CHESAPEAKE
BAY JOURNAL
January/February 2026 Volume 35 Number 10
Independent environmental news for the Chesapeake region



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Resetting the clock for 2040
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FEWER PERCH TO FRY



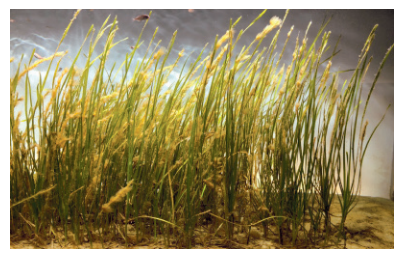
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Neighborhood pushes back on new natural gas plant PAGE 11

FAREWELL TO EELGRASS?



Transition to widgeon grass, less food for fish PAGE 18

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Mike Madatic filed repeated complaints about water conditions in a creek near his home in LaPlata, MD, resulting in a lawsuit against the town's wastewater treatment plant. Story on page 20. (Dave Harp)

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EDITOR'S NOTE



Our wonderful waterways

This issue of the *Bay Journal* includes yet another installment of "Our Waterways," a relatively new series inspired by suggestions in our annual readers survey. Each article highlights a smaller stream or section of river in the Chesapeake Bay watershed — places whose stories are often overshadowed by news of major rivers and the Bay itself. (This month, you'll read about the Hardware River in Virginia.) And we continue to hear from you, quite clearly: This series is popular!

Bay Journal readers have responded with enthusiasm to our call for suggestions, nominating waterways in Maryland, Pennsylvania and Virginia to be featured in the series. Most of the articles we've written have come from those ideas (send yours to Jeremy Cox at *jcox@bayjournal.com*.) As the collection continues to grow, we have developed a map-based web page (*bayjournal.com/our-waterways*) where you can explore these waterways and learn about the people who care for them.

I'm energized and fascinated by the responses we've received. It is yet another demonstration of how much and how deeply people care about waterways near them — not just the mighty rivers but the intimate bends and coves where stillness and beauty unfold, along both busy shorelines and quiet ones. Connections with these places bring meaning to our lives and to the stories of our communities. This holds true whether the water is clear and sparkling or troubled and neglected.

And I suspect there might be another dynamic at play. People are quite eager to get more attention for their local waterways. That might be driven, in part, because there is so much less local reporting available to cover them — and to reach a critical local audience.

In the future, I hope the *Bay Journal* will grow in ways that help us support local environmental reporting even more. But in the meantime, we offer the Bay Journal News Service, providing free use of our content by other media. If we write about a stream that matters to you, please contact your local news media, no matter its size. Let them know that they can reprint the *Bay Journal* article and contact us with any questions. Spread the word and spread the love for Our Waterways!

— Lara Lutz

ON THE COVER

A kayaker traverses a marsh gut on Bloodsworth Island off Maryland's Tangier Sound. (Dave Harp)

Bottom photos: left by Dave Harp, middle by Lauren Hines-Acosta, right by Totti/CC BY-SA 4.0.

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BY THE numbers

87
Number of species of waterbirds that winter around the Chesapeake Bay

50,000
Approximate miles of streams and rivers that drain to the Susquehanna River, the Bay's largest tributary

8.38 million
The Bay watershed's human population in 1950

21.57 million
The Bay watershed's projected human population in 2050

1.3–5.2
In feet, the projected range of sea level rise in the Bay over the next 100 years

2.52
In degrees Fahrenheit, the average temperature increase in the region's streams from 1960 to 2010

Weasel kin bounces back in Chesapeake forests

The fisher, a member of the weasel family, intimidates, surprises or ambushes its prey.

And even though fishers are not much bigger than the average house cat, they are ferocious and bold hunters — one of the few creatures willing to risk getting pierced by a porcupine quill if there's a meal to be had.

Fishers (*Pekania pennanti*) are native to Canada and the northern tier of the U.S. as well as higher elevations of Appalachia as far south as Virginia. They prefer forests with dense canopies for hunting and tree cavities for lodging.

