by rigorous accountability measures to ensure cleanup commitments are met, including short-and long-term benchmarks, a tracking and accountability system for jurisdiction activities, and federal contingency actions that can be employed if necessary to ensure progress. These accountability measures set the TMDL apart from past Bay restoration initiatives.

The CBP partners' commitments and continuing efforts to reduce nitrogen, phosphorus and sediment pollution are already being seen in the watershed. Simulations of pollution reducing efforts put in place between July 2009 and June 2012 estimate CBP partners have achieved 25 percent of nitrogen, 27 percent of phosphorus and 32 percent of sediment reductions needed by 2025. Specifically, nitrogen loads to the Bay from a base year of 2009 have decreased 18.5 million pounds to 264.1 million; Phosphorous loads to the Bay have decreased 1.3 million pounds to 18.0 million; and sediment loads to the Bay have decreased 431 million pounds to 8,244 million.⁷

Watershed Implementation Plans (WIPs)

Once the final TMDL was established, the EPA and the Partners turned their focus to implementation of Phase I WIPs and development of Phase II WIPs. Phase II WIPs are the Partners' plans outlining how they will work with their localities to translate the WIP and TMDL requirements to a local scale – where much of the restoration actions will occur. Because implementation of the TMDL is designed to be as flexible as possible, the EPA encouraged jurisdictions to develop Phase II WIPs to meet the TMDL allocations in the best way for their circumstances. Completion of the Phase II Watershed Implementation Plans by the jurisdictions in 2012 marked another step in the transition from planning to implementing the

⁷ CBP, Restoration Progress Update, April 30, 2013;
http://www.chesapeakebay.net/presscenter/release/bay_program_partners_continue_progress_to_stem_the_flow_of_pollutants

necessary practices to restore the health and economic engine of the Bay watershed's streams and rivers.

Looking to the future, the EPA established a checkpoint in the 2017 time period for assessing the progress of the effort at a midpoint and also expects jurisdictions to prepare Phase III WIPs in 2018 to provide additional detail of restoration actions beyond 2017 and ensure the 2025 restoration goals are met.

When fully implemented, the TMDL and WIPs will help support local communities that rely on clean water and healthy habitats by improving the thousands of local streams and rivers that feed into the Bay—protecting drinking water sources, improving recreational opportunities and supporting local economies.

President Obama's Chesapeake Bay Executive Order

On May 12, 2009, President Obama issued Executive Order 13508 on Chesapeake Bay Protection and Restoration which marked a new era of federal leadership, action and accountability. The Executive Order recognized that the efforts of the past 25 years were not making sufficient progress in restoring the Chesapeake Bay and its watershed, and that success would require the additional support and coordination of all government agencies to make necessary policy changes and initiate new actions "to protect and restore the health, heritage, natural resources, and social and economic value of the nation's largest estuarine ecosystem and the natural sustainability of its watershed."

The Executive Order established a Federal Leadership Committee (FLC), chaired by the EPA Administrator, and includes senior representatives from the departments of Agriculture, Commerce, Defense, Homeland Security, Interior and Transportation. It acknowledges that although the federal

government should assume a strong leadership role in the restoration of the Bay, success depends on a collaborative effort involving state and local governments, businesses, non-government organizations and the region's residents.

Pursuant to the executive order, a new federal *Strategy* for the Chesapeake region was released in May 2010. The *Strategy* identifies the four most essential goals for a healthy ecosystem (Restore Clean Water, Recover Habitat, Sustain Fish and Wildlife and Conserve Land and Increase Public Access) and developed 12 key environmental outcomes that reflect progress toward these goals. The *Strategy* also includes four supporting strategies (Expand Citizen Stewardship, Develop Environmental Markets, Respond to Climate Change, and Strengthen Science), to help achieve the overall goals.

To increase accountability, federal agencies established milestones every two years for actions to make progress toward each of the *Strategy's* goals and outcomes. These support and complement the states' two-year Bay TMDL milestones.

Each year, the federal agencies are required to issue an Action Plan and a Progress Report, highlighting the extensive efforts undertaken to help protect and restore the health of the watershed. Highlights from the 2012 report include:

- Expanded water-quality monitoring and analysis by adding new non-tidal monitoring stations, maintaining existing tidal observation platforms, and updating water-quality trends.
- Planted nearly 100 acres of oyster reefs in Harris Creek (in Maryland's Talbot County).
- Opened 33.6 miles of stream habitat for migratory fish in Virginia and Pennsylvania.
- Implemented conservation practices on more than 342 thousand acres of high priority working lands.

- Developed a new Oyster Decision Support Tool by NOAA designed to help resource managers, restoration practitioners and others access the best and most up-to-date data to plan and track new restoration projects.
- Completed Bay TMDL Phase II Watershed Implementation Plans and two-year milestones.
- Protected more than 1300 acres of Department of Defense installations in the Bay watershed.
- Released the Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy, which will guide federal engagement in state environmental literacy planning and implementation.
- Established a new blue crab abundance target of 215 million adult female crabs and male conservation targets based the best available science.

Chesapeake Bay Watershed Agreement

In 2011, both the Chesapeake Executive Council and the Federal Leadership Committee for the Chesapeake Bay acknowledged the need to look at potentially integrating the goals, outcomes and actions of the Chesapeake Bay Program (Chesapeake 2000) with those set forth in the 2010 *Chesapeake Bay Executive Order Strategy*. Most of the outcomes and commitments in the Chesapeake 2000 agreement have expired and there is now a need to update and refresh them in order to accelerate progress in achieving the water quality, living resource and goals of the program.

This new plan for collaboration across the Bay's political and geographical boundaries will clarify our vision, mission and values and establish shared goals and outcomes for the protection, restoration and stewardship of the Bay, its tributaries and the lands that surround them. The current draft agreement includes goals and outcomes for sustainable fisheries, habitat restoration, water quality, healthy watersheds, land conservation, public access, environmental literacy and local leadership. The agreement, now being drafted, is intended to encourage a forward-looking approach to conservation

and restoration, focusing on immediate results and recognizing our long-term effort must be sustained by and for future generations. It is intended that the new Chesapeake Bay Watershed Agreement will have more flexibility, increased accountability, greater participation by all partners, and be consistent with both Executive Order 13508 and the goals of the Chesapeake Bay *Strategy*.

Managing Adaptively to Address Emerging Issues

The Partnership continues to address complex issues that can affect actions necessary to restore the Chesapeake Bay watershed. Examples include: accounting for the potential consequences of impervious development and continuing climate change; accounting for innovative, new technologies; factoring in new understanding of the Susquehanna River dams' influence on nutrient and sediment pollutant loads; invasive species; understanding and recognizing year-to-year variability of rainfall-driven nutrient and sediment loads and their impact on Bay water quality; and taking full advantage of living resources as natural filters. This is part and parcel of the adaptive management commitment of the Partnership to consider new knowledge and updates in information which can best inform our watershed restoration strategies and management.

In recent years, the Partnership has begun using a decision framework to fully integrate an adaptive management process into Chesapeake Bay restoration. For example, the Partnership will provide input on and review changes in decision-support tools, such as the models and methods used to assess progress, and weigh the effects of these proposed changes against the impacts to meeting the ultimate goal of achieving water quality standards. After all, the health of the Bay's waters is what ultimately tells us if our restoration efforts are working.

Further, the Partnership will consider the need for updates to the current TMDL and WIPs to address any needed modifications informed by the changes to the decision-support tools, as well as jurisdictions' implementation experience to date. The EPA's expectations for the scope and content of the Phase III WIPs may vary by jurisdiction depending on their implementation progress through 2017. The Partnership will carefully consider scientific, technical, financial, social, political and other implementation factors during this review. Using this review, the jurisdictions will make necessary adjustments to their WIPs during Phase III to achieve the 2025 goal.

Recovery and Resilience

As we approach the 30th anniversary of the CBP Partnership, we are witnessing clear signs—from local streams and small watersheds to the deep waters of the Bay itself—of continuing recovery across the Chesapeake Bay ecosystem and throughout the surrounding six-state watershed.

Through the collective efforts of CBP Partners and stakeholders, we are making clear progress in reducing pollution from wastewater treatment plants, urban areas and agricultural lands and the Bay is showing signs of recovery. Long-term trends of nutrients in our waters are on the decline. We have made strong progress in restoring rockfish, we have better managed crab populations, and we have seen restored grass beds survive and new ones emerge despite heavy rains and sediment-laden runoff.

The Chesapeake Bay Program's analysis of recent data on the health of the Chesapeake Bay and its watershed shows an ecosystem that is resilient, even as it remains impaired and as population continues to increase. The Bay Program's *"Bay Barometer: Spotlight on Health and Restoration of Chesapeake Bay and Watershed,"* as released in January 2013, offers a science-based snapshot of current watershed-wide progress toward a healthy Bay ecosystem.

For example, data from water-quality monitoring shows a multi-decade trend suggesting that pollution-reduction efforts, such as improved controls at wastewater treatment plants, technologies that decrease atmospheric deposition and practices to reduce nutrients and sediment from farms and suburban lands, are improving water-quality conditions in many areas of the watershed.

Data showing trends through 2011 indicate that over the past 25 years there have been decreasing nutrient and sediment concentrations indicating improving conditions in local streams and rivers. Nitrogen and phosphorus concentrations have decreased at almost 70 percent of the 31 long-term monitoring sites within the Bay watershed. Sediment has decreased at about 30 percent of the sites. And this progress is occurring in the face of continued land development in the Bay watershed.

Evidence of the benefits of nutrient and sediment reductions was presented in a study published in November 2011 by researchers from Johns Hopkins University and the University of Maryland Center for Environmental Science. Examining 60 years of Chesapeake Bay water-quality data, the research team found the size of mid- to late-summer low to no oxygen areas, called "dead zones," leveled off in the Bay's deep channels during the 1980s and has been declining ever since. This is the same time the Chesapeake Bay Program formed and federal and state agencies set the Bay's first numeric pollution reduction goals.

Some pollution reduction practices are showing impressive short term effects also. Wastewater treatment plant upgrades in Baltimore's Back River Estuary resulted in estuarine water quality improvements within three years as measured by changes in chlorophyll *a*. Similar improvements, in addition to a resurgence of healthy underwater grass species, have been noted in the Potomac River

Estuary from reductions in phosphorus and nitrogen concentrations and toxic cyanobacteria at Washington, DC's Blue Plains wastewater treatment plant.

Many of the improvements to local waterways are already being seen – and will continue to be seen at the local level more frequently. We are seeing more and more stories of the recovery and restoration of free flowing creeks and rivers, tidal embayments, and small watersheds – waterbodies of importance to local communities as sources of swimming, boating, fishing, wildlife watching or other forms of recreation, aesthetic beauty, economic growth, ecosystem services, drinking water, or other benefits. The recovery of these waterbodies located in communities and small watersheds people call home are the direct result of local actions by neighbors, homeowners, farmers, municipalities, and many others working at the local level.

Each of these local stories give us new insights into how to better restore the next creek, river, oyster bed or watershed, how long until we should expect to see a positive water quality response downstream, and what trajectory the restoration of other rivers and embayments will take and what signs should we be watching out for.

Another sign of recovery is the stabilization of blue crab populations. Perhaps no species is more closely associated with the Chesapeake Bay than the blue crab. Led by the Chesapeake Bay Stock Assessment Committee and NOAA's Chesapeake Bay Office, a 2011 benchmark assessment recommended establishing a threshold number of 70 million female spawning-age crabs and replacing the interim target of 200 million male and female spawning-age crabs with a target of 215 million female spawning-age crabs. At the start of the 2013 crabbing season, approximately 147 million female crabs over age 1 were estimated in the Bay. This number is below the recommended target but still above the new

threshold and within the range of values observed for the 13 year period prior to implementation of the female-specific regulations being put in place in 2008.

Many of these local successes could not have been achieved without the coordinated and collaborative work of the CBP Partners, state and local governments, and all sectors. For example, through the TMDL, Bay states are putting in place practices for reducing nutrient and sediment loads from urban lands, including measures to control urban runoff through enhanced storm flow capture and greening initiatives, and the creation of stormwater utilities to finance the necessary stormwater controls. Many wastewater treatment plants have made significant progress in reducing nutrient loads down to the limits of technology.

We also recognize that the agricultural sector has done much to reduce nutrient and sediment loadings in the Bay watershed. Agriculture continues to reduce nutrient pollution through practices such as planting cover crops that reduce nutrient losses from cropland and the use of phytase in chicken feed which puts more phosphorus in the bird and less in the manure. Recent USDA Natural Resources Conservation Service assessments of the effects of conservation practices on cultivated cropland in the Chesapeake Bay region shows that conservation works. Both nitrogen and phosphorus loadings from agriculture have declined since 1985.⁸ It also concluded that more needs to be done.

With the continued efforts of all sectors, these actions will help ensure we maintain our restoration progress.

CONCLUSION

⁸ http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1042076.pdf

In closing, I want to reiterate that while we have made great progress, significant additional reductions from all sectors are needed to meet water quality standards in the Bay and in local waterways. Despite the many signs of progress, the job is far from complete and major water quality and ecosystem challenges remain. There is much work that remains to be done.

The Environmental Protection Agency and the Chesapeake Bay Partnership remain committed to working with all stakeholders to achieve a healthy Chesapeake Bay watershed. Working together, we can achieve thriving communities, productive and profitable farms and restored waters. As partners, we can make this happen.

Thank you for the opportunity to testify today, I am pleased to answer any questions.

Senator CARDIN. Well, thank you again for your testimony and thank you for your leadership in this area.

You do point out the progress that we have made. We all acknowledge that. As I said earlier, I remember days that you did not even want to go near the water in some parts of some coasts. We were in danger of having to put permanent restrictions on the recreational use of the Bay, and we went through some very tough periods with what recreational fishing could do on the Bay as far as the rockfish, et cetera. And this year has been a pretty good year for rockfish. So we have seen some progress.

But looking at the 2011–2012 Bay barometer, which noticed improvement on the oxygen levels and the reduction of dead zones, it also points out that we have challenges to meeting the overall goals. I look at some of the specifics. Bay grasses are at 26 percent of what was a goal set. The bottom habitable is 45 percent. The American shad, 34 percent. The Atlantic menhaden, 25 percent of what we would like to be at. So it seems like we still have a significant achievement to reach the goals that we all said were where we wanted to be.

Now, I understand we are going to look at moving forward from the 2000 agreement, but do you agree that we are only doing a C, that there is still a lot more that could be done, using good science, good economics to get the Bay where it needs to be?

Mr. DIPASQUALE. Yes. There is no question that we need to re-double our efforts and make the improvements that you are suggesting. When you look at the trends from year to year, sometimes there are a number of factors that can impact how that particular resource is responding. For example, with Bay grasses, the storms that occurred from Hurricane Irene and Tropical Storm Lee had a really significant impact on underwater grasses, but when you take a look at the Susquehanna Flats, for example, which we expected would suffer some severe damage like it did in Agnes in 1972, it was not as severely impacted as we thought it would be. And that is an example of the resilience that I mentioned. It is starting to get rebuilt back into the Bay system.

