WILL PARSON/CHESAPEAKE BAY PROGRAM

2020

CHESAPEAKE BAY State of the Blueprint

CHESAPEAKE BAY FOUNDATION

Saving a National Treasure

REPORT

CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

2020 CHESAPEAKE BAY State of the Blueprint

A healthy Bay, clean streams, and resilient rivers are in reach, but the road to finishing the job is steep.

The historic Chesapeake Clean Water Blueprint is our last, best chance to save the Bay and achieve the fishable, swimmable waters guaranteed by the Clean Water Act. Its success is critical to our region's health, economy, outdoor heritage, and quality of life.

But are the Bay states on track to reduce pollution by the Blueprint's 2025 deadline? Our *State of the Blueprint* report looks at the progress made, and the progress still critically needed, in Maryland, Pennsylvania, and Virginia, which together account for roughly 90 percent of the Bay's pollution.

Overall, Maryland and Virginia are currently on track to meet their pollution-reduction commitments. However, their progress to date has relied heavily on improvements at wastewater treatment plants, and they must accelerate efforts to reduce pollution from agriculture and urban and suburban areas to finish the job and maintain long-term water quality. Pennsylvania remains far off track largely because state lawmakers have not provided the resources necessary to help farmers implement conservation practices that reduce pollution, threatening the Blueprint's success. The Bay jurisdictions and EPA must take action now if we are going to leave a legacy of clean water to future generations.

Read the *State of the Blueprint* press release.

About the Blueprint

The Chesapeake Clean Water Blueprint is the historic federal/state plan established in 2010 to restore the Bay's water quality. Among other things, it outlines three very important requirements.

1. **Pollution limits** for nitrogen, phosphorus, and sediment set by the U.S. Environmental Protection Agency (EPA), known as a Total Maximum Daily Load (TMDL).
2. **Plans to meet those limits** developed by each of the six Bay states and the District of Columbia, known as Watershed Implementation Plans (WIPs) and referred to here as state Clean Water Blueprints.
3. **Milestones**—two-year, incremental goals to keep progress on track.

The Blueprint calls for all Bay jurisdictions to have in place, by 2025, the practices and policies necessary to meet the Bay's pollution limits. The jurisdictions are currently implementing their final state Clean Water Blueprints (Phase III WIPs) to achieve the remaining pollution reductions.

The Chesapeake Clean Water Blueprint is working, and over the long term, polluted runoff in many areas is decreasing along with summer dead zones. But the road to finishing the job is steep.

What We Found

We assessed progress in Maryland, Pennsylvania, and Virginia—the three states that account for roughly 90 percent of Bay pollution.

First, we used EPA's scientific model to estimate pollution reductions made between 2009 and 2019. For each state, we assessed both the *total* pollution reductions made statewide, as well as the reductions made by each sector (i.e., agriculture, wastewater, etc.) to determine if current trends put them on track to meet the 2025 Blueprint goals. This is an important distinction. While significant progress in one sector may put a state on track to meet its total 2025 goals today, without progress in *all* sectors, states risk becoming off track in the future.

Second, we looked at how well the states implemented the practices and programs outlined in their two-year milestone goals for the 2018-2019 period—in other words, the specific actions they committed to take to get the job done.

While Maryland and Virginia are on track today, achieving the 2025 goals will require the states to accelerate pollution reductions from agriculture and urban and suburban runoff. Pennsylvania is far off track.

Maryland is currently on track to meet its overall pollution-reduction targets by 2025, due mostly to investments in better farm management practices and wastewater treatment technology. However, pollution from urban and suburban development and the impacts of climate change challenge the long-term health of Maryland's waterways. To stay on track, the state must prioritize restoration efforts that are long-lasting, cost-effective, and geographically targeted where the investments will have the best water-quality results.

Pennsylvania is not on track to achieve its 2025 goals. Despite success in reducing pollution from wastewater treatment plants, it is not enough to make up for the massive need to reduce pollution from agriculture, which accounts for roughly 93 percent of the total remaining nitrogen reductions necessary to meet the Commonwealth's commitments. The Commonwealth is significantly behind in helping farmers implement the practices necessary to reduce pollution. If there is any chance of success, this must change.

Overall, **Virginia** is currently on track to achieve its 2025 goals to reduce nitrogen and phosphorus pollution due largely to reductions from wastewater treatment plants. However, it risks getting off track unless it accelerates efforts to reduce pollution from agricultural sources and urban and suburban development and continues to make additional pollution reductions from wastewater treatment plants. The Commonwealth has a strong plan to make these reductions, but the plan must be implemented.

