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Pushing the Legal Limits

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Pushing the Legal Limits

The Chesapeake Bay restoration faces big challenges on multiple fronts. Some of the thoughtful response measures are stretching the Clean Water Act creatively. The results provide lessons for complex environmental problems elsewhere



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THE CHALLENGES of the biggest watershed restoration project in the country's history are testing the limits of the Clean Water Act. The law's "pollution diet" for the Chesapeake Bay, issued by EPA in 2010, serves as the basis of a ground-breaking multi-state experiment in cooperative federalism. The CWA tool is known by the abbreviation TMDL, for Total Maximum Daily Load of pollutants. The term has emerged front and center in reducing the contaminants that continue to enter the Chesapeake from countless individual sources in a watershed spanning 64,000 square miles. Mixed recent progress reports make us ask what needs fixing at the same time that some successes suggest measures that warrant replication in other regions.

For non-CWA buffs, a TMDL is the highest amount of a pollutant that can be discharged daily into a waterbody — critically, from all sources combined — and still meet water quality standards. A water quality standard has two components: a designated use (such as swimming or trout habitat) and the maximum ambient concentration of any pollutant that still allows the use to be achieved. A TMDL is calculated such that it can't be exceeded without bad water quality results.

The Chesapeake Bay is the biggest estuary in the country. It is a multi-billion-dollar driver of the mid-Atlantic economy, including commercial and recreational fishing, shipping, tourism, and the many businesses that support them. Its watershed covers parts of six states — New York, Pennsylvania, Virginia, West Virginia, Maryland, and Delaware — plus the District of Columbia. It is home to 18 million people, plus over 3,500 species of plants, fish, and other animals. It is famous for its blue crabs, oysters, skipjack sailboats, and rich cultural history based on the bay's bounty and abundance. However, several centuries of land development, deforestation, and industrialization have resulted in serious pollution of the bay and its tributaries. Nitrogen, phosphorus, and sediment runoff, mainly from farms and contaminated urban and suburban stormwater, have caused widespread exceedance of water quality standards for dissolved oxygen, chlorophyll-a (an indicator of algae levels), and water clarity. All of these are

vital to the survival of fish, shellfish, and countless aquatic organisms up and down the food chain. As a result, the oyster population is at one percent of its historic level. Blue crabs and striped bass are also far below their levels in a healthy Chesapeake.

To reverse the damage, the bay jurisdictions began in 1983 to coordinate efforts to reduce pollution entering the estuary. They formed the Chesapeake Bay Program, with a staff in Annapolis. In 1987 Congress codified this arrangement in a new Section 117 of the CWA, which provided funding to achieve the desired water quality goals. However, after 24 years it became clear that the state-by-state approach was not working. Among other things, there was no mechanism for interstate enforcement. Virginia and Maryland had no authority to require farmers in Pennsylvania to curtail polluted runoff into the Susquehanna River, which accounts for half the freshwater flow into the bay.

In 2007 the states asked EPA to develop an interstate TMDL that would determine the amounts of nitrogen, phosphorus, and sediment that the bay could tolerate and still meet water quality standards. EPA would then allocate the allowable loadings among the states based on their contribution volumes, and further allocate them among major river basins to help the states in the planning process. This would enable each state to calculate how much it needed

to reduce its discharges of each pollutant to reach the allowable levels. EPA proceeded to develop this biggest-ever TMDL, in consultation with the states, numerous technical experts, and the public.

The process got a boost in 2009 when President Obama issued an executive order declaring the Chesapeake a "national treasure" and proposing 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." It directed EPA and six other federal agencies to work with the states, local communities, and the private sector to develop a strategy to achieve these goals, including milestones, transparency, and stakeholder outreach and accountability.

At this point, let's take a quick look at the history of EPA's use of TMDLs. What we call the Clean Water Act today had legal predecessors. When Congress passed the far-reaching Federal Water Pol-

The Clean Water Act provides for a Total Maximum Daily Load of pollutants entering a waterbody. The Chesapeake Bay's TMDL has emerged front and center in reducing the contaminants from countless individual sources

lution Control Amendments in 1972, it preserved in Section 303 the states' role to set water quality standards. If a state fails to do so, or EPA finds them inadequate, the federal agency can set them. States must maintain a list of all waters not meeting water quality standards ("impaired waters"), which must be submitted to EPA in even-numbered years. For all pollutant-impaired waters the state must develop TMDLs. If a state fails to do so, or if EPA finds the offering inadequate, EPA develops the TMDL and the state must include it in its water quality planning process. While EPA periodically reviews a state's planning process for consistency with the act, the federal government may not step in and write the plan itself. What if a state fails to implement a TMDL? EPA has no authority to enforce it.