But we need to look at trends over a longer period of time, and that is why I think the Hopkins and the University of Maryland study is instructive in that regard. The ecosystem sometimes takes a while to respond to the measures we implement to reduce pollution loading. We are at the point now, for example, under the TMDL—we have only had really about 2 and a half years of implementation. Phase II watershed implementation plans have been approved and the first 2-year milestones—we are 1 year into the first 2-year milestones under the TMDL. But I think we are at a point now where we are going to see some of these measures being implemented and we are going to get over that tipping point for the Bay restoration effort. We are going to see some significant improvement, for example, in stormwater controls. Many of the localities are adopting stormwater utility fees. They have got projects that they are ready and willing to undertake. And as those projects are implemented, we are going to see more and more progress taking place.

Senator CARDIN. Let me just quickly go through the different major areas of concern. In agriculture, which a large part is not

under the EPA's direct jurisdiction, which I understand, we have made a lot of progress in our State. The Farm Bill is critically important in the conservation sections and we hope that we can resolve them.

The administration could move more aggressively on the nutrient trading program. They have the authority and we have seen it work in other areas where we have provided the right incentives for the private sector to develop more cost effective solutions. Pennsylvania has used a nutrient trading program in agriculture.

Where are we as far as the administration looking at ways to implement an effective nutrient trading program for the Bay region?

Mr. DIPASQUALE. As you know, there are three States right now that have active trading programs: Maryland, Virginia, and Pennsylvania. We are not developing a single trading program at EPA that then is delegated to the States. What we are trying to do is harmonize the trading programs that are out there, and we are issuing a series of technical memoranda that will essentially set the expectations for the jurisdictions to use in either establishing or refining their own program so they can get credit under the TMDL. We have probably got about half the technical memoranda we have identified out and being reviewed or in the process of being implemented, and the States will be making changes, hopefully, to their programs to be more consistent with that overall general expectation.

But I agree that once the rules of the game are well defined, we are going to see more active participation on the part of buyers and sellers in that market.

Senator CARDIN. I think there is a role for the Federal Government to play here. I understand the States are moving forward, but I would just encourage you to take a good look at this because I think this is a win-win situation. We are looking at some of the costs on the local governments on dealing with water issues versus working with the agricultural community for nutrient reductions. The cost issues could very well dictate some help for local government on nutrient trading programs. So I think a Federal role is needed here, and I would just urge you to just look at this and see whether we cannot move it forward aggressively in dealing with the nutrient reduction levels.

Let me talk just a little bit about development. We are still waiting for the runoff regulations on storm runoff issues from EPA. We have been waiting a long time. We would like to see that issue. The stormwater runoff issue is the largest growth area of concern of pollutants going into the Bay.

I was at a brick company. August gives me a chance to get out and see my State. So we have this greater Maryland tour, and we went to the Ernest Maier Brick Company. I always give plugs to Maryland businesses. And they have ways of doing surfaces that look like they are concrete, but the water is managed on the runoff, giving us the best of all worlds, giving you the use of the surface but also helping us on runoff and doing it in a more responsible way to actually control the volume of runoff by how they do the underpinnings to the brick work.

It seems to me that there is a lot of potential here in dealing with stormwater runoff that you have not yet met, and the Federal

Government really does need to be in the leadership. So can you give me a status as to how we are doing on the stormwater runoff issues?

Mr. DIPASQUALE. Well, I am hopeful that proposed regulation will be promulgated relatively soon. I think it will help provide incentives for using low impact development types of techniques similar to that which was undertaken by the District of Columbia in their MS-4 permit. I think that really kind of set an example for how we can use low impact development, green roofs, tree plantings, and that sort of thing to take up both stormwater flow and the nutrients that are contained within it.

I am aware of the example that you mentioned, and in fact, when I am out talking, I use that as an example of ways that communities can make investments because putting those pervious pavers in local communities where they are manufactured actually end up creating more jobs.

Also in that area, there was a local firehouse that put a green roof on. They were able to essentially contain all of the water that came down on their facility, and whatever overflow actually occurred, they had a storage tank that they would contain the water in and then use that for firefighting purposes. They would actually use it to fill their tanker trucks.

So that kind of creative thinking. As I go around the watershed, I see a lot of innovation occurring. Charlottesville, Virginia; Lynchburg, Virginia; Lancaster City, Pennsylvania. You see some very creative approaches being taken by public works directors and local city councils to deal with some of the issues that are before them. They know the cost is high. They are looking for ways to reduce the cost and still make the improvement in water quality that they are expected to make.

Senator CARDIN. And we would hope that your policies will encourage that. We understand that population growth will continue. People want to live in this area. That means there is more pressure on construction. Construction done in the right way can help us deal with the problems, but in the wrong way, compounds the challenges. So if we are all going to work together, then we have to have an aggressive policy to deal with the realities of construction whether it is public construction or whether it is private construction, and the Government has to be in the leadership. That is why the regulations here are particularly important. We understand we have got to get it right. We want to work with you to move ahead in this area.

Last, let me just mention the problems of local governments, and we will hear from some of the local people today. Financially they need a more aggressive way of dealing with development, particularly how they deal with water infrastructure. We need creative ways. Mayor Stephanie Rawlings-Blake testified before our Committee—this was a year or a year and a half ago—urging some new approaches. And I have introduced legislation on the resiliency trust fund where we try to leverage dollars to deal with the dollar amounts. The numbers that you are throwing out on the need for water infrastructure are huge. We need some new initiatives. There is just not enough money under the current programs to deal with this challenge.

Mr. DIPASQUALE. Well, we have held a series of environmental finance workshops throughout the watershed to provide local communities with a variety of tools and approaches that they can use to help finance those kinds of improvements. Again, as I mentioned previously, we see a lot of innovation taking place. That is driven by the high cost of implementing some of this, and we are trying to use those as example throughout the watershed for other communities to consider.

I also think there is a role for the private sector. Private sector financing and trading is another example of using a mechanism to drive the costs down while achieving the water quality objective. But the private sector is out there. They are interested. We get contacted on a pretty routine basis. They are looking for opportunities to use private capital to make some of these improvements. And actually one of the concerns we have is with the capacity of local governments to take on a large number of projects all at one time. We see the use of the private sector as being a way to help get the job done essentially.

Senator CARDIN. I agree with that. What brings our Committee together, Democrats and Republicans, are ways that we can leverage investment, whether it is roads, bridges, transit systems or whether it is water infrastructure. It brings us together. I think, finding what has worked in local communities and trying to model that, and trying to provide incentives for that makes sense.

So we hope that you will share best practices and creative ways. We know the deficit that is there. We have had too many Beltway closings and business evacuations in our State and around the Nation too many times. We have seen businesses and lives put at risk because of water main breaks. We have got to deal with this, and finding creative ways, I am convinced that we can get the critical mass of Congress to support critical ways to advance investment in modernizing our water infrastructure. So I hope that you will encourage local governments to come in with creative solutions where we can help as a partner in advancing a greater commitment to infrastructure improvement.

Let me turn to Congressman Sarbanes.

Representative SARBANES. Thank you, Senator. I just have a couple of quick questions.

Let me just preface it by saying this concept of resilience is really an exciting one. It is when those who are trying to help the Bay sort of enter into partnership with the Bay itself. As we hit those tipping points as the Bay achieves resilience or portions of the Bay achieve this resilience, we want to make sure we preserve that and do not slide back. So I am very intrigued by your observations in that regard.

I wondered if you could just describe the importance of bringing new States into the agreement that is being put together now for the next version of the Chesapeake Bay Program and sort of the potential that is represented to do this in a more formal way.

Mr. DIPASQUALE. Well, as you may know, currently the headwater States are participating on the water quality side of it through a memorandum of understanding. So they have never really been full partners in the partnership agreement, although some

of them certainly have interest in fisheries and habitat and some of the other components of the partnership effort.

The new agreement is not going to be an overhaul of the old agreement. It is basically going to be a refinement and it is going to provide some unique features that have not existed before. So we have been going through a process over the last almost 2 years now of looking at the goals that were set out under previous agreements under the Executive order strategy under the TMDL, and we are trying to harmonize those so that all of these efforts are moving in the same direction at the same time and that we are making the most effective use of our resources. In fact, the Executive order strategy anticipated that and directed us to do that. The Chesapeake Bay Executive Council likewise directed us to go out and refine our goals and outcomes. So we have been engaged in that process for about 2 years.

After the first of the year, we really started to take a look at how we could develop a new agreement that is going to be a lot more flexible. So one of the things we have done is incorporated an adaptive management decisionmaking framework into the day-to-day implementation activities that are anticipated under the new agreement. We have started to do that previously with the goal implementation teams that we have, fisheries habitat, water quality, so that we actually use the data we are collecting. We are analyzing it. We are trying to determine what factors may be influencing whether or not we are achieving our goal. We are using that as a feedback mechanism to make changes and improvements in the way we go about doing business.

The other feature of the new agreement that I think is new is the use of management strategies to articulate how we intend to achieve each of the outcomes that will be established under the new agreement. Management strategies have not been used previously. This will be a new feature. Everybody who has an interest in participating, whether it is a State jurisdiction, local government, non-governmental organization, academic institution, would all sign on to this management strategy that is designed to achieve a particular outcome. It would have periodic check-in periods every 2 years, similar to the milestones, so we make sure we are staying on target and moving toward that outcome. It would take into account things like impact from land use or the effects of climate change. It would articulate the resources that each of the entities brings to bear on achieving that particular outcome.

So it is increasing the transparency of the way we do business because there will be a plan. This management strategy essentially would be a plan that anyone could look at and participate in or question. So it would be developed with full public participation and people would be able to weigh in on it. It also becomes the accountability vehicle ultimately for making sure we stay on target. I think that is an important feature.

Also, in terms of flexibility, under the agreement as currently drafted, the Executive Council, which is the Governors of the States, the Chairman of the Chesapeake Bay Commission, the EPA Administrator, and the Mayor D.C. would essentially delegate to the principal staff committee, which are the executive secretaries in each of the agencies in each of the jurisdictions, the ability to

make changes to the outcomes. So that as we get information and need to make adjustments, that body would be able to make changes and would not have to go back to make changes to the agreement to accomplish that.

Again, this would be done with full public participation. So I think there are a number of features like that that really are an improvement over the previous one.

Representative SARBANES. And then the last question.

First of all, let me thank the EPA for working closely with us and trying to further develop and pilot this idea of communities stepping up and taking real ownership of efforts to reach these TMDL goals and objectives. And the Chesapeake Bay Homeowner Act we have introduced will basically help us sort of model what could that look like if you have ordinary homeowners who have a menu of options for things they can do on their own property that will, in fact, reduce runoff and otherwise add to the water quality and in so doing move that jurisdiction in a quantifiable way toward the TMDL obligations.

What I am interested in hearing from you is do you believe that if this kind of effort is embraced by ordinary homeowners across the watershed, that it could, in fact, have a meaningful impact on the efforts to move us toward the goals we have.

Mr. DiPASQUALE. Yes. I do not think there is any question that it would have meaningful impact. In my mind, we have an environment that has been degraded and essentially died a death of a thousand cuts, as you have probably heard mentioned, and the only way we are really going to repair that is to repair those individual cuts. We can take care of the big sources of pollution, but I think we need to take care of the little sources of pollution as well.

Your bill—and if I may be so presumptuous to commend you for it—I think is really landmark legislation in the sense that it increases public awareness, No. 1. No. 2, it gives us an insurance policy that we are going to, in fact, get these reductions in nutrients. Specifically in Maryland, I have been told that turf grass now exceeds cropland in terms of the amount of acreage that is in the watershed. So that is a significant source. The legislature in Maryland has passed a fertilizer law that essentially reduces nutrients and makes those improvements. I think there is an appetite among homeowners to put in rain gardens, put in rain barrels, to look for ways to divert stormwater runoff from city streets and ultimately storm sewer systems. I think we have to do that if we think we are going to get to where we need to be in an expeditious fashion. So thank you again for your leadership in that regard.

Representative SARBANES. Thank you.

Senator CARDIN. What is the timeframe for trying to get the parties together on the updated agreement?

Mr. DiPASQUALE. Right now we are making good progress. In fact, there will be a meeting this afternoon where we go over some of the changes that have been agreed to, but we are looking at probably early to mid-December for having an agreement ready to sign by the Executive Council members.

Senator CARDIN. And it will provide for a more open review?

Mr. DiPASQUALE. Yes. We will be having a 30-day comment period. We had one, essentially an outline for the agreement and the

initial set of goals and outcomes that we put out for public review and actually got a pretty good response on that. We are in the process now of actually developing a narrative that would fill out the agreement, and we intend at this point to put that out for public notice probably toward the end of September, and we have public review for 30 days. Then we would take the input that we have from that process, make changes, and hopefully have a final agreement ready to be signed by mid-December of this year.

Senator CARDIN. One of the major challenges of the previous agreements has been the rigidity, as you point out. To try to make adjustments and reconvene and try to get to the next agreement was cumbersome and basically not an option that was available. So I am intrigued by the process that you anticipate would be included here where adjustments can be formally made through a less formal process.

Mr. DiPASQUALE. The overall structure of the partnership is goal implementation teams who I say do the heavy lifting of the organization. They are the science folks, the technical people who make recommendations up to the management board, and the management board, which I chair, is kind of the implementation level for the partnership. And the management board actually in this case is going to—as the agreement is currently drafted, would be overseeing the development of the management strategies, and they would review and approve those.

The next level up is the principal staff committee, which is the executive secretaries from each of the agencies and counterparts, for example, in the commission and in the Federal agencies. They would have the authority to make changes to the outcomes only, not the overall goals of the partnership, but the outcomes, those things that are specifically deliverable, for example, setting a reforestation goal. If for some reason, that needed to be adjusted up or down, the principal staff committee using the adaptive management process that I referred to earlier would take a look at whether or not they agreed with doing that, and then they would make the decision at that level with full public participation. All of the meetings that we have had, management board meetings, principal staff committee meetings are all advertised. They are open to the public. We have opportunity for public review and comment in that process. So the principal staff committee would be given the authority to make changes in those specific outcomes.

Senator CARDIN. Of course, it cuts both ways. It can be used to strengthen, but it also can be used to give more leeway and perhaps weaken. And so it is of concern.

But I think to make this a little less rigid makes sense, provided that it is an open process. And again, based upon the best science and outcome available to reach the goals that have already been established to me makes a lot of sense. So I would urge you to do this in a very open, transparent manner, as you are already suggesting, so the confidence this program has enjoyed for 30 years is maintained.

Thank you very much. We appreciate your testimony.