Despite their name, fishers (sometimes called fisher cats) do not eat fish. Instead, they subsist on smaller mammals, the occasional bird or amphibian, and even the flesh of dead animals. No tuna salad for these guys. Their name comes from a resemblance to the European polecat or "fitch," the latter name referring to either the animal or its pelt.

Logging and unregulated fur trapping almost pushed the animal to extinction in the Chesapeake Bay region by the 1850s.

Today, fishers are elusive and hard to spot, but they're out there — populations have recovered modestly in some places due to trapping regulations and reforestation efforts.

— Lauren Hines-Acosta

Background photo: A fisher peers from a tree cavity, its preferred form of shelter. (USDA Forest Service)

Inset photo: A fisher prowls the forest floor. (National Park Service)



More news at bayjournal.com

In case you missed them, check out these recent articles available only on our website.

- In Maryland, records offer glimpse into rendering plant's pollution woes
- Advocacy group sues EPA to reduce 'forever chemicals' in Virginia waters
- Bill could weaken EPA enforcement of Chesapeake Bay cleanup

Potomac Riverkeeper Dean Naujoks collects water from Virginia's Nomini Creek to have it analyzed for PFAS or "forever chemicals." (Michael Lightfoot)

An Island Out of Time

A dreary winter day might be the perfect time to watch one of the *Bay Journal*'s most popular films. *An Island Out of Time* is a half-hour documentary that features Mary Ada Marshall and the late Dwight Marshall, whose lives on Smith Island personify the Chesapeake Bay's seafood-harvesting culture and history — and their four children, who chose to break with that tradition. Look for it at *bayjournal.com/films*.



In a scene from An Island Out of Time, Dwight Marshall works the water. (Dave Harp)

ABOUT US

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Readers tuned in for a Bay Journal webinar in December as staff reflected on environmental reporting in 2025 and previewed hot topics for 2026.

Launching the year with outreach, policy and a cold day on the water

As 2025 drew to a close, the *Bay Journal* team hosted a webinar to reflect on recent environmental reporting and highlight topics we're watching for 2026. The readers in our enthusiastic audience asked great questions about our reporting process, provided story ideas and expressed gratitude for our work (thanks!). We hope to host more webinars in the year ahead.

Meanwhile, editor-at-large **Karl Blankenship** was a panelist on a different webinar, this one sponsored by the Institute for Journalism and Natural Resources to brief environmental journalists nationwide about Bay restoration efforts. Joining him on the panel were Don Boesch, former president of the University of Maryland Center for Environmental Science who is also a former *Bay Journal* board member, as well as Patuxent Riverkeeper Fred Tutman.

On a near-freezing morning in January, reporter **Tim Wheeler** and photographer **Dave Harp** went "fishing" for yellow perch near the mouth of the Susquehanna River — with no fishing rods. They searched for the colorful but struggling fish with the help of a veteran waterman who knows where to find and catch them. You'll find the story that resulted inside this issue.

In a warmer setting, Tim met with a Towson University environmental science and policy class, engaging in a spirited discussion about ways to control the infestation of non-biting midges along Middle and Back rivers in Baltimore County, MD.

Policy topics have been especially active recently. Reporter **Jeremy Cox** joined Tim at the National Aquarium in Baltimore to cover the annual meeting of the Chesapeake Bay Program Executive Council, whose members signed an agreement to reset many cleanup deadlines for 2040. Reporter **Lauren Hines Acosta** has been following government activities in the Virginia State House and traveled to Chesterfield County to cover a rally against a natural gas plant and the following public hearing.

NEWS briefs

LOCAL
REGIONAL
NATIONAL

Bay Program to study formal inclusion of Native tribes

At its annual meeting in early December to sign off on the new Chesapeake Bay Agreement, the Chesapeake Executive Council announced it had authorized a study of how to best include Indigenous tribes in the federal-state Bay Program partnership.