For a dozen years after enactment of what we came to call the Clean Water Act, EPA largely ignored the use of TMDLs. Then, starting in the mid-1980s, environmental groups began suing the agency and the states for failure to adopt them. Courts frequently put the agencies under consent orders to move forward, and soon TMDLs were being developed for impaired waters across the country. However, a Government Accountability Office report issued in December 2013 found that although by then some 50,000 TMDLs had been issued, often little was being done to implement them or prioritize the more needy waters.

In that same month, EPA issued "A Long-Term Vision for Assessment, Restoration, and Protection Under the Clean Water Act Section 303(d) Program." This plan called on states to engage the public and prioritize their impaired waters. It promoted integrating the CWA's planning and funding programs and the resources of other agencies (such as the Agriculture Department's farmland conservation programs) to do a more effective job.

This followed a March 16, 2011, memorandum from EPA's assistant administrator for water to the regional administrators on "Working in Partnership With States to Address Phosphorus and Nitrogen Pollution Through Use of a Framework for State Nutrient Reductions." It stated: "Over the last 50 years . . . the amount of nitrogen and phosphorus pollution entering our waters has escalated dramatically," producing a "degradation of drinking and environ-

mental water quality." Citing agricultural practices and stormwater runoff as among the main causes, the memorandum stated prophetically: "Nitrogen and phosphorus pollution has the potential to become one of the costliest and most challenging environmental problems we face." That problem was already apparent in the Chesapeake.

WHEN the federal environmental agency developed the Chesapeake Bay TMDL, it set annual allowable loadings of 185.9 million pounds of nitrogen, 12.5 million pounds of phosphorus, and 6.5 billion pounds of sediment. To achieve these caps required a 25 percent reduction of nitrogen, a 24 percent reduction of phosphorus, and a 20 percent reduction of sediment loadings. This would be especially challenging because the two biggest sources of all three pollutants are farm runoff, carrying nutrient-laden manure and pesticides, and contaminated urban and suburban stormwater runoff. With minor exceptions these are nonpoint sources, and as such are not subject to regulation by EPA under the CWA. Instead, regulation of these sources is left to the various authorities held by states, and that regulation is spotty.

Given the extraordinary magnitude of the task, the TMDL included a novel "accountability framework" consisting of four main components. First, by 2017 the states were to have in place all the measures needed to achieve 60 percent of the required reductions, and by 2025 they need to have in place 100 percent of the needed measures. Second, each state was to develop a Watershed Implementation Plan, or WIP, describing in detail all the measures that will be taken to achieve the necessary pollution reductions with "reasonable assurance," including permits, regulations, and other measures, along with the financial and personnel resources and legal authority to implement the measures. This requirement is based on the Section 303(e)'s "continuing planning process," referred to above, and the resulting plan designed to achieve compliance with water quality standards and TMDLs. It is also supported by Section 117(g), appli-

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National Treasure = Federal Obligation

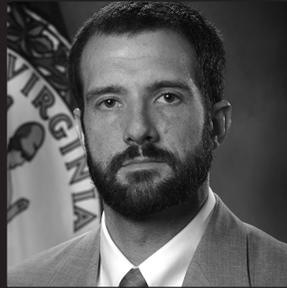
IN 2009, President Obama signed the executive order that reenergized a long, but to that point unsuccessful, effort to restore the Chesapeake Bay. Calling the bay a national treasure, Obama put EPA and the six bay watershed states on a course to save the Chesapeake from pollution and degradation by 2025.

The key difference between this effort and others that had failed over the previous thirty years was the requirement to develop a Total Maximum Daily Load — known as a pollution diet — for the bay. Under the Clean Water Act, states have the lead for developing TMDLs, but EPA has the authority to enforce them if state efforts do not produce results.

