



# Chesapeake Bay Getting Healthier But New Gains Face Funding Cuts, Policy Challenges

**T**he Environmental Protection Agency's Chesapeake Bay Program announced in December that almost 40 percent of the bay meets standards for oxygen, water clarity, and algae growth. Progress toward restoration is impressive, but getting the remaining 60 percent of the waters into alignment will be difficult.

In 2010, after years of halting restoration efforts, EPA established enforceable pollution limits for the Chesapeake — known as the Total Maximum Daily Load — covering nitrogen, phosphorus, and sediment pollution. The six bay states — Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia — and the District of Columbia later released their plans to meet those limits by 2025. This ambitious Clean Water Blueprint survived a legal challenge, and in recent years federal, state, and local governments have pressed ahead with their plans to achieve pollution reductions.

As we reach the midway point for the 2025 deadline, it is clear that progress is being made across the watershed. Water quality and clarity have improved, the acreage of underwater bay grasses has increased, crab harvests are rebounding, and efforts to restore oyster popu-

lations are accelerating. Just as important, an outdoor recreational economy (exclusive of recreational fishing) is valued at as much as a quarter billion dollars per year and is growing.

But despite recent progress, most notably in reducing pollution from wastewater treatment plants, significant challenges remain across the watershed in meeting nonpoint source pollution reductions from agriculture and urban and suburban runoff whose controls are more difficult.

This DEBATE IN PRINT occurs as there is a stand-off in Washington about future funding for bay restoration, a minor item in the struggle to pass a measure funding the government. The Trump administration has proposed dramatic funding cuts for the Chesapeake Bay Program and other federal initiatives that support restoration efforts. The House is considering less severe cuts, but so far the Senate recommends full funding. Without adequate federal funding, the initiative to save the bay is in jeopardy.

Recognizing the significant progress that has been made and the important challenges that remain, the FORUM asks our panel for their views on what must happen in the years ahead if the goal of restoring the Chesapeake is to succeed.



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**Nick DiPasquale**

Director, Chesapeake Bay Program  
U.S. ENVIRONMENTAL PROTECTION  
AGENCY (2011-17)



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**Cindy Adams Dunn**

Secretary  
PA. DEPARTMENT OF CONSERVATION  
AND NATURAL RESOURCES



*“Continuing challenges for the bay are fierce. Upstream and upwind pollution, development and growth pressures, and climate change impacts loom large.”*

**Ben Grumbles**

Secretary  
MARYLAND DEPARTMENT OF THE  
ENVIRONMENT



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**Jon Mueller**

Vice President of Litigation  
CHESAPEAKE BAY FOUNDATION

## Move Forward or Backward? We Are at a Tipping Point

By NICK DiPASQUALE

Significant progress has been made in reducing pollution flows to waters of the Chesapeake Bay watershed. Many of the indicators we use to measure the health and restoration of this important ecosystem have improved steadily over the past several years. In addition to an expansion of bay grasses measured in increased acreage, we are also witnessing an increase in diversity of grass species and the density of grass beds. This recovery is rebuilding the balance and resilience of this complex and productive ecological gem.

However, the president proposed to eliminate funding for the Chesapeake Program under the premise that environmental programs in the six bay states and the District of Columbia have matured and they are capable of managing this effort on their own. In fact, these governments rely heavily on funding via EPA and other federal agency budgets.

Approximately two-thirds of the Chesapeake Bay Program's budget goes out to the jurisdictions to help them implement the Chesapeake Bay water quality program known as the Total Maximum Daily Load or, alternatively, Pollution Diet or Blueprint. Without this funding or with significantly reduced funding, the jurisdictions would find it extremely difficult to maintain the level of effort necessary to achieve water quality standards in the bay and its tidal waters.

EPA also provides an important coordinating function for the Chesapeake Bay Program partnership effort. It provides funding and management for the watershed's water quality monitoring network

and handles the data that determine whether progress is being made. It serves as the primary convener and facilitator for discussing issues and making decisions on a vast array of important problems that arise in this environmentally complex and economically important watershed.