We will move to our second panel. Let me invite up Will Baker, a familiar face on the effort of the Chesapeake Bay. Will Baker is the head of the Chesapeake Bay Foundation, the largest not-for-

profit conservation organization dedicated solely to preserving and protecting and restoring the Chesapeake Bay. He was rightfully acknowledged to receive the Presidential Medal for Environmental Excellence.

Paul Spies is the Agricultural Conservation Planner of the Chester River Association. He continues to assist his family to operate their 1,000-acre grain farm and vineyard in Talbot County, Maryland, not far from where we are here.

It is a pleasure to have Laura Neuman, who is the County Executive for Anne Arundel County, Maryland, not very far from where we are right now. And under her leadership, she has brought Anne Arundel County together, and I applaud her for her incredible leadership in the county. That is one of our great counties in our State.

We will start with Mr. Baker.

STATEMENT OF WILLIAM C. BAKER, PRESIDENT, CHESAPEAKE BAY FOUNDATION

Mr. BAKER. Thank you very much. Senator Cardin, Congressman Sarbanes, you all both have been great leaders.

And, Congressman, allow me just to say a few more words about Senator Cardin. His leadership goes back all the way to the Maryland House of Delegates. Some in the audience may not know you were elected when you were still in law school. You were the youngest speaker of the house in Maryland, and you went on to Congress. What outstanding contributions you have made to our State and to the health and benefit of the Chesapeake Bay.

Senator CARDIN. I will give you an extra 5 minutes.

[Laughter.]

Mr. BAKER. I was going to bargain for 6, but I will take 5. So thank you both.

The Bay is America's largest estuary with Washington, DC, at the very center of its watershed. It is a national and, as you said, Senator, even international treasure with 17 million, close to 18 million people, and it is growing at 150,000 people a year.

So how is it doing? The Bay is getting better, but it is still a system dangerously out of balance. Let me repeat it. It is getting better, but it is still dangerously out of balance. CBF's scientists score the health of the Chesapeake at a 32 on a scale of 0 to 100. That is a D+. We are a little bit harder graders than the University of Maryland. So the Bay is still ecologically functioning at only about a third of its historic capacity.

Every summer we know about the mainstem and the tributaries plagued by dead zones, not enough oxygen to sustain life. On average, about 60 percent of the Bay and its tidal tributaries have insufficient levels of oxygen.

But the Chesapeake Bay is still a significant economic engine. In 2009, the commercial seafood industry in Maryland and Virginia alone contributed \$3.4 billion in sales, \$890 million in income, and almost 34,000 jobs to the local economy. Think, if the Bay were fully restored, what that would mean, and think of the loss just with oysters in the last 30 years, \$4 billion in lost revenues in Maryland and Virginia.

So let us look at what has been done so far.

The first three Bay agreements, 1983, 1987, and 2000, had no enforcement protocols. Elected officials signed them with great fanfare and terrifically good intentions, but when the deadlines arrived, pollution reduction targets were missed not by an inch but by a mile every time. So in 2009, CBF and a number of partners sued EPA for failure to enforce the Clean Water Act and the terms of the Chesapeake Bay agreements.

In December 2010, EPA and the jurisdictions finalized a new agreement, this one with teeth. It was called the TMDL, what the Chesapeake Bay Foundation calls the Chesapeake Clean Water Blueprint. Two-year transparent, reportable, and enforceable milestones, each of which must build to the ultimate deadline of 2025 make it very different from what has come before.

In July, we evaluated the progress being made toward the 2012–2013 milestones and found that all of the jurisdictions were making some progress toward their goals for that milestone, but no jurisdiction was on track to implement all of the pollution reduction practices they committed to achieve by the end of 2013. So while much remains to be done, scientists are seeing examples of improved water quality, better habitat conditions, and there is evidence that the dead zone, as you reported, is getting smaller, not gone but at least going in the right direction. And as you all mentioned, scientists speculate that we may be beginning to see some positive feedback loops as improvement strategies build one on the other.

Think of this as a vicious cycle in reverse. We have had plenty of vicious cycles in the Bay history. Now maybe we are seeing one in reverse. In my full testimony, we detail a number of success stories, including Mattawoman Creek in Maryland, the Litiz Run in Pennsylvania, Muddy Creek in Virginia, Gravelly Branch in Delaware, and others.

But we also detail sobering news. 2012 was the third year in a row that acres of underwater grasses declined on a Bay-wide scale with current levels approaching a low last reported in 1986. And one of the most prized fresh water sport fish species, smallmouth bass, has suffered fish kills and perplexing illnesses in several Bay tributaries. In some areas, smallmouth bass populations have plummeted and there are signs that the health of the Bay's iconic rockfish, striped bass, is deteriorating. And finally, just this last summer, we have seen way too many "no swimming" advisories issued by health departments.

So we must do more. Critical to the effort is Federal funding and technical assistance to local jurisdictions. To quote Yogi Berra, we must not snatch defeat from the jaws of victory. I think Yogi Berra said that. I actually just assume that. But we are getting close. We cannot lose it at this point. So we are on the verge of success. We need Federal leadership to continue. The Federal Government is the only jurisdiction—when you look at this chart, six States, 64,000 square miles—the Federal Government is the only jurisdiction of government that can do what science says has to happen: manage this as one single ecological system. So we need the Federal Government to continue its leadership.

The States and all of the stakeholders also need certainty that Bay implementation is fair. This certainty will come from a trans-

parent clean up process so that all parties know that each other party is doing its job and Federal assistance to provide consistent funding and technical assistance to help individuals and communities defray the cost. Existing programs in the Clean Water Act are helpful, but local governments—and I am sure Ms. Neuman will talk about this—local governments need more, such as a dedicated grants program to help address polluted runoff, the only source of pollution which continues to increase.

Finally, the importance of the Bay Program. As we have heard from Nick, it coordinates the science and the research and modeling and support services, data collection. It is essential for the Bay Program to continue to operate. The Clean Water Blueprint has infused new life, but what it has undone far exceeds what has been done to date. Now is not the time to rest. Now is, as Don Bosch says, the moment in time. We have got the best science, the technology, the know-how to get the job done. This is our watch. Our legacy to leave our children and grandchildren is an imperative.

Thank you very much, Senator. Thank you, Congressman.
[The prepared statement of Mr. Baker follows:]



CHESAPEAKE BAY FOUNDATION

Saving a National Treasure

Statement of Mr. William C. Baker
President, Chesapeake Bay Foundation
Prepared for a Subcommittee on Water and Wildlife Field Hearing entitled
Chesapeake Bay Restoration: Progress and Challenges

Good morning, Chairman Cardin, Ranking Member Boozman, and Members of the Subcommittee. I am Will Baker, President of the Chesapeake Bay Foundation (CBF). Thank you for inviting me, on behalf of CBF's Board of Trustees, staff, and more than 200,000 members, to participate in today's hearing.

For more than 40 years, the CBF has been working to protect and restore the Chesapeake Bay and its rivers and streams. The Chesapeake Bay is America's largest estuary, and its 64,000 square mile watershed – from Cooperstown, New York to Cape Henry, Virginia and westward to the Allegheny Mountains – is a large part of the Mid-Atlantic states. More than 17 million people live in the Chesapeake Bay watershed, a number that is increasing by roughly 150,000 each year.

Overview of the State of the Bay

For years, CBF has issued our signature State of the Bay report. The slow rate of progress being made to improve water quality and protect the living resources of the Chesapeake Bay system continues to be a concern. The numeric score that our scientists calculated last year to represent the overall health of the Chesapeake Bay – 32 on a scale of 100 - means that the Bay is ecologically functioning at only about one-third of its historic capacity, and is not improving nearly as fast as we would like. The most systemic problem continues to be an overload of nitrogen and phosphorus pollution creating a lack of dissolved oxygen in many parts of the Bay and its tributaries.

Every summer, the mainstem of the Bay and several of its tributaries are plagued by dead zones, where not enough dissolved oxygen exists to sustain many forms of aquatic life. The volume of water affected by these dead zones varies by year, but on average about 60% of the Bay and its tidal rivers have insufficient levels of oxygen. The Bay's problems are not unique – coastal and estuarine systems around the country and the world suffer from similar problems.

Yet the Bay is still an economic engine. In 2009, the commercial seafood industry in Maryland and Virginia contributed \$3.39 billion in sales, \$890 million in income, and almost 34,000 jobs to the local economy.¹ A National Fish and Wildlife Foundation study found that recreational power boating generated nearly \$33 billion in revenue nationwide and \$5 billion for the Chesapeake Bay region's economy.

¹ www.st.nfms.noaa.gov/st5/publications/fisheries_economics_2009.html.

One can only imagine what the Bay would produce if it were restored. Take oysters for example. The decline of oysters over the last 30 years has meant a loss of more than \$4 billion for Maryland and Virginia.² In 2010, the harvest of over one million pounds of oysters from the Chesapeake was valued at \$9.4 million – a small fraction of what it was.³

History of Bay Cleanup

The Bay cleanup has a long and storied history. In 1976, Congress directed EPA to undertake a comprehensive study of the Bay focused on its water quality and living resources. Six years later, the U.S. Environmental Protection Agency (EPA) finished the comprehensive study and, in September 1983, released a lengthy report, *Chesapeake Bay: A Framework for Action*. The report identified nutrient pollution as the greatest threat to the Bay, and recognized that the problem could not be solved without addressing the entire watershed – not just the Bay states of Maryland and Virginia. The report also provided an innovative blueprint for the intergovernmental, inter-jurisdictional “Chesapeake Bay Program” that was formed that December when the *Chesapeake Bay Agreement of 1983* was signed by a group that would be known as the Chesapeake Executive Council – the governors of Maryland, Pennsylvania and Virginia, the Mayor of the District of Columbia, the Administrator of the EPA and the Chair of the Chesapeake Bay Commission. The organized and institutional voluntary effort to restore the Bay had begun.

In February 1987, Congress overrode President Reagan’s veto and passed the reauthorization of the Water Quality Act of 1987 (Clean Water Act or “CWA”), which included a new section entitled “Chesapeake Bay.” This provision, known as Section 117, basically codified the Chesapeake Bay Program and authorized Congress to continue funding the restoration effort at \$13 million annually.⁴

In December 1987, the Chesapeake Executive Council signed the *1987 Chesapeake Bay Agreement*, which for the first time included specific quantitative goals and commitments. The centerpiece of the agreement was a goal to reduce nutrient pollution to the Bay by 40% by 2000. The *1992 Amendments to the Chesapeake Bay Agreement* recognized the need to reduce nutrients in the tributaries and called for the states to develop “tributary-specific strategies” on how to meet the nutrient reduction goal.

In 1998, a lawsuit filed by the American Canoe and American Littoral Society against the EPA alleged Virginia was not timely and complete in listing its Clean Water Act Section 303(d) impaired waters and preparing Total Maximum Daily Loads (TMDLs) for those waters, and that EPA failed in its non-discretionary duty under the Clean Water Act to take over when the state had failed to do so.

² U.S. Army Corps of Engineers. 2008. Oyster Environmental Impact Statement. http://www.nao.usace.army.mil/OysterEIS/FINAL_PEIS/homepage.asp

³ www.st.nfms.noaa.gov/st1/commercial/landings/annual_landings.html.

⁴ In 2000, Congress passed a reauthorization of Section 117 of the Clean Water Act, which did not substantially alter the approach or make up of the Chesapeake Bay Program, but did increase the authorization level to \$40 million annually.

The lawsuit was settled with a consent agreement in June 1999. Under the terms of the court agreement, EPA would ensure that Virginia completed its listing of impaired waters and developed TMDLs for all waters on the 1998 list by May 1, 2010. If Virginia did not do so, EPA would complete them no later than May 1, 2011. If waters met water quality standards any time up to May 1, 2011, they would be removed from the list and there would be no need for TMDLs for those waters.

The Chesapeake Bay partners failed to achieve the 40% nutrient reduction goal by 2000 set forth in the 1987 agreement. Consequently, in June 2000, the Chesapeake Executive Council signed the *Chesapeake 2000* agreement. This agreement contained more than a hundred commitments, including a re-affirmation of the 40% nutrient reduction goal and a commitment to reduce sediment and nutrient loads sufficient to remove the Bay and its tidal rivers from the impaired waters list by the 2010 deadline. Also in 2000, both Delaware and New York signed an Memorandum of Understanding with the other Chesapeake Bay Program partners and agreed to adopt the Water Quality goals of the *Chesapeake 2000* agreement. West Virginia followed suit in 2002.

The signing of the *Chesapeake 2000* agreement triggered the development and adoption of scientifically robust water quality standards for dissolved oxygen, water clarity, and chlorophyll (a) for the tidal sections of the Bay watershed as well as the nutrient and sediment load allocations for all river basins and states in the watershed needed to achieve those water quality standards. These allocations guided subsequent revisions to, or development of, state tributary strategies.

In 2007, the Chesapeake Executive Council was once again forced to announce that the Chesapeake Bay Program would not meet its water quality goals. In January 2009, CBF, along with several signatories to the Chesapeake Bay Agreements, a fishing association, and two watermen's associations, filed a complaint against EPA for failure to comply with the Clean Water Act and the terms of the Chesapeake Bay Agreements. After 15 months of negotiation, a settlement was finalized in May 2010. The settlement agreement explicitly incorporated the TMDL process, providing a legally binding, enforceable commitment that EPA would take specific actions under its current authority to ensure that pollution to rivers, streams, and the Chesapeake Bay is reduced sufficiently to remove the Bay from the federal "impaired waters" list.

In December 2010, the EPA and the Bay jurisdictions finalized the Chesapeake Bay TMDL⁵ for nitrogen, phosphorus, and sediment along with the jurisdiction-specific plans to achieve those pollution limits (<http://www.epa.gov/chesapeakebaytmdl/>) -- together known as the Chesapeake Clean Water Blueprint. Furthermore, EPA and the Bay jurisdictions agreed to implement 60 percent of their Bay cleanup practices by 2017 and 100 percent by 2025. To develop these plans, Bay jurisdictions worked with local governments to take advantage of local knowledge about sources such that the pollution reduction requirements were equitably distributed and one sector was not burdened at the expense of another. Furthermore, EPA is using its oversight authority under the Clean Water Act to help ensure implementation and the Bay jurisdictions have agreed to hold themselves accountable by specifying, in two-year increments, milestones for how they will implement their clean up plans.

⁵ The "Chesapeake Bay TMDL" actually applies to 92 impaired segments.

The importance of federal leadership for Bay cleanup cannot be understated. When it became clear, even with the Bay Agreement and the Chesapeake Bay Program, that the states were not going to meet their 2010 cleanup goals, they formally acknowledged that they needed federal leadership. On June 19, 2008 at the Chesapeake Bay Program's Principal's Staff Committee, Virginia Secretary of Natural Resources L. Preston Bryant made a motion to develop a TMDL by the end of 2010. The motion to develop the TMDL was approved without dissent. Simply put, Bay states recognized that setting the Bay total maximum daily load for nitrogen, phosphorus and sediment was a job that only EPA – with its cross-state jurisdiction and team of scientists– could do.