Progress Toward Pollution-Reduction Goals

We used EPA's scientific model to estimate pollution reductions made between 2009 and 2019 and if those reductions are on a trajectory to meet the 2025 goals, both statewide and for each sector. Maryland, Pennsylvania, and Virginia's pollution-reduction progress is summarized in the table below. Together, the three states account for roughly 90 percent of the Bay's pollution.

Pollution-reduction progress is assessed with modeled estimates of the benefits from implemented practices such as upgrades to wastewater treatment plants, best management practices like cover crops and streamside forested buffers on agricultural lands, and stormwater practices, like rain gardens, in urban areas. The “Total” progress for each state is assessed against the overall pollution-reduction target EPA assigned each state in order to meet the Blueprint goals by 2025. Each state is responsible for dividing EPA’s total allotment among the various pollution sources (sectors) in their state Clean Water Blueprints (Watershed Implementation Plans, or WIPs). The progress for each sector (i.e. agriculture) is therefore assessed against the pollution-reduction target assigned to it in the states’ most recent Phase III WIPs.

MARYLAND

MICHAEL HELLER/CBF STAFF

Maryland's Blueprint for Clean Water

Is Maryland on track to meet its 2025 pollution-reduction commitments?

Maryland is currently on track to meet its overall pollution-reduction targets by 2025, due mostly to investments in better farm management practices and wastewater treatment technology. However, pollution from urban and suburban development and the impacts of climate change challenge the long-term health of Maryland's waterways. To stay on track, the state must prioritize restoration efforts that are long-lasting, cost-effective, and geographically targeted where the investments will have the best water quality results.

See where things stand in Maryland below, and learn about the current and future challenges we face.

Maryland's Progress Toward Pollution Reductions

We used the U.S. Environmental Protection Agency's (EPA) scientific model to estimate pollution reductions made between 2009 and 2019 to determine if current trends are on track to meet the 2025 Blueprint goals, both statewide and for each sector. Maryland's pollution-reduction progress is summarized in the table below. Wastewater treatment plant upgrades are the main reason the state is on

track. Maryland needs to accelerate efforts in pollution reduction from agriculture and urban/suburban runoff.

Pollution-reduction progress is assessed with modeled estimates of the benefits from implemented practices such as upgrades to wastewater treatment plants, best management practices like cover crops and streamside forested buffers on agricultural lands, and stormwater practices, like rain gardens, in urban areas. The "Total" progress for each state is assessed against the overall pollution-reduction target EPA assigned each state in order to meet the Blueprint goals by 2025. Each state is responsible for dividing EPA's total allotment among the various pollution sources (sectors) in their state Clean Water Blueprints (Watershed Implementation Plans, or WIPs). The progress for each sector (i.e. agriculture) is therefore assessed against the pollution-reduction target assigned to it in the states' most recent Phase III WIPs.

Evaluating Maryland's Milestone Commitments

After examining the results of EPA's scientific model to estimate pollution reductions statewide and for each sector (see chart above), we evaluated Maryland's implementation of the programmatic commitments it made in its 2018-2019 milestone goals—in other words, the practices and programs the state will use to get the job done. The following is our analysis of key Maryland commitments.

WASTEWATER

Maryland's updated Clean Water Blueprint (Phase III WIP) leans even more heavily on cuts to pollution from wastewater treatment plants. An exceptionally rainy period in 2018 and 2019 temporarily elevated phosphorus levels from wastewater, exposing how little margin for error exists in this sector. Pollution from septic systems remains a persistent problem.

Commitment: Upgrade nutrient removal technology at wastewater treatment plants to reduce nitrogen and phosphorus pollution.

Progress: ON TRACK

Steps Taken: The state and local jurisdictions have completed technology upgrades at 64 of Maryland's 67 largest plants and are ahead of schedule working on smaller facilities across the state.

Steps Needed: Maryland must establish consistently lower phosphorus discharges at the newly upgraded Patapsco plant, one of the state's largest. Increased investment in staffing and materials at plants across the state would help wastewater treatment operators optimize nutrient removal technology to reduce even more pollution.

Commitment: Improve programs to upgrade septic systems and extend sewer lines.

Progress: IN DANGER OF BEING OFF TRACK

Steps Taken: The state has established programs and funding sources for both efforts, but installation of Bay-friendly septic systems has slipped over the past few years. The state met only 57 percent of its installation goal for Fiscal Year 2020. Work to connect homes to sewer lines, however, is accelerating.