The agency supports a consensus-based decisionmaking governance system that ensures equity and fairness among its participants. In the District Court decision on the challenge to the bay TMDL, Judge Sylvia Rambo found that EPA's efforts in the development and issuance were collaborative and consistent with the concept of cooperative federalism as embodied in the Clean Water Act.

Midway through the implementation of the bay TMDL, we find ourselves at an ecological tipping point at which a change in the ecosystem sets in motion mutually reinforcing feedback loops that can propel the system toward balance and stability or degradation and instability. Should we back off of our efforts to increase implementation of pollution-control measures, the investments we have made, and the progress we have achieved, will be lost. The Chesapeake Bay ecosystem is under an ever increasing set of new threats and challenges, from forces associated with climate change and ongoing development to the presence of pharmaceutical byproducts, micro-plastics, and agricultural chemicals.

Rather than reducing or eliminating funding for this program, Congress and the president should be supporting increased funding. The single largest source of pollution loadings to the watershed comes from agricultural runoff. Discharges from major wastewater treatment plants already have met their 2025 reduction goals. But support for cost-share programs in the Farm Bill for agricultural conservation measures has been reduced over the past several years and is proposed to be re-

duced even further in the president's budget.

Pennsylvania, the state with the largest agricultural sector, is significantly behind in achieving its pollution-reduction goals. Its support for state agricultural cost-share program funding is substantially less than that of Maryland and Virginia. Since 50 percent of Pennsylvania drains to the Chesapeake Bay and almost half of the freshwater flow to the bay comes through the Susquehanna River, if we are unable to achieve the necessary reductions of nutrient and sediment pollution from Pennsylvania, we will not be successful in meeting water quality standards for the bay and its tidal waters, nor will Pennsylvania improve local water quality in its own streams and rivers.

Lastly, more support needs to be provided to local governments that are responsible for operating wastewater treatments plants, managing stormwater, and making land use decisions, which all have an impact on local water quality. As Congress and the administration debate an infrastructure bill, they should use it as an opportunity to ensure that funding is made available to support environmentally sound infrastructure projects for road and bridge construction, wastewater treatment plants, drinking water systems, and energy development and distribution.

It has long been recognized that restoration of the Chesapeake Bay watershed is important for both ecological and economic reasons. A number of published studies and reports have placed the economic value of the bay and its watershed at well over \$1 trillion. A considerable investment has been made in this important asset over the past 35 years. It would be bad business to walk away from that investment now.

**Nick DiPasquale** served as a director of EPA's Chesapeake Bay Program from 2011-17.

## To Clean Up the Bay, Focus on the Land

By CINDY ADAMS DUNN

The role of land conservation, forest cover, and public engagement easily gets lost in the challenges of nutrient reductions, TMDLs, and Chesapeake Bay Program agreements. Yet this work emerges as critical as we better understand the roles riparian buffers, conserved forest land, and green infrastructure play in assisting with the bay's resiliency and pollution-absorbing capacity.

The importance of forests to clean water is well understood, and increasingly important in a warming climate. The Pennsylvania Department of Conservation and Natural Resources, with many partners, manages public lands and forests to clean and filter water, and encourages conservation actions on private lands by engaging with the public who make decisions and choices that impact local waters and the bay.

One of the best places to restore forests is at the edge of streams. The Bay Program credits forest riparian buffers as one of the most effective best-management practices for removing nitrogen, phosphorus, and sediment. These practices are supported by EPA, the U.S. Department of Agriculture, and all agencies in Pennsylvania directly involved with bay cleanup (DCNR, and the departments of Environmental Protection and Agriculture).

As Pennsylvania develops its Watershed Implementation Plan, forest riparian buffers are central. To meet the Chesapeake Bay TMDL, we are working collectively to add 95,000 new forested buffer acres by 2025. Federal financial and program support will be critical.