This federal leadership, with its heightened level of commitment and accountability, has proved to be the vital ingredient necessary to get the cleanup on track and create what Dr. Donald Boesch, Professor and President of the University of Maryland Center for Environmental Science and Vice Chancellor for Environmental Sustainability for the University System of Maryland, has referred to as “The Moment in Time” to save the Bay. When the Blueprint was established, he wrote, “. . . this is not just a moment in time, but the only moment our society will ever have to restore the Bay. As a scientist, I am trained to rely on empirical evidence rather than wishful thinking. There is just no evidence for concluding that we will have another chance after 2025 given the record of performance and additional mounting pressures that will result from population growth and climate change.”⁶

How are we doing?

We are making progress. Since 1985, the Bay jurisdictions have implemented practices to achieve roughly half of the needed pollution reductions. Furthermore, to track progress toward achieving the 2017 and 2025 deadlines for implementing the Clean Water Blueprint, the Bay states and the District of Columbia agreed to establish interim, two-year cleanup goals called milestones, and to publicly report progress toward achieving them beginning January 2011. The two-year milestones and progress reports are critical tools to hold the states and EPA publicly accountable.

In July, CBF partnered with the Choose Clean Water Coalition to evaluate progress being made toward the 2012-2013 milestones. Results indicated that all the jurisdictions in the Chesapeake Bay region were making progress towards meeting pollution reduction goals, but no jurisdiction was on track to implement all the pollution reduction practices they committed to achieve by 2013 (for details, go to: <http://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/update-on-local-efforts>). The milestone analysis was designed to ensure that commitments were being met, and if not, that actions would be taken to compensate for any shortfall.

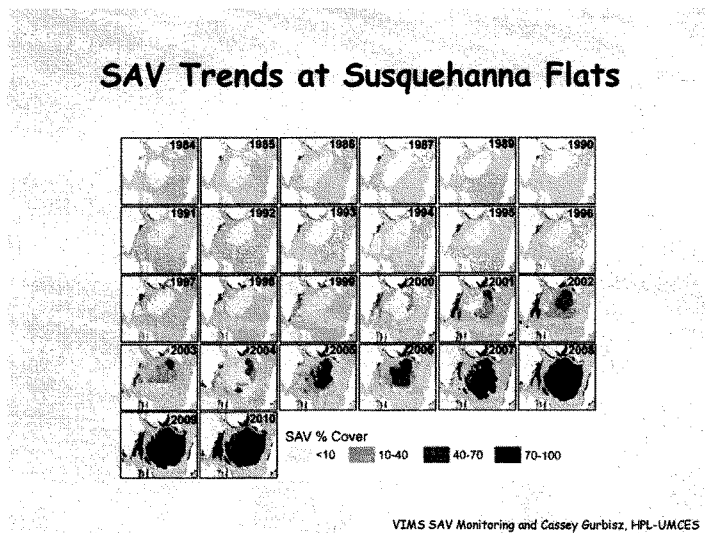
Perhaps more importantly, scientists are increasingly seeing examples that validate this restoration approach: Reductions of nitrogen, phosphorus and sediment are resulting in improved water quality and better habitat conditions. In turn, these improved conditions will lead to more fish and crabs and in the long run, an economic boost for communities

⁶ http://www.capitalgazette.com/news/our-bay-the-moment-in-time/article_ce7685b2-dfe6-5489-929f-b81e5cd86754.html

throughout the region. I will now highlight a few examples of where scientists are seeing improvements.

First, there is evidence that the Bay's dead zone is shrinking. Researchers at Johns Hopkins University and the University of Maryland have attributed a long-term downward trend in the size of the late summer dead zone to reductions in nitrogen pollution, concluding that our nutrient reduction efforts are, in fact, working.⁷

Second, the huge, dense underwater grass bed (known as submerged aquatic vegetation or "SAV") on the Susquehanna Flats – which has tripled in size over the past 20 years – has been widely cited as an example of the recovering Bay ecosystem (see slide below, courtesy of Dr. Walter Boynton, UMD). Scientists have linked the increased grasses in this area in the upper Chesapeake Bay with declines in nitrogen levels.⁸ Moreover, scientists speculate there may be a positive feedback loop in which the presence of grasses helps improve water clarity, which, in turn, creates more favorable conditions for establishment of additional grasses. These healthy, robust grass beds are better able to withstand extreme conditions, such as the one-two punch of Hurricane Irene and Tropical Storm Lee that dumped lots of rain and with it, sediment pollution, on the region in the fall of 2011.⁹

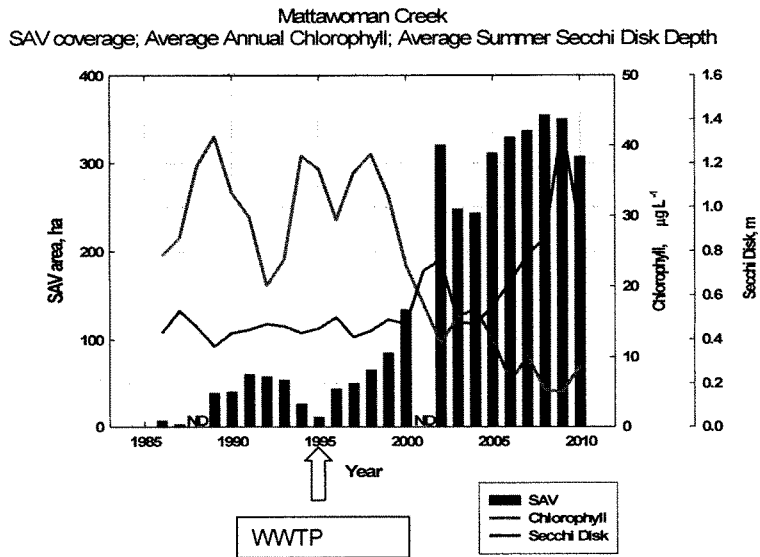


⁷ Murphy, R.R., W.M. Kemp, and W.P. Ball. 2011. Long-term Trends in Chesapeake Bay Seasonal Hypoxia, Stratification, and Nutrient Loading. *Estuaries and Coasts*.

⁸ Orth, R.J., et al. 2010. Long-Term Trends in Submersed Aquatic Vegetation (SAV) in Chesapeake Bay, USA, Related to Water Quality. *Estuaries and Coasts* 33:1144–1163.

⁹ http://web.vims.edu/bio/sav/sav12/exec_summary.html.

One of the most clear cut examples of the benefits of a single management action comes from an analysis of water quality in Mattawoman Creek, Maryland, by Dr. Walter Boynton and his colleagues at the University of Maryland. Mattawoman Creek, a tributary of the Potomac River located downstream of Washington, DC, saw decreases in algae blooms (as measured by concentrations of chlorophyll) and subsequent increases in water clarity (as estimated by secchi disk depth) that ultimately led to an explosion of aquatic grasses from near zero to several hundred acres after upgrades to a wastewater treatment plant (WWTP) in the mid 1990s (see figure below). This study also clearly demonstrates one of the challenges of sustaining our restoration efforts -- a lag time of several years between when the management action was implemented (i.e., the wastewater plant was upgraded) and the ecological system responded. For a variety of reasons, lag times for controls on “nonpoint” sources are often expected to be even longer.



We are also seeing improvements upstream in the watershed. An oft-cited example is the recovery of Litz Run, a tributary of the Susquehanna River in Pennsylvania. This stream has been the focus of intense restoration efforts including livestock exclusion fencing, forested riparian buffers, bank stabilization, livestock crossings, and installation of fish habitat structures¹⁰. Restoration efforts were initiated by the local Trout Unlimited chapter,

¹⁰ http://www.warwicktownship.org/warwick/lib/warwick/LRWA_history.pdf

but soon grew to include local, state and federal partners as well as private businesses. As a result of these collective efforts, a naturally reproducing trout population has been restored, bringing this success story national acclaim.

In Virginia, we can look to Muddy Creek, a tributary of the Potomac River, in Rockingham County about 15 miles northwest of Harrisonburg. This stream was listed on the states "impaired" waters list because of high concentrations of nitrate, a form of nitrogen. Federal, state, and local partners started working together in the early 2000s to help landowners implement Best Management Practices, including livestock exclusion fencing, forested riparian buffers, cover crops and barnyard control and animal waste management systems. In addition, state staff helped many landowners upgrade or replace septic systems that were also contributing nitrates to Muddy Creek. As a result of these efforts, in 2010, the Virginia Department of Environmental Quality removed this section of Muddy Creek from the state's list of impaired waters for nitrate-nitrogen.

The success of this conservation initiative in the Muddy Creek watershed was largely attributed to partnerships between the local community and the conservation organizations that serve the watershed (including CBF), as well as federal funds, including CWA section 319 funds, the U.S. Department of Agriculture (USDA) Conservation Reserve Enhancement and Environmental Quality Incentives Programs (CREP and EQIP), and state and private (grant) funds.

A similar success story can be found in Southern Delaware. Gravelly Branch drains into the Nanticoke River, which in turn flows into the Chesapeake Bay. A 6.5-mile-long segment of Gravelly Branch was placed on the state's 1996 CWA section 303(d) list of impaired waters for bacteria. Like Muddy Creek, the probable sources of contamination were discharges from failing septic systems and agriculture. The solutions were also much the same as we saw at Muddy Creek. With the technical and financial assistance of state and federal agencies, landowners in the Gravelly Branch watershed installed manure storage sheds and other types of waste management systems, introduced dead-bird composters, planted trees, created wetlands, and connected hundreds of septic systems to central sewer system. Gravelly Branch was removed from the state's list of impaired waters in 2008.

Once again partnerships and funding were the keys to success, including CWA Section 319 funds, USDA EQIP and CREP programs, and the Delaware Conservation Cost Share program. In addition, funds from Delaware's State Revolving Fund supported the development of the centralized sewer system.

These are just a few examples of local communities, conservation organizations, private landowners, and state and federal partners working collaboratively to achieve a common goal of clean water. These models of success portend our future if the Clean Water Blueprint is implemented throughout the watershed.

But this is no time for complacency. There are also, unfortunately, plenty of examples that the Chesapeake Bay ecosystem is still dangerously out of balance.

While robust grass beds on the Susquehanna Flats offer an example of the Bay's recovery, the annual aerial survey conducted by the Virginia Institute of Marine Science showed a 21 percent decline in the total amount of Bay grasses in 2012. This was the third year in a row

that acres of underwater grasses declined on a baywide scale, with current levels approaching the low last reported in 1986. Scientists attributed last year's decline in grass beds to a combination of warmer-than-normal water temperatures seen in 2010 and strong storms occurring in the early fall of 2011 and believe that improved water quality would help the grasses withstand these episodic impacts.¹¹

During the summer months, many waters in the Chesapeake region are unsafe for swimming. Beach closures and no-swimming advisories are most commonly triggered by high levels of fecal bacteria in the waters, but others are due to blooms of toxic algae. In fact, just last week, there was a bloom of toxic blue-green algae known as *Microcystis* that occurred in Northwest Creek in Stevensville, Maryland. The bloom caused a fish kill and neighbors were warned to stay away from the water as it is also dangerous to humans and their pets.

Over the last decade, one of the most prized freshwater sport-fish species -- smallmouth bass -- has suffered fish kills and perplexing illnesses in several Bay tributaries.¹² These tributary rivers include the South Branch of the Potomac River in West Virginia, the Shenandoah and Cowpasture Rivers in Virginia, the Monocacy River in Maryland, and the Susquehanna River in Pennsylvania. Problems with the fish have included lesions, blotchy skin, lethargic behavior, and abnormal sexual development in which males grow eggs in their testes.

In the Susquehanna River, smallmouth bass populations have plummeted, with catch rates of adults falling 80 percent between 2001 and 2005 in some areas. According to the Pennsylvania Fish and Boat Commission, the population has not recovered. In 2012, this dramatic decline prompted the state agency to impose emergency regulations that prohibit fishing for the species in much of the river from May 1 to June 15. Although the specific causes of the deaths and illnesses among smallmouth bass remain unclear, leading fisheries biologists studying the problem believe that a "perfect storm" of nitrogen and phosphorus pollution, rising water temperatures, and chemical contaminants may have combined to weaken the immune systems of smallmouth bass and make them more susceptible to naturally occurring bacteria, viruses, and parasites.

There also are signs that the health of rockfish, the Bay's iconic fish that is also known as striped bass, is deteriorating. A moratorium on fishing in the 1980s helped this species bounce back from near collapse. As a result of the moratorium and improved fisheries management in general, the striped bass population is now at its highest level in decades. Numbers have declined slightly in the last several years, however, and scientists are again concerned about the health of the species because of a high prevalence of disease and possible shortage of prey. In particular, striped bass have a high prevalence of a disease called *mycobacteriosis*, which can be fatal. Specific causes of the disease are unknown, but scientists suspect that it may be related to a combination of poor water quality conditions and the diminished nutritional state of fish due to lack of their preferred prey, Atlantic menhaden.

¹¹ http://www.chesapeakebay.net/blog/post/chesapeake_bays_underwater_grasses_decline_in_2012

¹² Summarized in CBF's "Angling for Healthier Rivers: The Link Between Smallmouth Bass Mortality and Disease and the Need to Reduce Water Pollution in Chesapeake Bay Tributaries" April 2013. Found here: <http://www.cbf.org/2013-smallmouth-bass-report-embedded-pdf>

While discussing the Bay's water-quality problems, I would be remiss if I did not address concerns about sediment build-up at the Conowingo Dam. In the mid-1990s, researchers estimated that the three upstream Susquehanna dams, including the Conowingo Dam, were trapping about two percent of the nitrogen, 40 percent of the phosphorus, and 70 percent of the suspended sediment that would have entered the Bay from the Susquehanna River. By trapping suspended sediment, the Conowingo has helped reduce contributions of sediment and phosphorus to the Chesapeake and helped to restore the Bay. But the sediment storage capacity of Conowingo Reservoir has gradually declined.

The Blueprint process is designed to adapt to changes during implementation, like the challenges we are seeing with the Conowingo Dam. Federal leadership will be critical, however, to ensure that all parties remain accountable to doing their part.

CBF recently intervened in the administrative proceedings of the Federal Energy Regulatory Commission (FERC) for the re-licensing of the dam's hydropower facility, and we will continue to pursue a comprehensive solution to the water quality and habitat impacts of the dam. A comprehensive solution must include a significant role for Exelon Corporation, the dam's owner, in managing the sediment in Conowingo's reservoirs to reduce pollution. New York and especially Pennsylvania must continue their efforts to reduce pollution to the Susquehanna River and the Bay.

But even as we increase pressure on upstream areas to reduce pollution, it does not in any way diminish the urgent need for Maryland, Delaware and Virginia to continue to push equally hard to meet their Blueprint obligations. Although it is true that Susquehanna has a large impact on water quality in the mainstem of the Chesapeake Bay, it has little to no influence on other rivers that feed the bay, particular the non-tidal portions, many of which also suffer from the effects of excess nitrogen, phosphorus and sediment pollution. To restore the Choptank, the Nanticoke, the Potomac, the Patuxent, the James, the Rappahannock...the list goes on and on... we need to continue our efforts to reduce pollution across the watershed.