Steps Needed: Concrete plans are needed to upgrade or retire septic systems in neighborhoods struggling with this source of pollution. MDE and local governments should engage communities in conversations about phasing in and financing new sewer lines while controlling future growth.

URBAN/SUBURBAN POLLUTED RUNOFF

Due to new development and lagging efforts to reduce pollution in established neighborhoods, polluted runoff from stormwater is increasing and will be Maryland's second largest source of nitrogen pollution by 2025.

Commitment: Issue new permits with updated requirements to treat polluted runoff in urban and suburban areas.

Progress: OFF TRACK

Steps Taken: Polluted runoff from construction sites and developed areas is managed under permits issued by MDE. These permits expired in 2019 and contain outdated protection and restoration requirements.

Steps Needed: The state must issue new permits as soon as possible. These include: the permit for Municipal Separate Storm Sewer Systems (MS4s), which should increase the use of natural filters like bioswales and tree plantings in developed areas, as well as replacing paved surfaces with pervious ones; the Construction General permit for stormwater from construction sites, which should include stronger protections for Maryland's highest-quality creeks and streams; and the Industrial General permit for

stormwater discharged from industrial facilities, which should ensure vulnerable communities do not suffer disproportionately from toxics in industrial runoff.

AGRICULTURE

Ongoing pollution-reduction efforts from farmers are a critical part of Maryland's strategy to meet its 2025 goals. Success with in-field management practices, like cover crops, must be maintained, and installation of natural filters, like pastures and streamside buffers, must increase.

Commitment: Improve documentation and increase implementation of best management practices to decrease nitrogen pollution from farms.

Progress: IN DANGER OF BEING OFF TRACK

Steps Taken: The Maryland Department of Agriculture (MDA) checks nearly 20 percent of Maryland's farms annually to see if they follow plans to manage fertilizer and manure, two big sources of nitrogen pollution. More farmers are using best management practices that reduce pollution, but it remains the primary source of pollution in some rural regions.

Steps Needed: MDA should accelerate long-term solutions, like cost-effective forested stream buffers and pastures that filter pollution before it reaches the water. The Maryland General Assembly passed legislation in 2020 to support installation of natural filters and practices to improve soil-health, which will help.

CLIMATE CHANGE

Climate change is a real and imminent threat to the Chesapeake Bay, bringing warmer water temperatures, rising seas levels, and more extreme rainfall. Maryland must reduce additional pollution to offset the impacts of a warming climate and ensure that management practices are resilient in the face of increasingly intense weather events.

Commitment: Coordinate education, funding, and regulations to address the harmful impacts of climate change on the Chesapeake Bay.

Progress: ON TRACK

Steps Taken: Maryland is working with EPA's Chesapeake Bay Program to update scientific models to predict climate change impacts on the Bay. The state initiated the Maryland Climate Leadership Academy to educate and train state and local leaders on climate issues, and the General Assembly authorized local jurisdictions to create Resilience Authorities to raise funds for climate change mitigation projects.

Maryland is also part of the Regional Greenhouse Gas Initiative (RGGI), which aims to reduce emissions that drive climate change.

Steps Needed: Significant new initiatives to reduce pollution and moderate climate change will likely be needed, such as the interstate Transportation & Climate Initiative and a statewide tree-planting effort first proposed in the 2020 General Assembly session. The state's regulations for controlling polluted stormwater runoff may also need strengthening to address new precipitation patterns brought on by climate change.

Finishing the Job in Maryland

Maryland's record of dedicated funding, protective laws, and engaged communities puts the state on a trajectory to meet its 2025 pollution reduction goals. But these accomplishments will not be enough to sustain clean water over the long-term.

The impacts of climate change, along with continued deforestation due to land development, leave a gap in the state's strategy to maintain progress over time. The state must prioritize restoration efforts that are long-lasting, cost-effective, and geographically targeted where the investments will have the best water-quality results. Action is needed now to protect forests and plant more trees, improve soil health on farms, and provide technical assistance to farmers and local governments to fully achieve Maryland's clean-water goals.

VIRGINIA

WILL PARSON/CHESAPEAKE BAY PROGRAM

Virginia's Blueprint for Clean Water

Is Virginia on track to meet its 2025 pollution-reduction commitments?

Overall, Virginia is currently on track to achieve its 2025 goals to reduce nitrogen and phosphorus pollution due largely to reductions from wastewater treatment plants. However, it risks getting off track unless it accelerates efforts to reduce pollution from agricultural sources and urban and suburban development and continues to make additional pollution reductions from wastewater treatment plants. The Commonwealth has a strong plan to make these reductions, but the plan must be implemented.