While supporting the federal Conservation Reserve Enhancement Program, DCNR created an alternative approach that provides more flexibility

to landowners, especially with Amish and Mennonite farmers. This approach funds buffers designed to allow some income-producing trees and shrubs such as nuts, berries, willows, and energy crops. It will attract landowners who might not qualify for or want to enroll in CREP, and motivate them to keep their buffer in place long-term, as it produces income. So far, Pennsylvania is investing more than \$4 million in Keystone and PENNVEST dollars in this program.

But we also need to keep the stream buffers and forested lands we already have. Penn's Woods is 59 percent forested, with 17 million acres of forestland. DCNR manages 2.6 million acres, much of it in the Chesapeake Bay watershed. Despite the large public land ownership in the headwaters, 75 percent of Pennsylvania's forested lands are privately owned, and are becoming increasingly fractured and parceled as children inherit large tracts and divide them.

For the Susquehanna and other waterways to improve, we need to protect the existing forests, and expand forest land protection and conservation. The Chesapeake Conservation Partnership is bringing together agencies and non-profits to secure support for this across the watershed.

U.S. Forest Service and National Park Service both provide critical funds, but unfortunately President Trump's budget cut the Land and Water Conservation Fund, and we're relying on Congress to restore it.

In the meanwhile, DCNR has been experimenting with a "working woodlands" approach to conserving forestland. Owned by large timber organizations and watershed authorities, these lands are rapidly changing hands and are increasingly subdivided and vulnerable to development. By encouraging conservation investors to purchase these lands and continue timbering sustainably, they remain in forest cover and support jobs, as well as water quality, wildlife, carbon sequestration, and many other benefits.

DCNR is in discussions to facilitate permanent conservation easements on these working woodlands to prevent subdivision and appease local officials who often oppose state ownership of large parcels.

Of course, meeting Pennsylvania's commitment to the bay won't rely solely on conserving forests. Fortunately, DCNR works in partnership with our state Environmental Protection and Agriculture agencies on the wide range of best management practices being adopted by communities, farmers, and landowners.

In the long run, the major motivator to engage local citizens is their local rivers, streams and landscapes. DCNR leads a proactive approach to engaging people with land and water through our Conservation Landscape program.

The Susquehanna Riverlands in Lancaster and York counties is one good example, focused on the beautiful lower gorge of the Susquehanna River. The partnerships enhance the natural assets through federal, state, and local investments in land conservation, trail and park development, interpretation, education, and tourism.

Continued financial and programmatic support from EPA, NPS, and Forest Service programs is essential to support this work and keep momentum going. Pennsylvania state government, local government, and non-profits are committed and doing established, productive work, so the steady support of federal partners is critical to leverage local investments.

I am enthusiastically supportive of the Chesapeake Bay Program because it gives an extra impetus for those of us up in the watershed to conserve land and forests, clean up streams and rivers, and connect our public to these incredible assets. We need continued federal resources to accomplish this.

**Cindy Adams Dunn** is secretary of the Pennsylvania Department of Conservation and Natural Resources, and has worked in both public and non-profit roles in conservation and Chesapeake Bay restoration.

## More Partners to Table, But Don't Let Polluters Off

By BEN GRUMBLES

Our Chesapeake Bay is cleaner than it's been in decades, thanks to world-class science, funding, regulations, and stewardship. But continuing challenges are fierce. Upstream and upwind pollution, development and growth pressures, and climate change impacts loom large. We need to add smarter tools, not simply more of the same if we expect to achieve the 2025 TMDL cleanup goals. State environmental, agricultural, and natural resource agencies must build upon current progress with a greater push for prevention, innovation, and collaboration.

Prevention upstream means progress for the entire watershed. About half of all the fresh water and at least a quarter of all the nutrients and sediments entering the bay flow down the Susquehanna River from New York, Pennsylvania, and Maryland to and through the Conowingo Dam. The TMDL didn't plan on the loss of trapping capacity behind the dam until 2025. The reservoir is now over 90 percent full, clouding our clean water future because of continual leakage, but this megaton blind spot behind the dam is 100 percent manageable if we take action now with a more holistic and proactive approach.