So, even though progress has been made, we must continue to invest in clean water. Doing so will also improve quality of life, spur job creation, and stimulate local economies. For example, a study by the University of Virginia found that implementation of agricultural practices such as livestock stream exclusion, buffers, and animal waste management systems would generate significant economic impacts. Every \$1 of state and/or federal funding invested in agricultural Best Management Practices would generate \$1.56 in economic activity in Virginia. Implementing agricultural practices in Virginia to the levels necessary to restore the Bay would create nearly 12,000 jobs of approximately one year's duration.¹³

In addition, investment in water and sewer infrastructure typically yields greater returns than most other types of public infrastructure. For example, \$1 of water and sewer infrastructure investment increases private output (Gross Domestic Product) in the long-term by \$6.35.

¹³ Rephann, T.J. 2010. Economic Impacts of Implementing Agricultural Best Management Practices to Achieve Goals Outlined in Virginia's Tributary Strategy. Weldon Cooper Center for Public Service, University of Virginia. www.coopercenter.org/sites/default/files/publications/BMP_paper_final.pdf.

Furthermore, adding a job in water and sewer infrastructure creates 3.68 jobs to support that one.¹⁴

Status of Bay Cleanup

Are we on track? Yes, our track record looks good so far and the Bay is responding, but there are troubling signs in Congress that federal funding and technical assistance for the cleanup is not secure. This is true for federal programs across the board, as the nation faces budget issues that have yet to be resolved. But in a cooperative federal-state program like the Bay cleanup, states and local stakeholders are understandably concerned that each party does its share. Only the federal government – in its vital leadership role -- can provide this certainty.

First, states and stakeholders want certainty that Blueprint implementation is fair. This certainty needs to come from transparency of the cleanup process, so that all parties know that the others are doing their part, on schedule, and that what they are doing is working.

They also want to know that the federal government will provide consistent funding and technical assistance to help individuals and communities defray the significant cleanup costs.

Transparency, through state of the art monitoring and evaluation, is an issue that EPA and the states continue to work on together through the Chesapeake Bay Program's Goal Implementation Teams. These teams conduct their work in public and include federal and state representatives as well as stakeholders and technical specialists from invested groups such as the Chesapeake Bay Foundation.

More vexing is sufficient --and consistent --federal funding and technical assistance for stakeholders to defray cleanup costs. Existing programs in the Clean Water Act are critical for successful Bay cleanup, but local governments are very clear that they need additional financial support, particularly to manage polluted runoff from municipal streets.

The Chesapeake Bay Program (CWA 117) provides targeted support to watershed states to meet their Blueprint goals. The Chesapeake Bay Program Office in Annapolis, Maryland coordinates the science, research, modeling, support services, monitoring, data collection, and other activities essential to Blueprint implementation. As a single cross-state ecological system, the Bay watershed requires this sophisticated level of attention. For example, the Bay Program is coordinating the development of trading and offset programs that both ensure pollution reduction requirements are met and create cost-effective options for states to meet their goals. But the lion's share of program funds go directly to grants and cooperative agreements that enable nonprofit organizations, state and local governments, colleges, universities, and interstate agencies to assist with Blueprint implementation. In FY11, the Program received \$54.4M and obligated \$47.7M in project grants. In FY 12, the program received \$57.3M and obligated an estimated \$53.65M in project grants. Of the additional \$15M in the President's proposed FY14 budget, \$12M would fund project grants.

¹⁴ Krop, R.A., C. Hernick, and C. Frantz. 2008. Local Government Investment in Water and Sewer Infrastructure: Adding Value to the National Economy. The U.S. Conference of Mayors, Mayors Water Council.

National programs also provide important support to states. The State and Tribal Assistance Grants Program provides Nonpoint Source Implementation Grants (CWA 319) that are essential to states' efforts to reduce pollution through agricultural, urban, and residential Best Management Practices.

The Pollution Control Grants program (CWA 106) is another important resource to help states, including those in the Bay watershed, manage the federal water pollution permit program, or National Pollution Discharge Elimination System (NPDES). Without robust funding, this essential permit process gets bogged down, resulting in business losses and reduced permit monitoring and enforcement.

Finally, the Clean Water State Revolving Fund (SRF) is an important, flexible financing program that allows states to provide low-cost loans to local governments for the priority wastewater and stormwater projects that are planned in the Chesapeake Clean Water Blueprint. For example, in 2011, watershed states in EPA's Region 3 (Maryland, Pennsylvania, Virginia, West Virginia, and Delaware) received a total of \$163.5M to capitalize their SRF programs. States are counting on the availability of these loans to meet their Blueprint goals.

It is impossible to overstate how important robust and consistent federal funding for grants and loans is for successful implementation of the Chesapeake Bay Blueprint. On the whole, however, the national programs are not designed to provide the increased regional support needed in a targeted cleanup of the magnitude of the Chesapeake Clean Water Blueprint. In addition to these existing programs, a dedicated grants program to help local governments address polluted runoff would go far in addressing local government concerns about the costs of the cleanup.

Conclusion

The Chesapeake Clean Water Blueprint has infused new life into the Bay cleanup. We are seeing accelerated implementation of practices that scientists agree will lead to improved water quality and ultimately a healing of the Bay. However, what is undone far exceeds what has been done to date. Now is not the time to rest, now is "The Moment in Time" that must be seized to accelerate Bay restoration to gain sufficient ground to overcome the continuing crush of population growth. The Bay has suffered centuries of degradation. But we do not have the luxury of time to save it. We have the best science in the world and the technology and know-how to get the job done. This is our watch, our legacy to leave our children and grandchildren. We must succeed.

Senator CARDIN. Thank you very much, Mr. Baker.
Mr. Spies.

**STATEMENT OF PAUL SPIES, AGRICULTURAL CONSERVATION
PLANNER, CHESTER RIVER ASSOCIATION**

Mr. SPIES. I would like to thank you for the opportunity to present today and thank your staff for helping a first-timer get his presentation in. And though it is a little late, I am here and it is in. So thank you and thank you for the opportunity.

I am a fourth generation farmer from Talbot County, Maryland, the neighboring county from where we are today. We grow corn, soybeans, wheat, 10 acres of grapes, and a 1-acre greenhouse complex for European cucumbers. I serve as the Vice President of the Maryland Grain Producers and a member of the local farm bureau. I also work with the Chester River Association as a conservation planner, working as a liaison between the environmental organization and the farmers in my community.

My position has given me a unique, although sometimes uncomfortable, position to view the work and the progress made in the Chesapeake Bay restoration efforts. This is the viewpoint I speak from today as, like most farmers, an environmentally concerned producer.

Today's hearing is entitled "Chesapeake Bay Restoration: Progress and Challenges." So I can end on a positive note, I will start with the challenges.

First, the goals we set for ourselves are lofty but not impossible. To use a sailing analogy, we need to use full sail and everyone at the oars. One sector pulling their load is not going to equal a clean Chesapeake Bay. Each sector will need to pull its weight and contribute significant reductions.

Agriculture faces a threefold educational challenge.

First, how to educate a growing population with less and less ties to the industry. Each generation gets further and further away from agriculture and food production and the food production experience. People are losing sight of how important agriculture and farmers really are. In the State I produce, Maryland, agriculture is an \$8.25 billion industry. 50 percent of that revenue comes from animal production. 50 percent of the revenue. The non-agriculture sector needs to grasp that it is not perfect industry, but still it is a vital part of our economy. The old adage rings true. You cannot throw the baby out with the bath water. Agriculture is important to our present and to the future of the State and to the Chesapeake Bay watershed.

The second educational challenge is understanding how far advanced our local farmers are in terms of nutrient management. And we need to be. We directly affect a public treasure, the Chesapeake Bay. Farmers in others area believe that it is not their problem because they do not live close to the Bay, but I would like to remind them that clean water is an everywhere problem. Streams, rivers, aquifers, lakes, the Gulf of Mexico. Basically if you use water, nutrient management is coming to an area near you.

With that said, our Chesapeake Bay farmers are leaders in the field of nutrient management. From nutrient management plans to new fertilizer application technology, we put more effort into im-

proving our nutrient use efficiency than any other part of the country.

The final education challenge is the understanding of how a non-point source nutrient moves from the time of application to the time that it enters our streams and Chesapeake Bay. I am not sure if you received it, but I work with the USGS service. They put out a map of timeframes from the time nutrients are applied in the field to when it enters the local bays and streams. It is a little bit scary, especially for someone whose salary is directly related to the outcomes of clean water efforts. But from the time we apply the nutrients in agriculture to the time it enters our Bay and streams and estuary, it can be 30 years or even more. So when we talk about the next generation and how important it is, what we are doing today—we are not going to see the benefits until the next generation 30 years from now.

The final challenge is a request. We need to avoid division. I have been part of multiple projects that environmental and agricultural sectors have come together to accomplish big things. The more we can work together and not point fingers, the more we will accomplish for the Chesapeake Bay.

Onto the positives. Agriculture is doing its part. Milestones have been met, and with continued work future milestones will be met. One thing that no one is good at these days is patience. Cell phones, instant news, fast cars. When we push a button or the accelerator, we do not just want results, we want fast results. That is just not possible in the world of the Chesapeake Bay and cleaning it up. Agriculture has never said we do not want to do our part, but time is needed for change. I urge gracious patience, not the kind of patience that is given with the idea that patience is not needed or deserved, but the kind of patience you give a partner or a teammate.

One of the biggest successes of the process has been research and advances in new technologies and ideas. One I have been part of is active nitrogen application, applying nitrogen based upon the crop's need as you are applying it instead of a uniform rate across the field. And a new study that we are working with USGS on is looking at irrigation and improving the irrigation technology and how we irrigate our crops. As you understand, the more information we have, the better decisions we can make. So as we improve our nutrient application and our irrigation technology, the better we will be able to grow our crops with less nutrients and still produce the food that we need.

I am one of four brothers. We are all different, look different, talk different, have different interests, but we are a family and we have real interest in the health and success of each other. When we were young and our father gave us a chore to do, many times we all had our own ideas how to do it. We would tell the other ones to stop bothering us and we would go off and try to do it on our own. At some point we would realize that we were not getting much done and the Dukes of Hazzard was about to come on. We would huddle up, open ourselves up to new ideas, make a plan, and work together. Sometimes we would use mostly my plan. Most of the time we would not. I will tell you, though, when we worked together, we always got the job done. We never missed Bo and Luke

slinging gravel in Hazzard. The Chesapeake Bay Program has brought us together. We look different. We talk different and we have different interests. But we all had to come together for the health of the Chesapeake Bay. I hope we can come together, to be open to new ideas, make a plan, and work together.

The final thing. Progress. The dictionary definition: a forward or onward movement; gradual betterment. Many would like to change "gradual" to "immediate." Using Webster's version, I would like to say we have been successful and are making progress. If we all stay together, pull our oars, and keep the sails up, we can have a better Chesapeake Bay.

Thank you.

[The prepared statement of Mr. Spies follows:]

United States Senate
Committee on Environment and Public Works
Hearing: Chesapeake Bay Restoration: Progress and Challenges

Paul Spies
Local Farmer
Environmental Advocate

Thank you for the opportunity to present on behalf of the agriculture community. I am a fourth generation farmer from Talbot County Maryland. The neighboring county from where we are today. We grow corn, soybeans, wheat, 10 acres of grapes and 1 acre of greenhouse cucumbers. I serve as Vice President of the Maryland Grain Producers and a member of the local farm bureau. I also work for the Chester River Association, a local advocate for the Chester River whose mouth is just on the other side of the peninsula that we sit on today. My position has given me a unique, although sometimes uncomfortable position, to view the work on the progress of the Chesapeake Bay Restoration. That is the viewpoint I will speak from today... like most farmers an environmentally concerned producer.

Today's hearing is entitled "Chesapeake Bay Restoration: Progress and Challenges". So I can end on a positive note I will start with the Challenges. **First**, the goals we have set for ourselves are lofty, not impossible. To use a sailing analogy, we need to use full sail and everyone at the oars. Not one sector of the Chesapeake Bay watershed is going to get us to the complete goal. Each sector will need to pull its weight and contribute significant reductions.

Agriculture faces a three-fold educational challenge. First, how to educate a growing population with less and less ties to its industry. Each generation gets further and further away from any agriculture and food production experience. People are losing sight of how important agriculture and farmers really are. In the state I produce, Maryland, agriculture is a \$8.25 billion industry (UofMD, Department of Agriculture and Resource Economics). Fifty percent of agriculture's revenue comes from animal production. The non-agriculture sector needs to grasp, thou it is not perfect it is vital part of our economy. The old adage rings true... we cannot throw the baby out with the bath water. Agriculture is important to our present and future being.

The second educational challenge is the understanding of how far advanced our local farmers are in terms of nutrient management. And we need to be! We directly affect a public treasure, the Chesapeake Bay. Farmers in other areas may believe that this is a bay problem, but I like to remind them that clean water is an everywhere problem. Streams, rivers, aquifers, lakes, the Gulf of Mexico. Basically, if you use water, nutrient management is coming to a watershed near you! With that said, our Chesapeake Bay farmers are leaders in the field of nutrient management. From nutrient management plans to new fertilizer application technology, we put more effort into improving our nutrient use efficiency than any other are of the country.

The final educational challenge is the understanding of how non-point source nutrient move and the time frame of the movement. Nutrients may enter ground water in a year but it takes decades for it to reach our streams, rivers and bays. USGS has a slide that shows how long it takes field applied nutrients to reach service waters of the state (attached). In the majority of cases it takes over thirty years from application, entering ground water and then traveling to a local creek, stream or river. As a person who's salary directly benefits from tangible environmental improvement results this can be discouraging. Then I listened to the experts with USGS and there was good news. Testing of the bay and its estuaries may not be showing the results that many of us would like, the testing of shallow groundwater is! When looking at 10, 20 and even 30 year old groundwater nutrient loads are reduced. This is good news! All that we have done is working and we need to continue our work.

The final challenge is a request. We need to avoid division. I have been part of multiple projects that agriculture and the environmental communities have come together and accomplish big things. The more we can work together and not point fingers the more we will accomplish for the Chesapeake Bay.

Now onto the positives.