See where things stand in the Commonwealth below and learn about the current and future challenges we face.

Virginia's Progress Toward Pollution Reductions

We used EPA's scientific model to estimate pollution reductions made between 2009 and 2019 to determine if current trends are on track to meet the 2025 Blueprint goals, both statewide and for each sector. Virginia's pollution-reduction progress is summarized in the table below. Wastewater treatment

plant upgrades in Virginia have kept the state on track to meet its goals so far. But Virginia must accelerate efforts in pollution reduction from agriculture and urban/suburban runoff to stay on track.

Pollution-reduction progress is assessed with modeled estimates of the benefits from implemented practices such as upgrades to wastewater treatment plants, best management practices like cover crops and streamside forested buffers on agricultural lands, and stormwater practices, like rain gardens, in urban areas. The "Total" progress for each state is assessed against the overall pollution-reduction target EPA assigned each state in order to meet the Blueprint goals by 2025. Each state is responsible for dividing EPA's total allotment among the various pollution sources (sectors) in their state Clean Water Blueprints (Watershed Implementation Plans, or WIPs). The progress for each sector (i.e. agriculture) is therefore assessed against the pollution-reduction target assigned to it in the states' most recent Phase III WIPs.

Evaluating Virginia's Milestone Commitments

After examining the results of EPA's scientific model to estimate pollution reductions statewide and for each sector (see chart above), we looked at how well the states have implemented the programmatic commitments they made in their 2018-2019 milestone goals—in other words, the practices and programs they will use to get the job done. The following is our analysis of key Virginia commitments.

WASTEWATER

The wastewater sector accounts for more than 25 percent of Virginia's nitrogen pollution overall. It makes up an even larger share of pollution in the James and York river watersheds, where wastewater treatment levels lag behind other tributaries. Virginia must continue cutting wastewater pollution to achieve its 2025 pollution reduction goals.

Commitment: Virginia did not set new milestone goals for the wastewater sector in 2018 because, by that time, the pollution-reduction targets for that sector had already been met. Still, the midpoint analysis of progress released by EPA in 2018, the shortfalls in other sectors, and local water-quality conditions suggest more pollution reductions are needed from wastewater to achieve the Commonwealth's goals.

Progress: IN DANGER OF BEING OFF TRACK

Steps Taken: Virginia has made substantial progress in the wastewater sector and identified initiatives to achieve additional reductions in its Phase III Watershed Implementation Plan (WIP), also known as the Virginia Clean Water Blueprint.

Steps Needed: Virginia must finalize updates to the Watershed General Permit that will establish new pollution limits for wastewater plants in the Chesapeake Bay Watershed. This action will incentivize further pollution reductions from wastewater plants directly and through Virginia's strong nutrient trading program. Innovative technology, including an initiative in Hampton Roads to use treated wastewater to recharge groundwater, provides exciting potential. Related milestone goals to connect more homes to sewers and address pollution from septic tanks still need to be achieved.

URBAN/SUBURBAN POLLUTED RUNOFF

Growing urban and suburban areas contribute new polluted runoff to Virginia's waterways, offsetting most of the progress made to control polluted runoff from existing cities and neighborhoods.

Commitment: Revise and reissue important permits to control polluted runoff from developed areas, including the Arlington Municipal Separate Storm Sewer System (MS4) Permit, Phase II MS4 General Permit, and the Construction General Permit.

Progress: OFF TRACK

Steps Taken: The Commonwealth reissued the Construction General Permit, which regulates polluted runoff from construction sites, and the Phase II MS4 General Permit, which sets requirements for controlling polluted runoff from smaller urban areas. The Virginia State Water Control Board also directed the Department of Environmental Quality to establish measurable standards for water clarity that are needed to protect Virginia waters from sediment pollution.

Steps Needed: Virginia needs to promptly revise and reissue all 11 Phase I MS4 permits—which are issued to cover stormwater systems in localities with more than 100,000 people. Virginia has not reissued the Arlington MS4 Permit, which sets new, more stringent polluted runoff requirements for Arlington County, despite a commitment to do so by June 2020. Further, four other Phase I MS4 permits have been administratively continued, meaning the existing permits were allowed to extend beyond their expiration because the Commonwealth did not reissue new permits. This is a substantial and unacceptable delay to addressing Virginia's 2025 pollution-reduction commitments, and the Commonwealth must avoid further delay.

Commitment: Issue Stormwater Local Assistance Fund (SLAF) grants to provide money to municipalities to address polluted runoff.

