CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

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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 county 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.

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[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.cov/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 TMDL [5] 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.

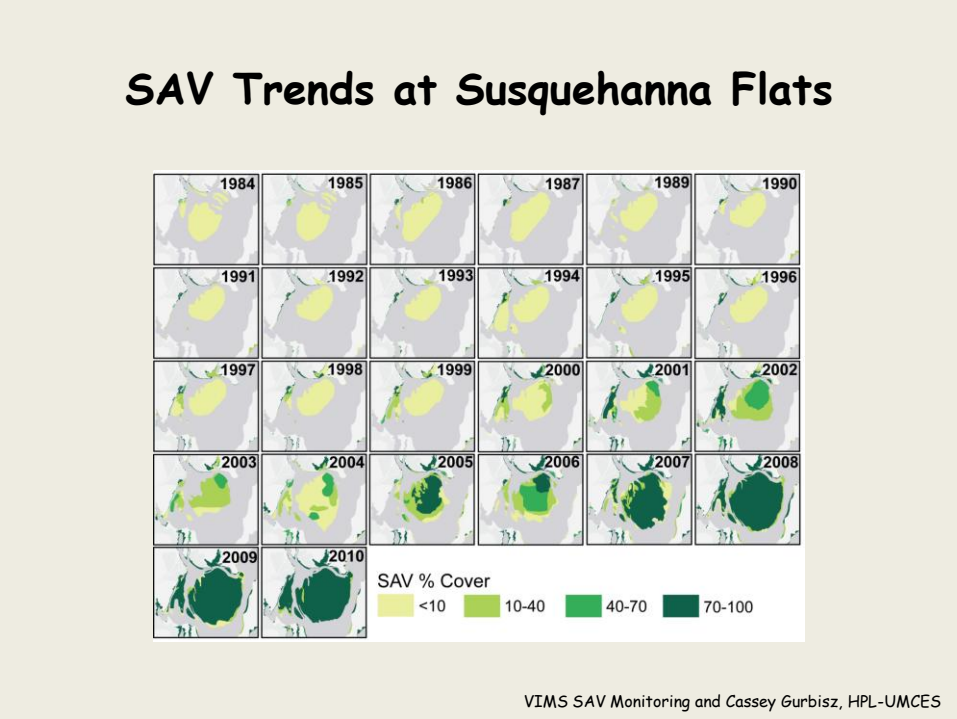
Perhaps more importantly, scientists are increasingly seeing examples that validate this restoration approach: Reductions of nitrogen, phosphorus and sediment are resulting in improved water quality and better habitat conditions. In turn, these improved conditions will lead to more fish and crabs and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

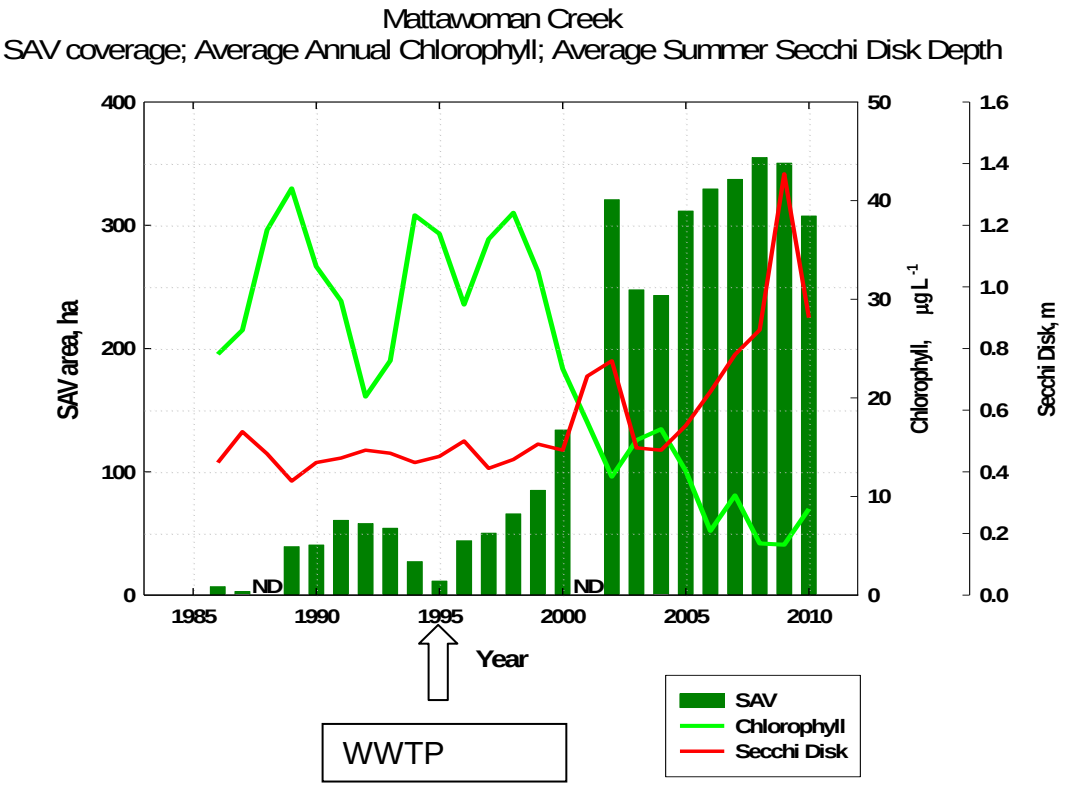
Second, the huge, dense underwater grass bed (known as submerged aquatic vegetation or "SAV") on the Susquehanna Flats – which has tripled in size over the past 20 years – has been widely cited as an example of the recovering Bay ecosystem (see slide below, courtesy of Dr. Walter Boynton, UMD). Scientists 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 Lititz 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 structures[10]. 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.

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[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.

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[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.