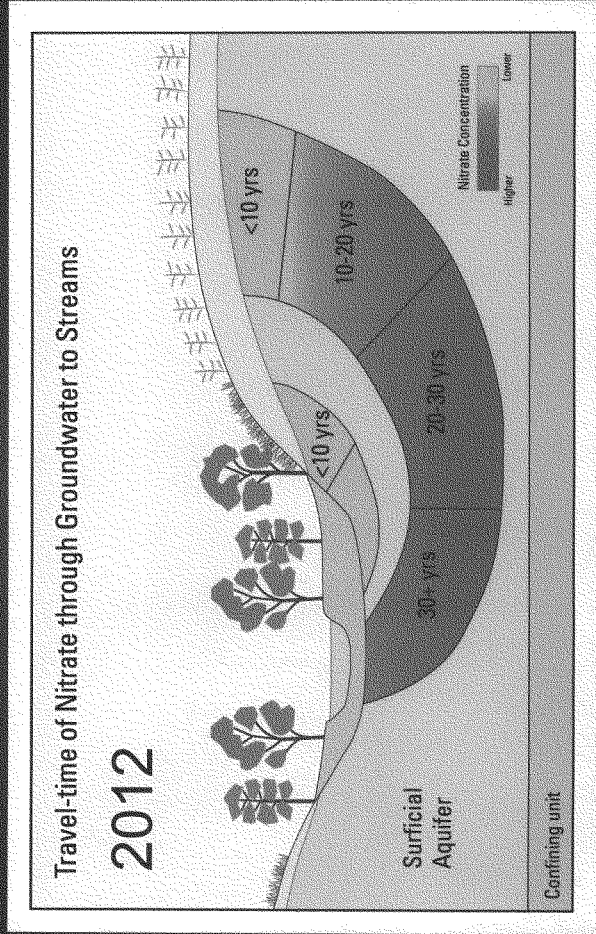
Agriculture is doing its part. Milestones have been met and with continued work future milestones will be met. One thing that no one is good at these days is patience. Cell phones, instant news, fast cars... when we push a button or accelerator we want not just results, but fast results. Many new regulations and actions are being forced through local, state and federal processes. Agriculture has never said we don't want to do our part, but time is needed for change. I urge gracious patience. Not the kind of patience that is given with the idea that it is not needed or deserved, but the kind that you give a partner or team-mate.

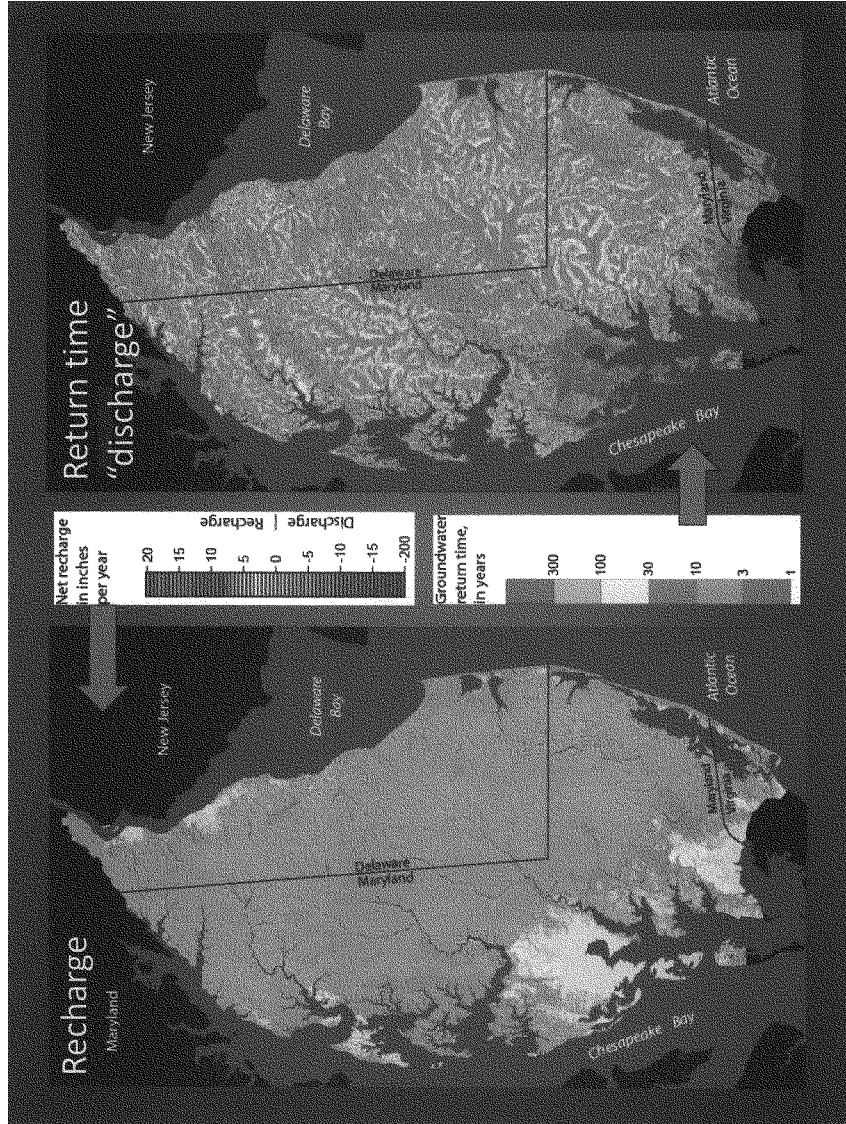
One of the biggest successes of the process has been the research and advancement of new technologies and ideas. New fertilization technology has been funded and implemented. A study of how farmers irrigate their crops is underway. These and multiple other projects have received funds that have advanced their cause by many years. Some may never have received the level of attention without the Chesapeake Bay Program.

I am one of four brothers. We are all very different. Look different, talk different, have different interest, but we are a family and have real interest in the health and success of each. When we were young and our father gave us a chore to do, many times we all had our own idea on how to best accomplish said chore. We would go off and try it on our own in our own way. At some point we would realize that we were not getting that much done and the Dukes of Hazard was starting in the not too distant future. We would compromise, make a plan, and work together. Sometimes it was mostly my plan most of the time it was not. I will tell you, we always got the job done and we never missed Bo and Luke Duke slinging gravel in Hazard county. The Chesapeake Bay Program has brought us together. We look different, talk different, and have different interest, but we all do care about health and success of the Chesapeake Bay. I hope we can continue to come together, be open to others ideas, make a plan, and work together.

Progress. A forward or onward movement; gradual betterment. The dictionary definition. Many would like to change "gradual" to immediate. Using Webster's version I would like to say we have been successful and are making progress and if we all say at our oars and pull our share the Chesapeake Bay will be the benefactor.

Changes in nitrate that are related to changes in inputs at the water table are observed as water travels through the flow system and over time





Senator CARDIN. Mr. Spies, thank you for that comment. I think you summarized it well about how success depends upon all being in and everyone doing their share because we cannot just do it alone. I appreciate that comment.

Ms. Neuman.

STATEMENT OF LAURA NEUMAN, COUNTY EXECUTIVE, ANNE ARUNDEL COUNTY, MARYLAND

Ms. NEUMAN. Good morning, Senator. Good morning, Congressman. I want to thank the Committee for inviting me to participate in this important hearing, and I also want to acknowledge you, Senator, for your commitment to the restoration of Chesapeake Bay and to my colleagues for their dedication and expertise.

When I moved to Anne Arundel County 21 years ago, I moved to be close to the Chesapeake Bay. There is nothing more beautiful or more worthy of preserving. I think we can all agree that to preserve the Bay's future, we must preserve it today.

Anne Arundel County is a primary beneficiary of the Bay with over 500 miles of shoreline within our boundaries. There is no question that we must continue to focus our attention on Bay clean up not just for today but for years to come.

How we clean up the Bay is of particular concern to me, specifically how much that clean up will cost our taxpayers and our accountability to them.

When I was appointed County Executive in February, our county council was prepared to pass the stormwater management fee, which is not so affectionately known as the "rain tax." This tax was mandated by the State legislature in 2012 as a funding source to reduce pollutants associated with stormwater runoff.

In 2012, the Maryland General Assembly mandated the State's 10 largest jurisdictions, not all 24, but a select 10, to adopt local laws by July 1st, 2013. I vetoed the bill because our county did not deserve another tax and also because the country had not done a good enough job educating the public about the fee and, more importantly, what the money would be used for. Ultimately my veto was overridden by the council. I will talk more about that in the context of challenges.

But first, overall on the watershed implementation plan. In July 2012, Anne Arundel County submitted its detailed water implementation plan to the Maryland Department of Environment, which is designed to achieve the necessary 32 percent reduction in nitrogen and 47 percent reduction in phosphorus and sediment to meet our pollution diet by 2025. It falls into three separate categories that need to be addressed.

First is wastewater treatment plants. Anne Arundel County has made significant progress in reducing the pollutants from wastewater treatment plants. The county is halfway through the implementation of a \$250 million program to provide enhanced nutrient removal, or ENR, at all seven wastewater plants. This work will be completed by 2017 and will remove nearly 470,000 pounds annually of nitrogen. At ultimate plant capacity, the pollutant load removal increases to nearly 720,000 pounds annually.

This effort is dependent on the Chesapeake Bay restoration fee, also known as the "flush tax," that was imposed by the State legis-

lature on all property owners across the entire State. By applying the tax to the broadest base, the rate was kept lower and has been viewed as a cost-effective means of addressing a major source of Bay pollution. No one wants taxes, but when they are spread across the board, it is a fairer process and the pain seems a little bit more tolerable.

The second area is stormwater I want to address as well. When it comes to addressing urban runoff and the challenges of stormwater, the estimated cost to implement a strategy in Anne Arundel County is \$1 billion by 2025. This mandate is under the regulatory authority of the EPA. The EPA should have undertaken a fiscal impact analysis to evaluate each jurisdiction's capacity to raise and expend this level of funding. This does not even consider the extraordinary requirements of covering septic systems to county homes converting septic systems to county public sewer with infrastructure requirements in the billions, a far bigger project.

As I mentioned, in 2012, the Maryland General Assembly mandated the State's 10 largest jurisdictions to adopt the laws by July 1st to establish a watershed protection and restoration program and include a stormwater remediation fee, also known as the "rain tax," for the purposes of funding the 2025 TMDL stormwater goals. I am not aware of any other Bay region State that has imposed new taxes for both wastewater treatment plant upgrades and stormwater remediation.

Candidly, I vetoed the local stormwater tax in Anne Arundel County because I did not like the way in which it was imposed on our residents by the State. It has resulted in what I call a "race to the bottom" among the 10 jurisdictions to see who could impose the lowest tax, including one jurisdiction that has refused to impose a local tax at all.

I have personally read hundreds of emails on this subject, if not thousands. Last week, while I was speaking to a group of reporters and editors in Baltimore, they asked me what was the top question I received from the constituents. Without even thinking about it or blinking, I reported the rain tax.

My staff and I have received numerous complaints from every type of taxpayer: residential, nonprofit, religious organizations and businesses. People do not understand the causal connection between urban runoff and sediment pollution in the Bay. There was no large-scale public education campaign to let citizens know what TMDL stands for and they were totally unprepared for yet another tax on their property, this time to pay for stormwater projects. Because the county council promptly overrode my veto, we have a stormwater tax in effect in Anne Arundel County.

Our hands are tied and so we are moving forward. Anne Arundel County is implementing a watershed protection and restoration program. The stormwater tax is now assessed on residential and non-residential properties within the county and appears on the property tax bill. The residential fee is assessed based on zoning density. The non-residential fee is assessed on impervious surface determined from aerial photography. The base rate is \$85 per 2,940 square feet. When fully phased in over 3 years, the stormwater tax will generate \$22.5 million in fiscal year 2016.

Our county's current 6-year capital improvement plan is budgeted for \$460 million to fund stormwater projects which will achieve a 10 percent reduction in nitrogen, 25 percent reduction in phosphorus, and 22 percent reduction in sediment by 2019. Anne Arundel County taxpayers are already carrying a significant share of the Bay clean up.

The rain tax has received the most attention, but to place so much emphasis on this one area is to ignore the biggest challenge which looms in front of us, which brings us to septics.

The third and most costly sector toward meeting our pollutant reduction mandates is the conversion of septic systems to public sewer. Anne Arundel County has over 40,000 septic systems which deliver an estimated 515,000 pounds of nitrogen to the Chesapeake Bay each year. We must reduce our nitrogen loads by 230,000 pounds annually, requiring us to convert roughly half our septic systems to public service systems, which is over 20,000 connections. This is estimated to cost Anne Arundel County nearly \$1.5 billion.

The technical and regulatory challenges associated with this effort are daunting. Success will require an integrated partnership of Federal, State, and local governments. Local governments cannot do this alone. Unfortunately, we have to. Yes, the Chesapeake Bay is a treasure for our community, but it is also an economic development engine for the eastern half of the United States. When you consider the widening of the Panama Canal, the Chesapeake serves an important economic development function for the eastern half of the United States, and cleaning up the Bay is an important job for everyone who benefits from the Bay.

In the 1970s when the Clean Water Act came into being, the Federal Government provided 87.5 percent of funding to help local governments pay for the massive investment in extending sewer service to unserved areas. Today's challenges are similar in the magnitude of what we are being asked to do. The Chesapeake Bay is a national treasure. It is a shared resource and it should be a shared responsibility.

We are not having an honest conversation if we are not including all three areas of water treatment and management that must be addressed. All three areas, not just stormwater.

On to compliance and challenges and emerging issues, we certainly have many challenges ahead. Without question, where you stand on this important issue of stormwater in Maryland will be a defining issue in the 2014 election regardless of your position. Consequently, the Maryland legislature will have pressure to revisit the issue during the 2014 session. It will inject more uncertainty into the program, which received no financial assistance from the State. Public acceptance of a benefit they cannot visualize is an ongoing challenge for every elected official.

Although the efforts of Federal and State governments are appreciated, financial assistance has been woefully inadequate compared to the costs local governments are facing for stormwater retrofits. Finding the dollars to comply is an issue of legitimate concern, particularly for local governments who have limited tax bases to support such a costly undertaking. We look to our Federal partners for a more creative and collaborative approach to achieving our goals.

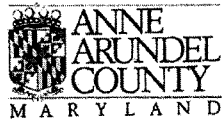
A more technical challenge involves navigating a lengthy and difficult Federal regulatory process, probably the biggest challenge of all, to obtain necessary permits for stream restoration projects. My colleagues might agree with me on that. Getting permits often takes 1 to 2 years. Often the permits require extensive and costly pre- and post-construction monitoring. Every environmental group I have worked with has named this as their primary challenge. This results in significant additional project costs, as well as expansion of project schedules due to the duration and timing of the required monitoring, costing taxpayers more money.

Federal permitting requirements become a barrier to Anne Arundel County achieving mandated targets. In the past year, Anne Arundel County has engaged in an ongoing dialog with Federal and State agencies to address the permitting issue. This is an action item that demands resolution.

In conclusion, if there is anything to take away from lessons learned, it is a fact that the Chesapeake Bay is the Nation's largest estuary and one of the world's most productive bodies of water worthy of national attention, no different than the Federal response to the Great Lakes or Florida's Everglades. No one county, no one State, no one region should have to bear the entire burden of remediation. We must all be in this together. When we shift this responsibility to a few counties, we are placing the burden of a national resource on a local community. At a time when Maryland is struggling to be competitive, we are putting ourselves at a competitive disadvantage with yet another tax.