Progress: ON TRACK

Steps Taken: In early 2020, Virginia made a historic step to support the SLAF program by approving an appropriation of $50 million in cost-share dollars, although the 2020 pandemic has created uncertainty regarding that full appropriation. Pollution reductions from urban and suburban runoff must accelerate in coming years, and this funding will be critical to the success of local governments.

Steps Needed: Virginia must continue robust support for the SLAF program in the future. Further, the SLAF guidelines should be revised to allow support for grantees' removal of nitrogen (as well as phosphorus) pollution as part of the evaluation criteria for funding.

AGRICULTURE

Agriculture represents nearly 70 percent of the remaining pollution reductions Virginia must make to meet its Blueprint goals.

Commitment: Track and report progress to keep livestock out of streams.

Progress: ON TRACK

Steps Taken: Virginia passed legislation that sets a clear goal to exclude cattle from all perennial streams and established an approach to evaluate the remaining work. Virginia farmers continue to implement livestock exclusion practices, such as fencing and streamside buffers, that are critical for improving water quality and stream health.

Steps Needed: Virginia must increase funding for agricultural best management practices and accelerate efforts to achieve its goals for excluding livestock from streams and planting streamside buffers.

Commitment: Evaluate farms where poultry are raised in confinement—known as Poultry Animal Feeding Operations (AFOs)—and issue individual permits for facilities that need enhanced oversight due to polluted runoff violations.

Progress: OFF TRACK

Steps Taken: Virginia has taken steps through the reissuance of the statewide general permit for confined poultry operations to improve reporting of poultry waste by end-users, who store or utilize the waste for fertilizer or other purposes. However, the permit has not been finalized. Virginia also issued individual permits for two facilities within the Bay watershed that were discharging pollution in violation of the general permit.

Steps Needed: Virginia failed to complete an evaluation of AFO facilities or provide an update on progress in its final report on implementation of the 2018-19 milestone goals. Increased inspections and monitoring are needed to adequately determine if facilities are discharging pollution and need enhanced oversight. Further, Virginia still has not addressed ammonia emissions—a source of nitrogen pollution—from the growing poultry industry. Through the general permit, Virginia should require poultry operations to report their use of materials added to poultry manure and other waste, known as litter additives, that can reduce ammonia emissions and begin addressing this substantial threat to water quality.

PLANNING AND GROWTH

Providing a clear plan to address growing sources of pollution represents a critical component of Virginia's Clean Water Blueprint (Phase III WIP) to achieve water-quality goals.

Commitment: Virginia did not set any specific milestones related to growth.

Progress: IN DANGER OF BEING OFF TRACK

Steps Taken: Virginia's Blueprint considered forecasted growth and established several goals related to accounting for additional pollution. Specifically, Virginia committed to re-evaluate post-construction standards to control polluted runoff from new development, although this has not been initiated.

Steps Needed: Virginia should establish milestones that specifically contemplate growth. Poultry facilities, new urban and suburban development, and solar power expansion all represent growing sources that need specific regulatory attention to ensure sustainable growth. An evaluation of new post-construction standards should be undertaken and promptly completed.

CLIMATE CHANGE

Climate change is a real and imminent threat to the Chesapeake Bay, including warmer water temperatures, rising sea levels, and more extreme rainfall. These changes will make Bay restoration harder, requiring additional reductions in nitrogen and phosphorus pollution by 2025.

Commitment: Virginia did not issue any specific climate change milestone commitments.

Progress: ON TRACK

Steps Taken: While it did not set a specific milestone commitment for the 2018-2019 period, Virginia did plan for the additional pollution that will result from climate change in its final Virginia Clean Water Blueprint (Phase III WIP). Virginia has also taken important steps by joining the Regional Greenhouse Gas Initiative (RGGI) to reduce emissions that drive climate change and establishing funds to help communities prepare for floods. Still, more work is needed.

Steps Needed: Runoff standards need to address new precipitation levels, water-quality standards need to incorporate new conditions and Virginia needs to ensure our restoration effort will be effective in a changing climate.

Finishing the Job in Virginia

Virginia's Clean Water Blueprint (Phase III WIP) is a strong roadmap for getting the job done by 2025. The plan calls for comprehensive efforts to address agricultural pollution, including increased and more effective financial and technical support for farmers, as well as future requirements to exclude livestock from streams and improve fertilizer and manure management. The plan also proposes to address polluted runoff through improvements to post-construction standards for new developments. Finally, the plan identifies a clear pathway to reduce pollution from wastewater treatment facilities across the Commonwealth, providing reasonable assurance that the 2025 goal will be met.