Maryland will insist that all states in the bay watershed, the owner of the dam, and our federal partners work closely together to do their fair share to ensure improvements we've all made with agriculture, wastewater, stormwater, and septic systems aren't suddenly wiped out by a stormy flush or slowly eroded by pollution that used to be stored behind the Conowingo.

Maryland is focused on the environmental responsibilities of the

dam owner, who is seeking a 46-year license renewal from the Federal Energy Regulatory Commission and a Clean Water Act Section 401 water quality certification from the state. This is one of the biggest opportunities in decades to prevent pollution, promote aquatic wildlife, and manage downstream flows, while also boosting clean renewable energy — Conowingo provides significant hydroelectricity to homes and businesses.

Innovation is about getting better results at less cost in new ways. We are finalizing policies and regulations for market-based nutrient-reduction projects to help launch a statewide restoration economy, grounded in transparency and accountability. Whether you call it nutrient trading or clean water commerce, the project partnerships that result can mean better restoration without impairing local waterways. With EPA support, we'll continue to look carefully at interstate nutrient trading and other collaborative ideas to stimulate green infrastructure and pollution prevention, without throwing away any of our existing tools.

One of the more innovative initiatives is beneficial reuse of dredged material. Maryland is moving forward with a 25,000-cubic-yard pilot project to recover valuable resources, formerly known as "spoil," and put them to work. Clean dredged sands and soils from river channels and waterways often have untapped value in restoring wetlands, creating habitat, and shoring up land at risk due to sea-level rise. They can also be used as building materials and land amendments for healthier soils.

We're also getting results from public-private partnerships, such as green infrastructure projects managed by a private entity to comply with aggressive stormwater pollution permits in Prince George's County, Maryland, and pay for performance projects in the state's 2010 Trust Fund.

Collaboration among bay partners

and jurisdictions must grow stronger than ever. Whether you call it cooperative federalism (a term used 40 years ago to describe the Clean Water Act) or shared governance, the basic point is this: the federal government has a critical role in restoring and protecting a national treasure and states, who are on the front lines, must continue to lead and not lose sight of their downstream neighbors.

The last and hardest phase of the TMDL will underscore the need for closer coordination with local governments and for accountability at the state and federal levels. When it comes to the bay TMDL, Congress should not prevent EPA from continuing to serve as a science adviser, interstate umpire, or enforcer of state agreed-upon milestones and implementation plans. Maryland prefers collaboration over confrontation, but as we've shown in the Hogan administration, we are willing to go to court and Congress to ensure EPA and others remain committed to environmental progress in the Chesapeake Bay and beyond.

The really good news for 2018: Every bay state is committing to more prevention, innovation, and collaboration. We are developing a Conowingo Watershed Implementation Plan and a multi-pronged Climate Change Strategy to offset substantial new loadings and increase resilience and preparedness as priorities for the bay progress. We are also working across the aisle in Washington, D.C., and in every Chesapeake capital for continued support of science, infrastructure, and enforcement accountability and for innovations that bring more partners to the table without letting polluters off the hook.

**Ben Grumbles** is Maryland Governor Larry Hogan's environment secretary and chair of the Chesapeake Bay Program's Principal Staff Committee, representing the six bay states and the District of Columbia, the Chesapeake Bay Commission, and the U.S. Environmental Protection Agency.

## It Will Take Voters to Press for Improvements

By VERNA HARRISON

The threats posed in today's political world can be overwhelming: scientists prevented from sharing knowledge; funding for the nation's greatest bodies of water eliminated in the president's budget; agency support slashed; federal staff reassigned; EPA contracts for the respected *Bay Journal* abruptly canceled; the Annapolis venue for bay multi-agency collaboration dismantled. These are just some of the unjustifiable measures taken in the past year.

In the midst of this chaos, the Chesapeake Bay Program is finally demonstrating that it is possible to restore one of the world's greatest estuaries. With a view to the positive, vital underwater grasses are returning and oxygen levels in many rivers are rising to levels that can sustain aquatic life. Even noting misplaced state actions like Maryland's "rain tax" repeal, governments are striving to achieve restoration goals. People representing all walks of life are working together to share responsibility for pollution reduction.