The Chesapeake Bay TMDL requires states to develop clean water blueprints — Watershed Implementation Plans — that clearly articulate what each state will do to achieve its required pollution reductions affecting the bay. The WIPs provide assurances that each state will produce laws, regulations, and funding necessary to meet its commitments by the 2025 deadline.

Under Governor Northam’s leadership, Virginia has done its part, and is on track to meet its pollution reduction requirements by 2025. Our Phase III WIP is the strongest bay cleanup plan in the commonwealth’s history, and is backed up by tougher nutrient limits for wastewater treatment plants and deadlines for farmers to implement priority conservation practices. Virginia has made record investments in agricultural water quality measures and clean water infrastructure, including dedication of significant American Rescue Plan Act funds.

Unfortunately, not every state has followed suit. In particular, Pennsylvania’s state legislature has failed to take the bay cleanup effort



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“Under Governor Northam’s leadership, Virginia has done its part, and is on track to meet its pollution reduction requirements by 2025. The bay states need EPA to step in and play the heavy in order to fulfil the promise of President Obama’s 2009 executive order”

seriously, and has refused to provide the funding or legal authorities necessary for the Keystone State to live up to its commitments under the federal-state bay partnership, even with massive amounts of federal assistance available for this purpose under the ARPA legislation.

As a result, Pennsylvania’s Phase III WIP is woefully inadequate. Even the Trump administration said as much, though his EPA refused to hold Pennsylvania accountable by fulfilling its essential backstop responsibility to enforce the TMDL. Governor Northam had no choice but to join Delaware, Maryland, and the District of Columbia in filing suit against EPA for failing to do its part to ensure that the actions of one partner do not jeopardize the work and investment of the others.

We are currently working toward resolution of this lawsuit, and I am hopeful that we can arrive at an agreement that will avoid the courtroom and put in place measures that will bring Pennsylvania into compliance with the TMDL and the Clean Water Act. Without such an outcome, the most recent and most promising effort to save the Chesapeake Bay will fail.

That outcome is unacceptable to Virginia, and it should be unacceptable to every American who

enjoys Chesapeake Bay oysters, blue crabs, and rockfish, vacations along its shores, or simply wants to go fishing or swimming in a local bay tributary.

Saving a national treasure requires national action, and the time for action is now. It has been two years since EPA reviewed state WIPs for adequacy. The Biden administration began by pledging a renewed focus on environmental protection. The bay states need EPA to step in and play the heavy in order to fulfil the promise of President Obama’s 2009 executive order.

Congress has a role to play here as well, by dedicating funding in the pending infrastructure package to help Pennsylvania and other jurisdictions pay for restoration work. Earlier this year, Governor Northam led the bay jurisdictions in asking Congress to fund the Billion for the Bay initiative to jump start the final phase of the Chesapeake cleanup.

Governor Northam and I remain optimistic about the prospects for Chesapeake Bay restoration. But that optimism relies on the federal government’s doing its part to hold all states accountable for reducing water pollution. We will continue working with the Biden EPA to ensure that happens.

cable specifically to the Chesapeake Bay Program, requiring the development and implementation of “management plans” for pollution reduction.

The third component of the accountability framework was the use of two-year “milestones” and annual progress reports to ensure that each state is making reasonable progress toward the water quality goals. While this mechanism is not mentioned in the statute, EPA relied in part on Section 303(d)’s requirement that a TMDL “be established at a level necessary to implement the applicable water quality standards” and the broad goal in Section 101(a) “to restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Every two years, each state publishes for public comment and EPA review its proposed measures for the coming two years, as well as its assessment of what it has accomplished during the previous two years.

The fourth component, in the absence of enforcement authority, is EPA’s use of “backstop” measures when a state either submits an inadequate WIP or fails to make reasonable progress on its milestones. These include expanding permit coverage under the federal water law’s National Pollutant Discharge Elimination System to point sources not currently covered, requiring additional reductions of nutrients or sediment from existing point sources, requiring greater offsets for new or expanded discharges, increasing federal inspections and enforcement, and conditioning or redirecting grant funds. EPA’s commitment to act as the referee to make sure that each state does its fair share was an essential component of the accountability framework. During the first six years of implementation, EPA imposed backstops where state WIP or milestone provisions, or actual progress, were inadequate. During the Trump years, EPA did not play this essential role, which, among other things, allowed Pennsylvania to fall far behind.