The key is implementation. Virginia took some critical steps in the past two years by passing legislation to support agricultural best management practices and appropriating significant funding for all sectors. Still, important steps remain, including developing regulations that ensure future wastewater reductions, establishing dedicated funding for all sectors, and protecting and restoring natural filters such as forests and wetlands in a changing climate. Virginia has made tremendous progress towards improving its rivers and the Chesapeake Bay, but decision makers and the Bay partnership need to finish the job.

PENNSYLVANIA

WILL PARSON/CHESAPEAKE BAY PROGRAM

Pennsylvania's Blueprint for Clean Water

Is Pennsylvania on track to meet its 2025 pollution-reduction commitments?

Pennsylvania is not on track to achieve its 2025 goals. Despite success in reducing pollution from wastewater treatment plants, it is not enough to make up for the massive need to reduce pollution from agriculture, which accounts for roughly 93 percent of the total remaining nitrogen reductions the Commonwealth must make to meet the Blueprint goals. The Commonwealth is significantly behind in helping farmers implement the practices necessary to reduce pollution. If there is any chance of success, this must change.

See where things stand in Pennsylvania below and learn about the current and future challenges we face.

Pennsylvania's Progress Toward Pollution Reductions

We used EPA's scientific model to estimate pollution reductions made between 2009 and 2019 to determine if current trends are on track to meet the 2025 Blueprint goals, both statewide and for each sector. Pennsylvania's pollution-reduction progress is summarized in the table below. Wastewater

treatment plant upgrades are on pace to meet pollution-reduction goals for that sector ahead of schedule. But the Commonwealth is significantly behind in implementing the practices necessary to reduce pollution from urban and suburban stormwater runoff and agriculture, the latter of which accounts for the vast majority of the pollution it must reduce.

Pollution-reduction progress is assessed with modeled estimates of the benefits from implemented practices such as upgrades to wastewater treatment plants, best management practices like cover crops and streamside forested buffers on agricultural lands, and stormwater practices, like rain gardens, in urban areas. The "Total" progress for each state is assessed against the overall pollution-reduction target EPA assigned each state in order to meet the Blueprint goals by 2025. Each state is responsible for dividing EPA's total allotment among the various pollution sources (sectors) in their state Clean Water Blueprints (Watershed Implementation Plans, or WIPs). The progress for each sector (i.e. agriculture) is therefore assessed against the pollution-reduction target assigned to it in the states' most recent Phase III WIPs.

Evaluating Pennsylvania's Milestone Commitments

After examining the results of EPA's scientific model to estimate pollution reductions statewide and for each sector (see chart above), we looked at how well the states have implemented the programmatic commitments they made in their 2018-2019 milestone goals—in other words, the practices and programs they will use to get the job done. The following is our analysis of key Pennsylvania commitments.

WASTEWATER

Pennsylvania is on pace to meet its 2025 Blueprint goals for wastewater ahead of schedule, largely by installing better technology at treatment plants or purchasing credits that reduce their contribution to nitrogen and phosphorus pollution.

Commitment: Include pollution limits, called cap loads, for permits issued to wastewater treatment plants under the National Pollutant Discharge Elimination System (NPDES).

Progress: ON TRACK

Steps Taken: Pennsylvania achieved this milestone by including pollution limits for the 190 publicly-owned wastewater treatment plants in their NPDES permits, which regulate water pollution.

Steps Needed: Expanding Pennsylvania's existing program to help wastewater plants optimize the practices and procedures they use to remove nutrients would help further reduce pollution. While the approach can vary depending on the plant, some examples of optimization techniques include changes to computer programming and more precise regulation of water temperature at key points of the treatment process.

URBAN/SUBURBAN POLLUTED RUNOFF

Many of Pennsylvania's small, local stormwater systems—called Phase II Municipal Separate Storm Sewer Systems (MS4s)—have undersized and aging infrastructure. As more land is developed, polluted runoff is increasing. Existing developed areas in urbanized communities continue to contribute polluted runoff to streams and rivers. Finally, while many communities aren't big enough to require an MS4 permit, collectively they make up a large part of the pollution load from this sector.

Commitment: Complete initial reviews of Chesapeake Bay Pollutant Reduction Plans, submitted by municipalities in September 2017, and ensure they are implemented.

Progress: IN DANGER OF BEING OFF TRACK

Steps Taken: The Pennsylvania Department of Environmental Protection (DEP) required roughly 360 municipal stormwater systems to produce Pollutant Reduction Plans that address water-quality problems in local streams and the Bay—a substantial step toward meeting Blueprint goals. By the end of 2019, DEP had completed the initial review of all the submitted plans. However, the agency considers many of the plans to be deficient and is awaiting updates from the municipalities.