Can this arguably successful model partnership for restoration and protection, driven by science and nonpartisan leadership, withstand the current federal attacks?

With or without the threats coming from Washington, can the progress made to restore this magnificent ecological and environmental engine be sustained after the "easy" actions to reduce pollution from regulated sources like sewage treatment plants have been taken?

I would say, yes — with caveats.

The question is do we, all of us, not just the politicians or the corporate leaders, care enough to demand it and work for it?

The causes of Chesapeake Bay

decline are many, as are the actions to get across the scientifically defined restoration goal line. While funding is obviously critical, progress will not advance without significant attention to the essential elements of verification and voting.

Without question, the progress made in restoring the Chesapeake Bay would not have materialized without regulation. It is the essential element, even more than funding, that has been the driving force in the restoration. The societal benefits of regulatory adoption are only ensured through verification, with motivation to enforce often assisted by essential legal action.

It is tempting to dwell on the recent federally imposed challenges and suggest that all efforts go to ensure that foundational federal environmental protections are not eliminated and funding for enforcement, monitoring, and research is not decimated.

However, state verification measures also must be improved and accelerated.

A key challenge is to verify that voluntary implementation action reported has actually been undertaken. This is particularly problematic in the agricultural sector, where farmers report less implementation progress in some instances than certain government documents. Since the largest amount of pollution entering the bay in each of the states comes from agriculture, expanded agricultural implementation with accompanying robust verification is an important issue to remedy.

Bay Program Verification Protocols were adopted but the state-based plans to follow them are less than transparent. Independent review of progress is difficult. However, slow progress is being made, exemplified by the Hughes Center for Agro Ecology project to bring together many voices to account for pollution while sharing information and building trust.

Beyond insisting on integrity in reporting progress, the Bay Program must resist the temptation to depend on implementation by trading away a pollution-reduction practice that is

regulated, enforceable, and transparent and replacing it with something much less verifiable. In the eyes of many, the jurisdictions must resist temptation to resort to cheap tricks to meet their final modeled implementation goals. If enabled, trading must contain publicly verifiable and enforceable provisions.

Finally, the ability to target funding and monitoring are essential elements. New technology like that offered by the Chesapeake Conservancy and Chesapeake Commons can help determine where to spend implementation dollars and the impact of the expenditure. Some of these tools are designed for government use and others, like Water Reporter, are set up to help citizens capture problems and successes. Documenting wise expenditure of public funds helps the public value the restoration effort.

It is the opinion of this author that the single most important activity that can be done to restore the Chesapeake Bay is to further the ability of all people to participate in the electoral process, whether as a candidate or as a voter.

Even today, this can be non-partisan action. For example, under the umbrella of the Chesapeake Bay Commission, Republican and Democratic representatives from Virginia, Pennsylvania, and Maryland have led the adoption of game-changing measures in their states.

But do we care enough to make the time to engage in endeavors that have the greatest potential to achieve a healthy bay? Run for office? Donate time? Money?

In sum, with every bay restoration cost there are equal or greater health and economic benefits. Given the far more difficult fights this country has waged on the path for racial equality and women's rights, restoring the Chesapeake Bay should be a cake walk.

**Verna Harrison**, currently principal of Verna Harrison Associates, LLC, has engaged for 38 years in bay issues as consultant, funder, state agency leader, and governor's staffer.

## Healthy Soil, Healthy Farms, Healthy Bay

By DENA LEIBMAN

Fly low over the Chesapeake Bay's tributaries, and you'll see the starkly different personalities of the region's agriculture. The bay's eastern flank is mostly a vast, flat carpet of soy and corn — feed for the millions of chickens produced in the area's large-scale poultry houses. Cross the bay to its western shore and the farms — many still growing feed, but also vegetables and grass-based livestock — become smaller in converse relationship to city-inflated land prices.