In early 2025 the Indigenous Conservation Council (ICC), made up of representatives from all federally recognized tribes in Virginia, submitted a resolution formally proposing that it should have a seat on the executive council, which is the Bay Program's governing body.

The seven federally recognized tribes have a government-to-government relationship with the United States. The ICC resolution says this means they should be treated as governmental entities and not special interest groups. The tribes say having a seat on the executive council would ensure that Indigenous knowledge and conservation practices are considered in Bay restoration work.

The executive council has directed its Principals' Staff Committee to work with the Indigenous tribes on how best to include them in the Bay program partnership, with recommendations due by July 1.

"We look forward to sitting down to kick off the next six-month process to get real about what this looks like, including signatory status, funding and respect for Indigenous knowledge," said ICC executive director Melissa Ann Ehrenreich.

— L. Hines-Acosta

MD lawmakers override vetoes of environmental bills

Maryland lawmakers in December voted to override Gov. Wes Moore's vetoes on a trio of environmental bills that moved through the 2025 General Assembly.

House and Senate members voted overwhelmingly Dec. 16 to override Moore's vetoes of legislation requiring studies of the cost to Maryland of climate-altering greenhouse gas emissions and of the economic, energy and environmental impacts of data center development. Also by a wide margin, they bucked the governor to set up an office tasked with planning to meet the state's energy needs.

Moore, a Democrat, had cited the state's budget crunch as reasons for vetoing all three measures while implying that legislatively mandated studies are "a drag on state government." His rejections disappointed and even angered climate and environmental advocates, who lobbied the Democrat-dominated legislature to override him.

The environmental impacts and energy demands of data centers and the related issue of soaring electricity costs have lately become hot-button topics in Maryland.

A few days ahead of the special session, the governor relented on the climate costs study and announced he had agreed to fund it. But lawmakers went ahead with the override, as Moore had only provided half the $500,000 funding called for in the bill.

— T. Wheeler

Completed seawall protects DC cherry trees from flooding

The U.S. National Park Service on Dec. 10 announced the completion of a new seawall along the banks of what is known as the Tidal Basin, off the Potomac River in the District of Columbia.

The seawall will protect not only the Japanese cherry trees from daily flooding but also the Thomas Jefferson, Franklin Roosevelt and Martin Luther King Jr. memorials.

The U.S. Army Corps of Engineers built the original seawall in the late 1800s to contain water from the Potomac River. But sea level rise and subsidence of the former wetland have progressed to the point that the area now floods with every high tide.



The seawall along DC's Tidal Basin was raised to prevent chronic flooding of the cherry trees and monuments. (National Park Service)

The rebuilding of the Tidal Basin seawall was the first phase of the project, raising it to about five feet above the average water level, giving it a deeper foundation and adding a wider walkway for improved accessibility.

The second phase of the project will focus on rebuilding the seawall along the Potomac River side, on the opposite side of West Potomac Park. That phase is slated to be complete in May. According to the park service, the project is eight months ahead of schedule and about $30 million under budget.

See **BRIEFS**, *page 6*





briefs

From page 5

In addition to the seawall work, the park service this spring will replace approximately 300 cherry trees lost during construction, planting a total of 426 trees, including 269 cherry trees. To ensure the new trees stabilize, the project area along the Tidal Basin and West Potomac Park will be off-limits to visitors during the 2026 National Cherry Blossom Festival *— L. Hines-Acosta*

Judge blocks FEMA from ending disaster program

A federal judge ruled Dec. 11 that the Federal Emergency Management Agency cannot unilaterally terminate a program that provides billions of dollars in disaster-preparation aid to communities nationwide.

The case centered on FEMA's Building Resilient Infrastructure and Communities (BRIC) program, which was launched during President Trump's first administration to help communities prevent an array of disasters, ranging from wildfires to floods.