Various aspects of the TMDL, including the accountability framework, were challenged in court by agricultural and construction industry groups as exceeding EPA’s statutory authority. But those challenges were all rejected in 2015 by the Third Circuit in *American Farm Bureau Federation v. EPA*, and the Supreme Court denied certiorari a few months later.

Problems have persisted, aggravated by lax regulatory enforcement. In addition, the program is facing new challenges that were not fully appreciated when EPA set the “pollution diet”

In an article in the January/February 2016 issue of this journal, I discussed the initial implementation of the TMDL, the important issues resolved in the litigation, and the widespread cooperation among federal, state, and local stakeholders, including the NGO community and the private sector. This has been matched by the cooperative work done via the Chesapeake Bay Program Partnership by governors, agency heads, program staff, and the scientific community. I described the Chesapeake Watershed Agreement executed in 2014 by the governors of the bay states, the DC mayor, the Chesapeake Bay Commission (a unique body representing the legislatures of Pennsylvania, Virginia, and Maryland) and EPA, recommitting to the goals of the TMDL and to the broader objectives of the executive order. These include habitat and wetland restoration, species protection, and environmental education. I also identified some challenges: funding shortfalls, a shortage of technically skilled personnel, and difficulties in verifying that pollution control measures were actually improving water quality.

In the five years since then these problems have persisted, aggravated by lax regulatory enforcement.

In addition, the program is facing new challenges that were not fully appreciated then. These include the significant adverse effects of climate change; the unexpected addition of six million pounds of nitrogen because the Conowingo Dam, on the Susquehanna River, used up its sediment storage capacity; the failure of Pennsylvania to adequately fund its WIP; the failure of EPA for four years to act as an effective referee; and constraints on field work caused by Covid.

DESPITE enormous efforts during the past decade, the health of the bay is a mixed picture. According to the Chesapeake Bay Foundation’s widely respected 2020 “State of the Bay Report,” water quality is improving, though at a slower pace than will be needed to meet the 2025 goals. The states are relying heavily on farmers to achieve major reductions of nitrogen runoff, but this is based mainly on voluntary action and substantial public funding.

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The CWA at the Outer Edge of Doable

Chesapeake Bay restoration efforts have been pushing the limits of the doable since the early 1980s. Improving the conditions of the nation's largest estuary, with a 64,000-square-mile watershed that spans six states and the District of Columbia, was, and remains, an ambitious undertaking. More than 40 years later, the current Total Maximum Daily Load is but the latest example of the ongoing evolution of a restoration effort that has been expanded, refined, analyzed, and evaluated like no other.

This evolution would not have occurred absent the formation and existence of an incredibly resilient basin-wide collaboration among the federal and state governments, the executive and legislative branches, research institutions, and stakeholders of all types. This resultant web of knowledge, policy, and funding provided a support structure for the restoration that has only grown in breadth and depth over time.

Originating with the first Chesapeake Bay Agreement in 1983, the Chesapeake Bay Program Partnership is the administrative home of the restoration effort. The commitments pledged by the signatories to the agreement and its successors, including the most recent in 2014, are voluntary, with few direct consequences for failing to deliver.

Amazingly, much of the collaborative, voluntary approach yielded great successes. In the first 30 years of the restoration, the population of the watershed grew by 43 percent while the nutrient pollution loads to the bay decreased by more than one-fourth. Nevertheless, the progress made was far short of what was needed to attain healthy water quality.

By 2008, it was clear that for



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Executive Director
Chesapeake Bay Commission

“The Chesapeake Bay Program continues to provide structure and science to support pollution reduction. It remains the model for similar efforts around the globe”

additional progress to occur, accountability beyond mere political opinions was necessary. While the Clean Water Act provided for the TMDL process, there was no history of creating or implementing one on such a large, multi-jurisdictional scale. The process that followed tested both the strength of the partnership and the Clean Water Act itself.

The American Farm Bureau Federation sued EPA in 2011, claiming that the level of detail in the bay TMDL, including specific sector allocations and expectations of performance, illegally infringed on states' rights. In upholding the TMDL, the district court relied on the 30-year history of the collaborative Chesapeake Bay Program, concluding it was, in fact, a successful example of cooperative federalism. While the court observed that cooperative federalism can sometimes be “messy and cumbersome,” the judge noted that it is “one of the most enduring characteristics of pollution control law over the past three decades.”