Steps Needed: The Commonwealth must not only ensure the plans are sound, but also ensure they are implemented.

Commitment: Provide guidance to encourage collaboration among and between municipal stormwater systems to achieve economically efficient pollution reductions in localized areas.

Progress: ON TRACK

Steps Taken: In the summer of 2019, Pennsylvania produced updated guidance to help municipalities meet their pollution-reduction goals through collaborative efforts with neighboring communities or nearby farmlands. The success of the guidance will likely be determined in the next few years.

Steps Needed: So far, most municipalities continue to address pollution independently, forgoing opportunities for cost-savings and coordination with neighboring local governments. There are a few

notable exceptions, as in Luzerne and Blair Counties, and the Williamsport area. Utilizing the guidance, municipalities should actively seek collaboration and coordination with neighboring communities and landowners.

AGRICULTURE

Agriculture dominates much of Pennsylvania's land in the Bay watershed, and the sector accounts for roughly 93 percent of the total remaining nitrogen reductions the Commonwealth must make to meet the Blueprint goals. Efforts to reduce pollution from farms continue to be significantly off track.

Commitment: Implement Agricultural Compliance and Enforcement Strategy to inspect farms in the Chesapeake Bay Watershed and ensure they have plans to limit pollution from erosion, manure, and fertilizer.

Progress: IN DANGER OF BEING OFF TRACK

Steps Taken: In 2018-2019 the Commonwealth verified that 2,951 farms, representing about 10 percent of agricultural lands, had the required plans in place to control pollution from erosion, manure, and fertilizers. DEP's Agricultural Planning Reimbursement Program has helped farms develop plans.

Steps Needed: The Commonwealth's plan for a pilot project to assess if farms are fully implementing their plans is delayed. Many farms now require financial and technical assistance to establish the practices outlined in the plans. While farmers and conservation districts have made some progress, state lawmakers need to establish a dedicated, stable, state agricultural cost-share program to help farmers invest in conservation practices.

Commitment: Help farmers implement crop and soil management practices that improve long-term soil health.

Progress: ON TRACK

Steps Taken: Organizations working throughout Pennsylvania are helping farms increase soil organic matter and enhance soil structure in order to reduce erosion, nutrient and pesticide loss, and runoff to local streams draining to the Chesapeake Bay.

Steps Needed: Farms need dedicated, stable funding sources and practical information adapted to their region and production system to increase adoption of cover crops, conservation tillage, managed grazing and other practices.

GROWTH

The loss of forests and farmland to development, additional livestock and poultry farming, and increased vehicle emissions all add pollution to Pennsylvania's local streams and the Bay.

Commitment: None

Progress: OFF TRACK

Steps Taken: Pennsylvania did not establish a stand-alone milestone to account for growth. Although the state has a nationally recognized farmland preservation program, managing growth and land use is especially challenging because these decisions are made by the more than 1,100 municipal governments in Pennsylvania's portion of the Bay watershed.

Steps Needed: Local governments should update planning and zoning policies to preserve sensitive landscapes, like forest buffers; adopt ordinances that limit sprawl outside of towns; limit land disturbance and the creation of hard surfaces; and manage stormwater with green infrastructure practices. Climate change, particularly extreme rainfall, makes it imperative to address these challenges.

CLIMATE CHANGE

Climate change will make the difficult job of restoring the Commonwealth's rivers and streams and meeting its pollution-reduction commitments for the Bay even harder. Climate change in Pennsylvania likely will increase and intensify precipitation and runoff, and warm waters.

Commitment: None.

Progress: IN DANGER OF BEING OFF TRACK

Steps Taken: Pennsylvania did not establish a stand-alone 2018-19 milestone for climate change. In its final Pennsylvania Clean Water Blueprint (Phase III WIP), the state projected approximately 4 million pounds of additional nitrogen and 140,000 pounds of additional phosphorus pollution from climate change, largely due to increased runoff. The plan does outline a strategy to address it.

Steps Needed: Complete the process for joining the Regional Greenhouse Gas Initiative (RGGI), an interstate effort to reduce carbon emissions from power generation that contribute to climate change. Additionally, updates to the state stormwater management manual, local ordinances, pollution-reduction plans for permitted municipal stormwater systems, and county stormwater plans will need to reflect the impacts of climate change.

Finishing the Job in Pennsylvania

Pennsylvania is on pace to achieve pollution-reduction goals for wastewater treatment plants. But to meet its overall Blueprint goals and improve local rivers and streams, the Commonwealth must fully address pollution from agriculture first and foremost, as well as urban and suburban runoff.