Earlier this year, the Trump administration moved to claw back that funding, including nearly $1 billion approved in the Chesapeake Bay region alone, calling the program "wasteful and ineffective."

Among the grants impacted in the Bay region were $36 million to fight rising water in Crisfield, MD; $32 million to restore wetlands along the Patapsco River's Middle Branch in Baltimore; $2.7 million to acquire 21 flood-prone properties in Scranton, PA; and $20 million toward finishing a floodwall in the District of Columbia around the Blue Plains Advanced Wastewater Treatment Plant.

The lawsuit was filed in July by a coalition of 20 states. In the Chesapeake region, the group included the attorneys general from Delaware, the District of Columbia, Maryland and New York as well as the governor of Pennsylvania.

The funding remains up in the air, though. The ruling blocks the administration from redistributing the promised money. But it doesn't release any of the previously withheld grants,
nor does it stop FEMA from replacing BRIC with a different mitigation program. *— J. Cox*

Trump administration pauses VA offshore wind project

The U.S. Department of the Interior ordered a 90-day suspension of work for the offshore wind project near Virginia Beach, which has evaded the Trump administration's stoppages until now.

The Coastal Virginia Offshore Wind (CVOW) project consists of 176 turbines and three offshore wind substations that will generate 2.6 GW of electricity, enough to power up to 660,000 homes. The project is two-thirds complete and was on schedule to be operational by the end of March.

In a press release, Interior Secretary Doug Burgum said the pause is due to national security concerns identified by the U.S. Department of War. Burgum cited unclassified reports, which have found that the movement of turbine blades and reflective towers can create radar interference called "clutter," which can obscure moving targets and generate false targets near offshore wind projects.

Dominion on Dec. 23 filed a motion in federal court for a temporary restraining order. A court hearing to consider a preliminary injunction was scheduled for Jan. 16, after this issue went to press. The company said the project's two pilot turbines have been operating for five years without causing any impacts to national security.

"Stopping CVOW for any length of time will threaten grid reliability for some of the nation's most important war fighting, AI and civilian assets," the utility said. "It will also lead to energy inflation and threaten thousands of jobs." *— L. Hines-Acosta*

Congress bars golf course at Greenbury Point

Opponents of a proposal to construct a new golf course at Greenbury Point near Annapolis are applauding federal legislation that bars the Navy from going forward with the project.

The provision was included in the nearly $1 trillion 2026 National Defense Authorization Act. The Senate approved the legislation Dec. 17, sending it to the White House, and President Trump signed it the following day.

The legislation prohibits any funding contained within the 2026 defense budget from being used to construct a golf course at Greenbury Point or otherwise limit public access to the conservation area. It also bans the defense secretary from using outside funds to "make improvements" to the acreage, which is part of Naval Support Activity Annapolis.

Greenbury Point is a 230-acre peninsula extending from the Chesapeake Bay's Western Shore just south of the Bay Bridge. It has several miles of trails and narrow access roads. The Navy uses it as a training ground for midshipmen and a buffer for a nearby firing range.

When it's not in use for those purposes, the site is popular with birders and hikers. It is one of the few public access points along the shoreline in Anne Arundel County. The conservation area is just east of an 18-hole golf course belonging to the Naval Academy Golf Association.

When that organization confirmed in 2022 that it was seeking to convert the balance of the peninsula into a golf course, it drew fierce pushback. *— J. Cox*





VA cities push bag tax to keep plastic out of waterways

Virginia Beach explores adopting 5-cent tax on plastic bags as Richmond's goes into effect

By Lauren Hines-Acosta

While kayaking in shallow creeks around Virginia Beach, volunteers with Lynnhaven River Now constantly pull up plastic bags on their paddles during clean-ups. Dylan Mason, the nonprofit's public policy manager, hopes to change that with a 5-cent tax on the disposable bags.