With the increased level of accountability provided by the TMDL, the program partners, as a whole, took a notable move away from broad policy initiatives, shifting toward inventorying ac-

tions taken to reduce pollution. A reporting and verification bureaucracy emerged, one exemplifying the “messy and cumbersome” aspect of cooperative federalism. In spite of this, the TMDL generated remarkable momentum toward pollution reduction.

With the adoption of a series of two-year incremental milestones, the partnership set an implementation target of having practices and programs in place by 2017 to achieve 60 percent of the 84-million-pound nitrogen reduction goal. A 2025 deadline to have 100 percent of the necessary practices and programs in place has further driven momentum.

Nevertheless, challenges remain. A lack of robust state funding in Pennsylvania demonstrates the limits to success when sufficient resources are not available. The TMDL's exclusive focus on water quality has also diverted attention from other important aspects of the restoration, such as habitat and education. And climate change will only complicate the restoration efforts. Fortunately, the Chesapeake Bay Program continues to provide structure and science to support the effort. It remains the model for similar efforts around the globe.

Blue crab and oyster populations are showing modest improvement. The 2025 target for total acres of bay grasses, which provide critical habitat for juvenile fish and birds and are an important gauge of progress, is 130,000 acres. By 2018 the figure stood at a 30-year high of 108,000 acres, but two seasons of heavier than usual rains, attributed to climate change, reduced that figure to 66,387. The 2025 goal for restored wetlands is 85,000 acres, but only 16,000 have been added since 2014.

Pennsylvania is responsible for 40 percent of the nitrogen, 24 percent of the phosphorus, and 31 percent of the sediment entering the bay. It is far behind the other states in nitrogen reduction, and in 2019 submitted to EPA a Phase 3 WIP (covering the period from the 2017 midpoint assessment through 2025) which on its face will not achieve the 2025 goals. It also shows an annual funding shortfall of \$324 million, with no fresh source of funding in sight. The state's failure to provide the needed funds reflects the fact that a majority of its legislators are not from the Chesapeake watershed (almost entirely the Susquehanna River watershed), and many complain that they get much less enjoyment from the Chesapeake Bay than do Marylanders or Virginians. This overlooks the fact that the state's failure to clean up the Susquehanna is not just causing problems in downstream waters, but has major adverse impacts on Pennsylvania's own drinking water supplies and recreational and commercial activities.

After EPA approved Pennsylvania's WIP in 2019 and failed to apply backstops, the attorneys general of Maryland, Virginia, Delaware, and the District of Columbia sued the federal agency based on EPA's "nondiscretionary duty" under Section 117(g) to "ensure that management plans are developed and implementation is begun . . . to achieve and maintain . . . the [prescribed] nutrient goals . . . for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed." The suit alleges that the agency's approval of the defective WIP violated this duty. A similar allegation was made concerning EPA's approval of New York's facially inadequate WIP. New York has since tried to cure its defects. The Chesapeake Bay Foundation filed a similar suit. Fortunately this litigation does not appear to have

dampened the states' commitments to the restoration goals or the partnership process.

What will the new administration do? EPA's Michael Regan has pledged strong support for the bay restoration. Whether this results in backstops or other measures remains to be seen. As of this writing we are awaiting appointment of an administrator for Region 3, where the bay program is housed. In any case, Pennsylvania's shortfall will pose a big challenge for the partnership going forward.

Meanwhile the effects of climate change in the watershed are now far more apparent than they were 10 years ago. Sea-level rise is already affecting many

low-lying communities, routinely flooding large areas and destroying wetlands. Heavier spring rains during the past three years have washed larger quantities of contaminated soil into the bay and its tributaries. In addition to the devastating effects on fragile bay grasses noted above, it is estimated that this "new normal" level of precipitation will annually bring five million more pounds of nitrogen into bay waters. Each state WIP now has provisions to deal with climate change, and to build resiliency into its land use planning. Priority will increasingly go to measures that both reduce

nutrient and sediment runoff and sequester carbon dioxide, such as streamside vegetated buffers, wetland restoration, and urban tree canopy.