Within the cities themselves, an urban farming revolution has squeezed mini-farms between housing developments and onto vacant lots and even rooftops. Each of these types of agriculture comes with its own deeply rooted conventional wisdom, often at odds with the others'. Imagine, then, last winter's truly watershed moment when stakeholders — from the Farm Bureau to the Maryland Department of Agriculture to bay watchdog groups to the Chesapeake Alliance for Sustainable Agriculture — joined together to pass the Maryland Healthy Soils Act. All were in rare agreement: Healthy soil is win-win — good for farms and the bay.

Soil is a living ecosystem, teaming with billions of microbes interacting in ways that provide nutrients and structure for growing plants. When well-nurtured, it absorbs and retains rainfall, snowmelt, and irrigation water. Enter modern agriculture. We've deep-tilled our land into hardpan; sprayed chemicals to the point of diminishing returns (read: resistant superweeds and pests); over-applied nutrients — both synthetic and organic; and removed

natural field edge buffers that filter runoff. We've corralled our livestock into confined spaces where manure piles up and too often finds its way into bay tributaries. Today, agriculture is responsible for 40 percent of nutrient pollution and the majority of sediment pollution to the bay.

The blossoming soil health movement and the multi-stakeholder interest behind it show promise in turning farmers from perceived villains of water quality efforts to full-on heroes. For example, organic and conventional farmers in record numbers are using cover crops — non-commercial crops grown between plantings of commercial ones. Cover crops are the workhorse of sustainable agriculture, reducing tillage, suppressing weeds, providing natural nitrogen and other nutrients, and most importantly for bay health efforts, keeping water in the ground and filtering polluted field runoff.

In 2015–16, more than 500,000 Maryland acres were planted in cover crops thanks to the state's cost-share program. Other practices are key to soil health: managed grazing distributes manure, keeps land covered in grass, and provides a conducive habitat for microbes. Reduced tillage and chemical use keeps microbes healthy and happy. Planting deeply rooted perennials draws carbon via photosynthesis into the ground to help build soil organic matter. Every 1 percent increase in soil organic matter can absorb an additional 20,000 gallons of water per acre, according to the U.S. Department of Agriculture. What's more, these practices also draw down atmospheric carbon and can offset greenhouse gas emissions.

Progress is coming, but we have far to go for soil health to be an effective tool for meeting Total Maximum Daily Load requirements. First up is solving the thorny issue of how to suppress weeds without microbe-killing chemicals or tillage; most farmers must now “pick their poi-

son” from the two. We must learn best practices per soil type and ever-changing weather patterns, collect more data, and work to ensure farmers remain profitable — for when a farm is sold to development we lose our best chance of stewarding that land for water quality.

Which brings us back to the Maryland Healthy Soils Act. Its passage was, indeed, a Kumbaya moment, but it comes to Marylanders toothless; our work together has just begun. For instance, the act asks the state agriculture department to set up a program for demonstration projects and farmer education but provides no funding. California and Oklahoma, also among the eight states that have passed healthy soils bills, are truly investing in soil health programs, including demonstration projects, research, technical assistance, and farmer education.

We must pass similar bills in every bay watershed state, and they must come with funding for farmer education and training and cost-shares for soil health practices, as well as a commitment to research and helping farmers find ways to get a return on their investment in their soil.

With the passage of the Maryland bill and growing awareness of the link between soil and bay health, the wind is at our backs. The time is now to turn the Chesapeake region into a national example of how it's possible for farmers and environment to thrive together.

**Dena Leibman** is executive director of Future Harvest, Chesapeake Alliance for Sustainable Agriculture. FHCASA is a farmer-based nonprofit that provides education and advocacy to advance agriculture that is profitable and good for land, water, and communities. She is also co-owner of ZigBone Farm Retreat in Maryland's Catoctin Mountains.