On behalf of the citizens of Anne Arundel County, I appreciate the opportunity to share with the Subcommittee a local government experience to date in meeting the EPA's pollution diet for the Chesapeake Bay. Thank you for inviting me to speak today.

[The prepared statement of Ms. Neuman follows:]



County Executive Laura Neuman

**LAURA NEUMAN
ANNE ARUNDEL COUNTY EXECUTIVE**

**TESTIMONY BEFORE THE
U.S. SENATE COMMITTEE
ON ENVIRONMENT & PUBLIC WORKS
SUBCOMMITTEE ON WATER & WATERLIFE**

SENATOR BEN CARDIN, CHAIRMAN

***"CHESAPEAKE BAY RESTORATION:
PROGRESS & CHALLENGES"***

September 3, 2013

**Chesapeake Exploration Center
600 Discovery Lane
Grasonville, MD 21638**

OPENING STATEMENT

Good morning and thank you to the Committee for inviting me to participate in this important hearing. I want to first acknowledge Sen. Cardin for his commitment to the restoration of the Chesapeake Bay, and my colleagues here with me, for their dedication and expertise.

When I moved to Anne Arundel County 21 years ago, I moved to be close to the Chesapeake Bay – there is nothing more beautiful or nothing more worthy of preserving. I think we can all agree that to preserve the Bay's future, we must preserve it today.

Anne Arundel County is a primary beneficiary of the Bay, with over 500 miles of shoreline within our boundaries. There is no question that we must continue to focus our attention on the Bay cleanup – not just for today, but for years to come.

How we clean up the Bay is of particular concern to me, specifically how much that cleanup will cost our taxpayers and our accountability to them.

When I was appointed County Executive in February, our County Council was prepared to pass the stormwater management fee, also known as the "Rain Tax."

This tax was mandated by the State Legislature in 2012 as a funding source to reduce pollutants associated with stormwater runoff. In 2012, the MD General Assembly mandated the State's 10 largest jurisdictions – not all 24 jurisdictions, but a select 10 – to adopt local laws by July 1, 2013. I vetoed the bill because our County didn't deserve another tax and also because the County had not done a good enough job educating the public about the fee and, more importantly, what the money would be used for. Ultimately, my veto was overridden by the Council. I will talk more about that within the context of challenges.

ANNE ARUNDEL COUNTY'S BAY RESTORATION EFFORTS

Watershed Implementation Plan

In July 2012, Anne Arundel County submitted its detailed Water Implementation Plan to the MD Department of Environment, which is designed to achieve the necessary 32% reduction in nitrogen; and 47% reduction in phosphorus and sediment to meet our "pollution diet" by 2025.

Wastewater Treatment Plants

Anne Arundel County has made significant progress in reducing the pollutants from wastewater treatment plants. The County is halfway through the implementation of a \$250 million program to provide enhanced nutrient removal, or ENR, at all seven wastewater plants. The work will be complete by 2017 and will remove nearly 470,000

pounds of nitrogen. At ultimate plant capacity, the pollutant load removal increases to nearly 720,000 pounds.

This effort is dependent on the "flush tax" that was imposed by the State Legislature on **ALL** property owners across the entire State. By applying the tax to the broadest base, the rate was kept lower and has been viewed as a cost-effective means of addressing a major source of Bay pollution. No one wants taxes, but when they are spread across the board, it is a fairer process and the pain seems a little bit more tolerable.

Stormwater

When it comes to addressing urban runoff and the challenges of stormwater, the estimated cost to implement a strategy is \$1 billion, according to our Department of Public Works.

As I mentioned, in 2012, the MD General Assembly mandated the State's 10 largest to adopt local laws by July 1, 2013, to establish a Watershed Protection and Restoration Program and include a "stormwater remediation fee" (Rain Tax) for the purposes of funding the 2025 Bay TMDL stormwater goals. I am not aware of any other Bay region state that has imposed new taxes for both wastewater treatment plant upgrades and stormwater remediation.

Candidly, I vetoed the local stormwater tax in Anne Arundel County because I did not like the way in which it was imposed on our residents, by the State. It has resulted in a "race to the bottom"

among the 10 jurisdictions to see who could impose the lowest tax, including one jurisdiction that has refused to impose a local tax at all.

I have personally read hundreds of emails on this subject. Last week, while I was speaking to a group of reporters and editors in Baltimore, they asked what was the top question I received from constituents. Without needing a second to think, I responded, the rain tax.

My staff and I have received numerous complaints from every type of taxpayer: residential, non-profits, religious organizations and businesses. People do not understand the causal connection between urban runoff and sediment pollution in the Bay. There was no large-scale public education campaign to let citizens know what TMDL stands for, and they were totally unprepared for yet another tax on their property – this time to pay for stormwater projects. Because the County Council promptly overrode my veto, we have a stormwater tax in effect in Anne Arundel County.

Our hands are tied, so we are moving forward. Anne Arundel County is implementing a Watershed Protection and Restoration Program. The stormwater tax is now assessed on residential and non-residential properties within the County and appears on the property tax bill. The residential fee is assessed based on zoning density. The non-residential fee is assessed on impervious surface determined from aerial photography. The base rate is \$85 per 2,940 square feet. When fully phased-in over three years, the stormwater tax will generate \$22.5 million in fiscal year 2016.

Our County's current six-year Capital Improvement Program is budgeted for \$460 million to fund stormwater projects which will achieve a 10% reduction in nitrogen, 25% reduction in phosphorus, and 22% reduction in sediment by 2019. Anne Arundel County taxpayers are already carrying a significant share of the Bay cleanup.

Septics

The third and most costly sector toward meeting our pollutant reduction mandates is the conversion of septic systems to public sewer. Anne Arundel County has over 40,000 septic systems which deliver an estimated 515,000 pounds of nitrogen to the Chesapeake Bay each year. We must reduce our nitrogen loads by 230,000 pounds annually, requiring us to convert roughly half of our septic systems to public service (or 20,000 connections). This is estimated to cost Anne Arundel County nearly \$1.5 billion.

The technical and regulatory challenges associated with this effort are daunting. Success will require an integrated partnership of federal, state and local governments. Local government can not do this alone. Nor should we have to. Yes, the Chesapeake is a treasure for our community, but it is also an economic development engine for the eastern half of the United States. When you consider the widening of the Panama Canal, the Chesapeake serves an important economic development function for the eastern half of the United States. Cleaning up the Bay is an important job for everyone who benefits from the Bay.

In the 1970s when the Clean Water Act came into being, the Federal government provided 87.5% of funding to help local governments pay for the massive investment in extending sewer service to un-served areas. Today's challenges are similar in the magnitude of what we are being asked to do. The Chesapeake Bay is a national treasure. It's a *shared* resource and it should be a *shared* responsibility.

COMPLIANCE CHALLENGES & EMERGING ISSUES

We have many challenges ahead.

Diplomacy of Stormwater

Without question, where you stand on this important issue, stormwater in Maryland will be a defining issue in the 2014 election. Consequently, the Maryland legislature will have pressure to revisit the issue during the 2014 Session, injecting more uncertainty into our program, which received no financial assistance from the State. Public acceptance of a benefit they cannot visualize is an ongoing challenge for every elected official.

Federal Financial Assistance

Although the efforts of federal and state governments are appreciated, financial assistance has been woefully inadequate compared to the costs local governments are facing for stormwater retrofits. Finding the dollars to comply is an issue of legitimate concern – particularly for local governments who have limited tax bases to support such a costly undertaking. We look to our federal

partners for a more creative and collaborative approach to achieving our goals.

Federal Permitting Process

A more technical challenge involves navigating a lengthy and difficult federal regulatory process to obtain necessary permits for stream restoration projects. Getting permits often takes one to two years. Often, the permits require extensive and costly pre- and post-construction monitoring. This results in significant additional project costs, as well as expansion of project schedules due to the duration and timing of the required monitoring, costing taxpayers more money.

Federal permitting requirements have become a barrier to Anne Arundel County achieving mandated targets. In the past year, Anne Arundel County has engaged in an ongoing dialogue with Federal and State agencies to address the permitting issue. This is an action item that demands resolution.

Conclusion

If there is anything to take away from lessons learned, it is a fact that the Chesapeake Bay is the nation's largest estuary, and one of the world's most productive bodies of water, worthy of national attention no different than the federal response to the Great Lakes or Florida's Everglades. No one county, no one state, no one region should have to bear the entire burden of remediation. We must ALL be in this together.

On behalf of the citizens of Anne Arundel County, I appreciate the opportunity to share with the Subcommittee a local government experience to date in meeting the EPA's "pollution diet" for the Chesapeake Bay. Thank you, Mr. Chairman, for inviting me to speak today.

Senator CARDIN. You are welcome. Thank you for your testimony and thank all three of you for your testimony.

It is very clear from all of your testimony that, first, the public wants a clean Chesapeake Bay. You moved here, Ms. Neuman, because of the Bay. They expect when they turn on their faucet, they are going to get clean water. They expect us to deliver and protect the environment.

And it was the Congress, not the Environmental Protection Agency, that passed the Clean Water Act. It was a very popular thing to do because it speaks to a national priority. We wanted clean water. We passed the Clean Air Act because we wanted clean air.

And I applaud Bill Baker for saying it is one thing to have a law. It is another thing to enforce a law. And it was not easy to get different stakeholders together on the Chesapeake Bay Program, and it was well intended. No question about it. And Mr. Baker is absolutely right. As we look at the different progress States—we did not miss by a little bit. We missed it by a lot what we thought we should be able to get done.

So now we are looking at a progress chart that is not as rosy as we had anticipated it to be. And I agree with all three of your testimonies, and that is, it is not up to the farmers, it is not up to developers, it is not up to local government. It is up to all of us to figure out a plan that works where everyone is held accountable and responsible for what they should be able to achieve, not just public good science tells us, but good politics tells us.

I particularly appreciate your point, Ms. Neuman, that this has got to be done in a way the public will accept. Otherwise, we cannot sustain this. This is democracy. So we have got to get this done right.

So, Mr. Baker, let me start with you. Why are we not going to reach the 2015 goals? Is it a matter of political will? Is it a matter of finance? Is it a matter that we set goals too high? Why are we not achieving more?

Mr. BAKER. The 2016 interim goal?

Senator CARDIN. Right.

Mr. BAKER. We have optimism and hope that we will meet that.

Senator CARDIN. Oh, good. I thought you said in your testimony that all of the jurisdictions are making progress but not enough progress.

Mr. BAKER. This is in the milestone for 2012–2013. Each of the States has committed to doing certain things, and so for the 2013 deadline of the milestones, the interim report was for half of that 2-year term. They reported on what they were doing and none of them were meeting but all were doing some. We have confidence that some of the States may yet pull out the 2013 milestone and meet all of their requirements, but it is going to be a big lift in this current year and what is left of this year.

In terms of the 2016, 60 percent of the way toward the 2025 deadline, we are still hopeful that that can be met, but it is going to take a lot of work.

Senator CARDIN. What is the greatest challenge the stakeholders are facing?

Mr. BAKER. With respect, Ms. Neuman, the greatest challenge is hearing local officials complain about how costly this will be and using dollar amounts that are simply unsubstantiated by reality, scaring people into thinking that we cannot afford to save the Chesapeake Bay. Over and over again, you will see huge numbers come out of local governments, and once implementation starts, those numbers start to go down dramatically. I think that is the greatest challenge, that people are being scared, that political agendas are being pursued to try to foment opposition to cleaning up the Chesapeake Bay to saying things like the only source of pollution that is being attacked is stormwater when that is simply not the case. So I do object to using the Chesapeake Bay and its clean up as a way to tell people that what is being asked is impractical and impossible to achieve. It is not.

Senator CARDIN. On the eastern shore of Maryland, in fact, in most parts of our State, if you are talking to the farmers, they think the farmers are the ones who are being picked on the most as far as dealing with the clean up of the Bay.

So, Mr. Spies, what do you find to be your greatest challenge in trying to meet the expectations that government has of a clean farming?

Mr. SPIES. One of the issues—and I do not have a fix to it, but a lot of the grants that I have been involved in and a lot of grants that other people have been involved in have been where people really look at the new technology, the next best thing. We know cover crops are working. We know nutrient management plants have a benefit, but what is that next thing farmers can do and agriculture can do to reduce their burden on the Bay? So there are a lot of exciting things coming down the pike, but part of the crux of that is once we have researched it and we start using it, to put it into the plan of the TMDL, there is a process and it needs to be evaluated. It needs to be peer-reviewed. Then it is put into our TMDLs and our WIPs as a temporary goal that is usually pretty conservative. And so agriculture does not from my point of view—I do not know about the others, but agriculture is not really reaping all the benefits of some of the practices that we have been doing and the money we have been pumping into reduction of nutrients. So I think it is an important process to evaluate each new technology and make sure that it is living up to what has been billed. It would just be nice if there was a way to kind of track that and follow that along through the process instead of it being put off until 2017 or later.

I am excited about the programs. I am working within agriculture and I think agriculture will be able to meet its goals. It is going to hurt. It is going to take work. But some of the technologies that are coming and the research that is coming are exciting.

Senator CARDIN. Thank you.

Ms. Neuman, most of your relationship in regards to the Bay is with the State. The State has come up with a plan. The counties are responsible for their sector. The legislature has passed certain laws in regards to funding. My question is what would you like to see the Federal Government do to make your job a little bit easier in dealing with the responsibilities you have with the Chesapeake Bay.

Ms. NEUMAN. Well, I believe the Chesapeake Bay is a national resource. The Government could take a lead just like they did with the Everglades or Great Lakes in cleaning up the Bay and the tributaries that flow into the Bay. The Chesapeake Bay benefits everyone in this country not just because it is a beautiful body of water, but it is a major economic development engine. If you consider the widening of the Panama Canal, it is more important. So I believe that the Federal Government should take a lead in the overall clean up.

What is happening in the State is that when this remediation fee was passed by the General Assembly, what they did was push it down to the 10 counties rather than the 24 jurisdictions. So those 10 counties competed in what I call a race to the bottom to see who can propose the lowest tax. It is not a fee. It is a tax.

We all agree that the Bay needs to be cleaned up. There is not any question about that. That is why there are over 600 nonprofits that in some way are focused on cleaning up the Bay or the tributaries flowing into the Bay. It is very important. We need to do it. It needs to be done, but to push it down to 10 counties in the State of Maryland when the entire country and certainly the eastern half greatly benefits from this huge body of water I think is unfair at the county level and it requires a broader perspective. It requires work at the Federal level to manage this process much like you have done with the Everglades and the Great Lakes.

Senator CARDIN. Well, part of reforming the conservation sections of the Farm Bill is the recognition by the Federal Government that there are critical areas of this country of great interest to the entire country so that there are programs tailored to provide additional help in critical environmental areas such as the Chesapeake Bay watershed. And the same thing is true as we look at the Chesapeake Bay Program as to how we can get national attention to an area that is important to the entire country because it is a national responsibility, not just a regional responsibility.