In addition, the Conowingo hydroelectric dam, located on the Susquehanna River in Maryland just below the Pennsylvania border, has for many decades trapped large quantities of sediment behind it. This trapping capacity has been exceeded, resulting in an additional 6 million pounds of nitrogen and 260,000 pounds of phosphorus flowing into the bay annually. By coincidence in 2014 the 50-year license of the operator, Exelon, came up for renewal before the Federal Energy Regulatory Commission. There was hope that Maryland would use its CWA Section 401 authority to require Exelon to contribute major funding to reduce this pollution and thereby protect downstream water quality, but that fell through when Maryland settled for a contribution that was viewed by many as way too cheap. The license is being challenged in the D.C. Circuit.

There was no plan to deal with this additional pollution. Because the states had no extra funds, and

Pennsylvania has fallen far behind in meeting its allocation of the pollution reductions needed to meet the 2025 restoration goals. Its Watershed Implementation Plan on its face will not achieve its share

cost allocation will be contentious, they decided to develop a new Conowingo WIP with long-term funding. To my knowledge, this is the first interstate WIP in the country, and something not contemplated by the CWA. Instead of becoming part of a state's "continuing planning process," this plan will be supervised by the Bay Program Partnership. Specifically, this will be the Principals' Staff Committee, which consists of all the state agency heads, reporting to the governors. The states anticipate selecting an interstate entity to manage the activities and the finances, such as the Susquehanna River Basin Commission, but the financing has yet to be identified.

WHAT have we learned from all this? First, a multi-state TMDL is the only Clean Water Act tool available to address interstate pollution. It has provided a highly effective framework, enabling the states to secure an allocation of the watershed-wide loadings for three major pollutants. Given the increasing recognition of the effectiveness of watershed-wide approaches to water quality restoration, this is a valuable lesson. Second, the pathbreaking level of detail in the WIPs provides useful models for other watersheds. Third, the accountability framework has been essential not only in keeping the states moving forward, but in providing each state with the needed assurance that the others are doing their fair share.

The failure of Pennsylvania to lift its part of the burden is as much the failure of EPA oversight as it is the failure of the legislature in Harrisburg to provide the funds. It also highlights EPA's inability to actually enforce a TMDL, which is a shortcoming in the statute. While Section 117 gave EPA a bit more authority to require WIPs than Section 303(e) alone, since such plans are required by Section 303(e) and this accountability framework was upheld based on that section by the Third Circuit, this framework is available for use elsewhere.

Fourth, establishment of the Chesapeake Bay Program office, with a permanent staff of scientists and managers, has been vital to the provision of technical support and the performance of tasks one time for all

seven jurisdictions. Fifth, the Chesapeake Watershed Agreement of 2014, by recommitting all the parties to the TMDL and the broader watershed restoration objectives of the executive order, facilitated the establishment of specific goals and outcomes, with activities managed by committees and work groups drawing from all of the bay states under the oversight of the Principals' Staff Committee.

Sixth, the process has demonstrated that cooperative federalism — which in this case involves federal, state, county, and local governments, universities, NGOs, and private individuals — can succeed. This was energized by a commitment to collaboration, outreach, and good communications.

In the scientific area, the use of modeling to predict environmental outcomes has been refined and applied in multiple contexts. These include the setting of the TMDL itself, using a series of interconnected bay watershed models, and the ability to predict what the likely reductions in pounds per year of nitrogen, phosphorus, and sediment will be from the application of any of some 200 different Best Management Practices on any given piece of property. Studies have also confirmed that the most cost-effective reductions of these pollutants occur on farms. Since Department of Agriculture cost-share programs have often not been adequate, this has stimulated state legislation to provide incentives for farmers to install the needed measures, including outright purchase of the pollution reductions. The only sector that has been losing ground is stormwater, both uncontrolled runoff and areas covered by MS4 permits. Here experience shows a need for more green infrastructure and stronger enforcement.

Barring a miracle in Pennsylvania, the bay states will not meet their 2025 water quality goals on time. Other significant challenges include climate change, financing the Conowingo WIP, the perennial shortfall in program funding and technical support, and the need for strong federal oversight. However those issues are dealt with, we have learned a lot from the Chesapeake Bay restoration so far. Given the widespread determination to succeed, there is good reason to believe that the water quality and the overall health of the watershed will continue to improve. It is exciting to see people rising to the challenge. **TEF**

People are rising to the challenge. Given the widespread determination to succeed, there is good reason to believe that the water quality and the overall health of the watershed will continue to improve