As finalized, the Commonwealth's final Pennsylvania Clean Water Blueprint (Phase III WIP) falls roughly 27 percent short of its goal to reduce nitrogen pollution and has a self-identified $324 million annual funding shortfall.

The poor agricultural economy is a significant barrier that is hindering farms from adopting the conservation measures needed to reduce pollution. Despite dire need for a dedicated state cost-share program to help fund the design and implementation of farm conservation practices, the Commonwealth currently only has the Conservation Excellence Grant Program to support farms in York and Lancaster Counties. If there is any chance of success, this must change.

If it does not, Pennsylvania runs the risk of increased federal enforcement, such as increased regulations for livestock operations, industrial and municipal stormwater sources, and wastewater treatment plants. EPA could also shift or withhold grant funding for Pennsylvania, among other actions.

Keystone 10 Million Trees Partnership

Streamside forested buffers, with native trees and shrubs planted along waterways, are one of the most cost-effective practices for reducing nitrogen, phosphorus, and sediment pollution in both rural and urban landscapes. Pennsylvania committed to plant 95,000 acres of forested buffers by 2025. To reach this ambitious goal, CBF is coordinating the Keystone 10 Million Tree partnership, which galvanizes the expertise, experience, and muscle of national, regional, state, and local agencies; conservation organizations; outdoor enthusiasts; businesses; and citizens committed to improving Pennsylvania's communities, economy, and ecology. These buffers will support natural ecosystems, provide wildlife habitat, stabilize streambanks, improve soil health, and draw carbon from the atmosphere, in addition to capturing nutrient and sediment runoff before it reaches the water. Find out more at TenMillionTrees.org.

J. PAUL WELCH

Current and Future Challenges

The Chesapeake Clean **Water** Blueprint is working, and over the long term, polluted runoff in many areas is decreasing along with summer dead zones. But the road to finishing the job is steep.

In addition to the unique challenges each state faces to meet the Blueprint goals, climate change threatens the Bay's recovery, rollbacks of federal regulations hamper progress toward clean water and air, and the U.S. Environmental Protection Agency has failed to hold states accountable to their Blueprint commitments.

At the same time, the COVID-19 pandemic is an unparalleled challenge. The pandemic continues to impact our personal and professional lives and is straining local, state, and federal budgets. However, it also underscores the irreplaceable value of our natural resources, as people turn to the outdoors for both mental and physical health.

Taking action to reduce pollution now is more critical than ever. It not only helps ensure these resources are protected and improved for future generations, but also supports local businesses, creates jobs, and provides additional environmental and public health benefits. This is the final and most important phase of the clean-up effort. The Bay partnership must finish the job.

Federal Regulatory Rollbacks

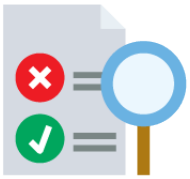
Piece by piece, the Trump administration is quietly unraveling protections for our water and air by rolling back federal environmental regulations. Numerous changes have been proposed that will affect the Chesapeake Bay and the implementation of the Blueprint. Actions taken by the federal government in the past year alone will strip protections from thousands of miles of wetlands and streams across the watershed, allow more air pollution that harms our health and our climate, and create a rulemaking system for environmental protections that limits the consideration of science and doesn't consider climate change at all. CBF is actively monitoring these developments and is opposing any rollbacks that will impede efforts to restore the Bay.

Climate Change

Climate change is a real and imminent threat to the Chesapeake Bay. Water temperatures are warming. Sea levels are rising. Record levels of rainfall, like those in 2018, are expected to become more regular.

Scientists agree these changes will make Bay restoration harder, requiring additional reductions in nitrogen and phosphorus pollution by 2025. By 2022, all Bay jurisdictions must describe how they will make the extra cuts. They should plan now and follow the lead of Virginia, West Virginia, and the District of Columbia, which included measures to achieve the additional pollution reductions due to climate change in their latest state Clean Water Blueprints (Phase III WIPs).

EPA Accountability



With only five years to go until the Blueprint's 2025 deadline, the final pollution-reduction plans submitted to EPA by Pennsylvania and New York do not meet their clean water commitments. Despite its responsibility and legal authorities under the Clean Water Act, EPA took no steps to hold either state accountable. EPA is the only independent party that can hold states accountable, and it must exercise its authority under the Clean Water Act to ensure that all Bay jurisdictions develop plans that meet their commitments for reducing nitrogen, phosphorus, and sediment pollution in waterways that feed into the Bay by 2025.