## Progress Requires Vigilance, But Do We Have That?

By JON MUELLER

The path to Chesapeake Bay restoration requires strict adherence to our collective pollution diet and state reduction plans — the Chesapeake Bay Total Maximum Daily Load and Watershed Implementation Plans, which together constitute the Chesapeake Bay Clean Water Blueprint. We are at the midpoint of blueprint implementation. Scientific indicators tell us we are making progress. Success requires continuation of the federal-state partnership that brought us here, together with transparent verification of pollution reduction. But without a strong legal framework and citizen as well as governmental enforcement of that framework, we will not succeed. History makes that clear.

EPA and the bay jurisdictions knew the Chesapeake was impaired in the 1970s, yet the bay TMDL was not issued until four decades later. It took citizen suits against EPA and the bay jurisdictions to make it happen. Litigation brought by the American Canoe and American Littoral societies in 1998 required that either the jurisdictions or EPA create TMDLs for local waters. A subsequent suit by bay leaders and the Chesapeake Bay Foundation forced a bay TMDL by 2010. Defense of the bay TMDL by EPA, CBF, and other citizens organizations against a lawsuit brought by the American Farm Bureau Federation, other agricultural groups, and the National Association of Home Builders secured the legal validity of the TMDL.

Defense of the blueprint does not end there. Governments fail to enforce environmental laws or pro-

vide sufficient resources to ensure compliance. They fail to develop adequate municipal stormwater permits to control polluted runoff from our cities and towns.

Those that contribute to such runoff, owners of impervious surfaces like buildings and railroads, as well as developers, fight local utility fees designed to redress decades of poor construction and offset new development. They also bend laws designed to keep construction away from sensitive areas and limit the destruction of forests and wetlands.

Electric utilities that spew massive amounts of nitrogen oxides into our atmosphere that falls into the bay causing eutrophication oppose and violate laws designed to reduce such pollution. Similarly, automobile manufacturers violate laws and contest the promulgation of new laws to limit NOx pollution. Big Agriculture denies it is part of the problem and proceeds to construct expansive poultry operations that emit nitrogen-carrying ammonia into the air, where it then falls onto land and into the water. Farmers ignore the pollution they cause by allowing livestock to urinate and defecate in our streams.

While many businesses, governments, and individuals strive to reduce air and water pollution, many do not. The tide of 18 million people — the population of the bay watershed — is strong. Every oar, each restoration partner, must pull equally if we are to reach our destination. If a rower falters, citizen advocates must be prepared to act.

What we did not account for is a sea change in how the federal government perceives its role. Despite assurances from Administrator Scott Pruitt that he will see the Bay Blueprint achieved, he has taken unprecedented steps to remove or limit several laws critical to bay restoration.

Air pollution from power plants, cars, and agriculture is the largest source of nitrogen to the bay. In the

Bay TMDL, EPA agreed to curtail these polluting emissions through enforcement of existing regulations. Significant reductions of NOx from coal-fired power plants have been achieved. Yet, in the past year, EPA has changed course and is now seeking to rescind or significantly alter several of those foundational regulations.

The bedrock of the blueprint is the federal Clean Water Act pollution permitting system. Unless state law is more stringent, that system only applies to “waters of the United States.” That phrase has been interpreted by the Supreme Court to apply to waters with a “significant nexus” to navigable waters. Administrator Pruitt has proposed to eliminate that definition and replace it with a rule that covers only “relatively permanent” waters. Such a definition could significantly curtail federal pollution permitting and doom the bay. The cooperative federalism Pruitt praises would become nothing more than a sham.

Some great laws have been passed at the state and the federal level. However, as we have recently seen, those laws can be quickly undermined. Political winds shift. While minor course corrections are necessary, dogmatic 180s create uncertainty within the public and regulated industry, deterring progress.

What we need are leaders willing to stay the course despite a headwind. To insure such leadership, citizens must be prepared to bring legal action to require adherence to the law.

**Jon Mueller** is the vice president of litigation for the Chesapeake Bay Foundation. Before coming to CBF in 2004, he worked for the U.S. Department of Justice Environmental Enforcement Section prosecuting federal cases on behalf of EPA and other agencies.