Congressman Sarbanes.

Representative SARBANES. Thank you.

Mr. Baker, I wanted to ask you about—you talked about the three agreements that took place and the striking failure to meet the objectives that have been set out in each of those. Why do you think we missed those? It seems to me the information and knowledge we had at our fingertips before those agreements were in place was nothing like what we have now, and it is harder to own the problem than solve it when you distribute it out to all stakeholders. I imagine you would say—but I would like to hear your thoughts on this—that we cannot pretend now we do not know what we need to know in order to make significant progress. It is not a matter of knowledge anymore. It is about meeting the expectations.

But can you comment on sort of how we move to a new place with the information and knowledge available to us to provide the stakeholders with that ownership that we ought to be able to expect from the stakeholders to solve the problem, that that might be one of the things that helps make a difference this time out?

Mr. BAKER. Yes, sir. And it is important to remember that we had 90 percent at least of the science in 1987 when the 40 percent

reduction for nitrogen and phosphorus was set. The numbers in the TMDL blueprint are near exactly the same as they were in the 1987 agreement in terms of how much pollution needs to be reduced. What is so different this time—and you asked why. And I think one is that there is better information, but also people are impatient and they are impatient when after 35 years progress has not been made in saving something that is as important to our economy and to our well-being as Chesapeake Bay. They do demand more. So I think the constituents of our elected officials in this six-State region said now is the time to get serious.

The reason this one is different is because it headed off what hurt the last ones, which was toward the end of the cycle, whether it was either 1987 and 2000 or 2000 and 2010, elected officials started to say, you know, I just do not think we are going to be able to make it. I wish I had been around early on when we first got started because we would have gotten started earlier. We have delayed. This one requires the 2-year incremental reportable and measurable steps. Each State has to get to the 2025 deadline, and if the States do not meet those 2-year milestones, the EPA can impose sanctions against the States. We think this is a critical difference.

But do not take my word for it. Look who is opposing it. Some of the most powerful associations in this country are opposing the TMDL in Federal court and in Congress because they think this time it has got a real chance to succeed, and they are afraid of success. So you have the Fertilizer Institute, the National Chicken Growers, the Hog Council, the Grain Growers, the Homebuilders Association of America all suing in Federal court to try to take away the TMDL, and they are lobbying in Congress.

So this one is different. People have been impatient. We know more and we decided that something had to be done that was enforceable.

Representative SARBANES. I like the concept that we have now, in effect, an early warning system, on the political side of this to check in at regular intervals to adjust and enforce and insist in ways that we could not do before with the way the plan was designed and structured.

Talk a little bit and then I will ask you, Ms. Neuman, to speak to this as well. But let us talk about the public's relationship to the Chesapeake Bay and to these efforts generally. I know the Chesapeake Bay Foundation periodically does surveys to get a sense of what the public's perspective is and what the appetite is in the public to step up and do the right thing with respect to the Bay. Then it is a "connect the dots" exercise if, as I imagine you are going to tell me now, there is strong support for a cleaner Chesapeake Bay, that you then show people, well, these are the things that have to be done in order to achieve that. But talk a little bit about what you get when you go and survey the public and how that helps to inform the position and policy.

Mr. BAKER. Well, we do do routine public opinion surveys, and we just finished one in Virginia. There is a gubernatorial election coming up. We hired both a Republican and a Democratic polling firm to work together. We will be glad to provide the results to you and to the rest of the Committee members.

The results are startling: overwhelming support not only for cleaning up the waters of the rivers and streams of the Chesapeake Bay, but for paying for it. Overwhelming support of paying for the clean up. And it is a broad-based survey. There is a lot more than that, but the short answer—I know we have limited time and others want to speak—overwhelming public support every time there is a survey done.

Representative SARBANES. Ms. Neuman, as you go around the county, I imagine you sense that commitment to the health of the Bay and a willingness on the part of the residents of Anne Arundel County to try to do their part. Do you think there is a way to kind of capture that interest and energy and commitment and to channel it so the residents of the county and others in Maryland and beyond will take greater ownership of some of the resource side of the equation that needs to go with it?

Ms. NEUMAN. I would, without question, say there is overwhelming support for cleaning up the Bay and the revenue streams that flow into the Bay. I do not think any of us would debate that point. We all agree on that. It needs to be cleaned up. We have been cleaning it up for 35 years.

The question is how are we going to pay for that. Are we going to ask a handful of jurisdictions in the State of Maryland to bear the financial burden? This is a national problem, and if you are a woman who is 60 years old living in a 1,000-square-foot house on 1 acre in Glen Burnie, you are being asked to pay \$170 a year right now, which is, by the way, your 40th tax increase in 7 years—tax or fee increase in 7 years. They are pushing back. It is the No. 1 question I get asked everywhere I go.

And even those who support the Bay—and that includes me. I mean, I really moved to Anne Arundel County because of the Bay. I grew up in east Baltimore. I had never been on a boat. I wanted to go out and see what it was like. I got in a boat at 27 and moved to Annapolis 2 weeks later. I love being on the Bay. There is no greater activity. Those of us who benefit from being on it, know the beauty of it. Not everyone has that opportunity. If you live on the water in Anne Arundel County, if you are of a certain socio-economic class and you can see the benefits of being on the Bay, it makes a lot of sense to do that. Some people have that privilege. Not everyone does. Most of our citizens do not have that privilege.

If you want people to appreciate the Bay, you need to get them on the Bay, but if you have never been on the Bay or if you do not benefit or directly understand the economic benefit of preserving the Bay, this national treasure that is a major economic engine, in addition to being a natural beauty, it is hard for you to connect with another \$170 a year tax which, by the way, is going up to several hundred dollars over the next several years. And when you have 10 counties out of 24 who are being asked to pass this tax on to their citizens, it seems fundamentally unfair.

And the tax rate is not consistent. So in one county, it is \$35. In our county, it is \$170. They say it is \$35, but I sent in my request to find out and it was \$170. So it is not uniformly applied and citizens in 10 counties in our State are being asked to bear the financial cost of it. It does not seem fair to me or to every citizen I have spoken with who is opposed to this tax.

There needs to be a national approach to addressing this issue. The Bay does need to be cleaned up. It needs to be addressed nationally. And I believe our local and our statewide elected officials will be pressed hard on this in the next round of elections.

Representative SARBANES. Well, I am sure the two of us would agree with the notion that the Federal Government can be contributing more in resources certainly. I think we have advocated bolstering the partnership and a shared responsibility that you are referring to. But I do think there is a potential to connect the strong feelings that people have about the Bay to an ownership and stewardship of progress we have made there that includes being not necessarily loving of the Bay but being accepting of the notion that some additional resources to promote the benefits from the Bay are to be expected.

The other thing is that I think there is real opportunity, as counties and jurisdictions design their stormwater management fee structure, to offer credits to homeowners and others who are affected by it when they take meaningful steps to reduce their particular footprint. And the legislation that I have offered, The Chesapeake Bay Homeowners Act, has initiatives that the EPA is taking to model how that would work and what is the potential. So then the homeowner and consumer or resident is not just looking at this through the lens of I am going to get hit with X dollars' worth of tax, but I have an opportunity through things that I do in my own property, initiatives that I undertake to reduce that and at the same time be contributing both in kind and partially, yes, with some dollars contributed to the overall health of the Bay. And that is the kind of partnership between government, nonprofit organizations, and ordinary citizens, of whom there are 18 million of us residing in the Chesapeake Bay watershed that can get us to those critical tipping points that we heard about earlier.

Ms. NEUMAN. I think it is a great idea. It is a frequently asked question for those who have invested in remediation projects on their property, whether it be residential or commercial. They are asking us to be aware of that. But there are three fees associated with cleaning up: Chesapeake Bay Restoration Fund, the stormwater remediation fee, also known as the rain tax, and in our county we have the septic issue which is exponentially larger than either of those issues.

Senator CARDIN. Well, let me thank all three of our witnesses. I think this has been extremely helpful.

And, Mr. Baker, the map that you put out I think is very telling. We have enjoyed support not just from Virginia and Maryland and Delaware and the Nation's capital but also from the people of Pennsylvania and the people of New York and people of West Virginia who are in the watershed but do not see it quite as visibly as we see it because we get the beauty of the Bay. They have the tributaries that are critically important for the health of the Bay. We have had that type of support over the years with the partnership. And I think all of your testimonies have been extremely helpful to us.

Once again, I want to just thank the leadership of the Environment and Public Works Committee for allowing us to get out into the community to develop a hearing on how we can, as a practical

matter, help. There is no question that there is a commitment in this country to clean water. There is a commitment for improving the watershed. The Chesapeake Bay partnership has been a model program that looks at ways that we can really make the results the Clean Water Act would dictate us to make and that the people of this country expect us to do. But we have got to find a practical way to achieve that.

We have been working at this for a long time. But for the work that we have done, we would be in much worse shape today. But it is frustrating that we have not been able to achieve more. And I could not agree with Mr. Spies more that everyone has to be at the table. It cannot be one person. All of us have to come. And it does cost money. We have to have the resources. I know the State of Maryland can meet its obligations and has tried hard to find a way to do that in conjunction with all of the people of our State.

So I will take this back. Senator Boozman has been one of our partners in this. He is the ranking Republican member of the subcommittee. He has been very interested in the Chesapeake Bay. And I also want to thank, as I said earlier, Senator Boxer and Senator Vitter, the chairperson and the ranking Republican on the full committee, for their commitment for us to try to develop a record so that our Committee can act in a responsible manner.

Once again, thank you all for your participation.

And with that, the subcommittee hearing will be adjourned.

[Whereupon, at 12:40 p.m., the hearing was adjourned.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. DAVID VITTER,
U.S. SENATOR FROM THE STATE OF LOUISIANA

Mr. Chairman, thank you for calling today's hearing. I also thank our witnesses for testifying before the Subcommittee on Water and Wildlife.

It is no secret that taking on incredibly complex restoration efforts—whether in the Chesapeake Bay, Louisiana, or elsewhere—requires cooperative and trustworthy relationships between numerous parties, including local, State and Federal officials, farmers, industry representatives, municipal utility interests, nonprofit organizations, and others. I am concerned, however, that Federal officials and environmental groups are not holding up their end of the bargain.

For example, the U.S. Environmental Protection Agency (EPA) wants the various Chesapeake States to work together on restoration issues, yet is at the same time undermining State and local environmental authority through various regulatory programs. EPA recently determined, without State input, that it will assess Bay Watershed States' animal feeding operation standards and has indicated that it will take "appropriate actions" if the State program isn't satisfactory to the agency. This type of veiled threat serves no one. It completely ignores the States' primary role in environmental regulation, and it does a disservice to restoration efforts by pitting the local jurisdictions against the Federal Government.

Likewise, environmental groups continue to pursue endless litigation against anyone who dares to use natural resources to provide food and jobs to our fellow Americans, often at the cost of real environmental progress. And we should all remember that one of the primary roles of our Federal Government is to facilitate commerce, not to frustrate it. I was disappointed to learn last week that farmers in Maryland will not be able to recoup \$3 million in legal fees incurred in defending an outrageous Clean Water Act lawsuit filed by the Waterkeeper Alliance. It is well known here that the tactics the Waterkeeper Alliance used to persecute the farmers were dubious, but the Alliance was not held to account. If environmental groups truly want improved restoration efforts, they should think twice before suing the people who are putting food on our plates in an environmentally responsible manner.

I am pleased to have as the minority witness the County Executive for Anne Arundel County, Laura Neuman. She is a local official who understands the importance of a balanced approach to Chesapeake Bay restoration. Through her opposition to the so-called "rain tax" and other efforts, the County Executive has worked

to ensure that those who want restoration to involve more than just environmental groups and government bureaucrats have a voice in Maryland.

Once again, I thank the Chairman for calling today's hearing.

STATEMENT OF HON. JOHN BOOZMAN,
U.S. SENATOR FROM THE STATE OF ARKANSAS

Chairman Cardin, thank you for holding today's hearing on the progress and ongoing challenges of efforts to improve water quality in the Chesapeake Bay watershed.

Earlier this year, when I became Subcommittee Ranking Member, I appreciated the opportunity to visit with you and to receive a progress report from you on the Chesapeake Bay Program.

Today's hearing is nationally significant for several reasons. First, the Chesapeake Bay—our nation's largest estuary, with a watershed that stretches from New York down throughout the mid-Atlantic region—is a vital resource of national significance. Second, the actions taken to restore the Bay set precedence that may be duplicated in other watersheds. Finally, the positive and negative experiences of Chesapeake Bay watershed stakeholders, from all walks of life, will inform other communities with similar challenges.

Much of today's testimony is encouraging. In many respects, the Bay's water quality is improving and critical ecosystems are becoming healthier and more resilient. However, as our nation continues to borrow at a rate of billions of dollars every single day—an unsustainable level of borrowing—water quality stakeholders are rightfully concerned that an increasing share of the burden for restoration activities could be shifted to State and local governments. We have experienced this type of burden in Arkansas, as well. For example, in northwest Arkansas, a handful of relatively small communities have invested over \$250 million over the last decade to improve their wastewater treatment plants, with very little support from the Federal Government.

To maintain support, the Chesapeake Bay Program and activities carried out under the President's Executive Order must remain focused on water quality improvement; and where these activities have been focused on other agenda items unrelated or only tangentially related to water quality improvement within the watershed, I urge our agencies to refocus and redirect efforts toward solving water quality challenges. For example, we hear about climate change as part of the Federal Government's Chesapeake Bay restoration efforts. We also hear of a Federal "Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy," and the like. Instead of focusing on the problems that have the potential to unite citizens behind Chesapeake Bay restoration efforts, these peripheral efforts create the impression that the Administration is using the Program to advance its own political agenda. Congress may debate climate-related policies or whether there should be Federal incentives for schools to place a higher emphasis on environmental science than on other areas of need, such as medicine, but the Chesapeake Bay efforts should not be used to preempt these important debates. The threat of "mission drift" is real, and if the Bay Program appears to be too political, support will be undermined.

I also want to address the importance of cooperative federalism. Too often the EPA begins by threatening the States and other non-Federal stakeholders. Many future water quality improvement efforts—both in the Bay watershed and across our country—will depend on voluntary actions by farmers, community leaders, and ongoing local taxpayer support. The EPA's aggressive posture could undermine local support and voluntary actions.

Moving forward, we should continue to promote cooperation and support. We should continue to invest in State revolving fund capitalization grants. We should support voluntary trading initiatives that allow resources to be most effectively used. And we should continue to emphasize the role of partners, like NRCS, that have earned trust in our communities.

Finally, I regret that I was unable to attend today's hearing, but I look forward to reviewing the testimony and continuing to work with you, Mr. Chairman, to support water quality improvement efforts in the Chesapeake Bay watershed and throughout our country.

Thank you.