A growing number of cities and counties in Virginia are adopting bag taxes to prevent plastic from clogging storm drains, harming wildlife and entering the Chesapeake Bay and its rivers. Richmond is the latest, with a law that went into effect Jan. 1, and the Virginia Beach City Council is expected to consider a similar ordinance this 2026.

Plastic bags and other litter can enter waterways through storm drains. Once in the water, aquatic wildlife can get entangled in plastic waste or accidentally ingest plastic bags by mistaking them for prey such as jellyfish. In 2019, grocery bags were the third most collected trash items from the Virginia International Coastal cleanup.

In 2020, the Virginia General Assembly passed a law that allowed localities to issue a bag tax. That's different from the approach used by cities and counties in Maryland, where plastic bags are banned at many stores and retailers can charge for paper bags. Under the local ordinances in some Virginia counties, customers at grocery stores, convenience stores and pharmacies are charged five cents per plastic bag. One cent goes to the businesses for administrative costs, while the other four cents go toward local waste reduction efforts.

Richmond will become the 11th locality to adopt the tax since the city council there approved it in June. Lynnhaven River Now has spent the last three years talking with the public, resort businesses and the Virginia Beach City Council about the bag tax.

The nonprofit gave the council a Plastic Bag Tax Implementation Plan and expects a council member to revisit the tax in 2026. The plan estimates the bag tax could reduce plastic bag use by 50% and generate about $1 million in city revenue in the first year, without needing to hire new permanent staff.

Mason said people support addressing the plastic litter found near roads and creeks.

"This bag fee in addressing single-use plastic bags is currently the only tool we have at the state level in terms of enforceable legislation to start to chip away at this global waste crisis," Mason said.

The tax has paid off elsewhere in the state. Fairfax County adopted the tax in 2022. Since then, the county has generated $8.3 million for litter cleanup programs and reports that it has reduced the number of bags used by 3.4 million.

A study analyzed the impact in Montgomery County, MD, of a 5-cent charge for each store-supplied bag versus a 5-cent credit per bag to customers who bring their own reusables. The study found that the percentage of people who brought a reusable bag to their grocery store increased from 16% to 49% after the tax was implemented in 2012. But the reusable bag credit, which was offered in some stores before the tax took effect, created no significant change in behavior.

Laura Thomas, director of the Richmond Office of Sustainability, said business owners were generally not concerned about the city's bag tax, and many welcomed the change.

Some people, though, say it would cause more problems and frustrate customers. Philip Gibrall, pharmacist at McGuire Park Pharmacy in Richmond, said he plans on switching to paper bags to avoid the tax, and the extra income wouldn't make a difference.

Others are concerned the tax would hurt low-income customers. If a customer used 10 bags per week over the course of a year, it would cost them $26 in bag taxes annually. By law, the tax revenue should also go toward providing recipients of the Supplemental Nutrition Assistance Program (SNAP) and Women, Infants, and Children (WIC) Program with reusable bags.

Richmond's Office of Sustainability has given away 6,000 reusable bags to community members so far. Lynnhaven River Now distributes reusable bags at five food banks in Virginia Beach. ■

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VA allows more use of diesel generators at data centers

Backup diesel generators could be activated more often with weaker pollution guidelines

By Lauren Hines-Acosta

The Virginia Department of Environmental Quality (DEQ) has revised a rule governing emergency backup generators at certain industrial facilities, including data centers, allowing the facilities to consider a planned power outage an emergency if they get less than 15 days notice of the planned outage from their power supplier.

Environmentalists and residents who live near data centers are worried about the air pollution that could result if the state allows facilities to use diesel generators more often. The rule change went into effect Jan. 2.

Data centers, which enable the world's internet traffic, are often large enough to require hundreds of backup generators to keep their massive data banks running during power failures. The generators emit pollutants that can be harmful to human health, such as nitrogen oxide, carbon monoxide and volatile organic compounds.

DEQ regulates how long the generators run and the amount of pollutants they can emit, but the number of generators at each site varies.

The types of diesel generators that most data centers rely on for backup power are known as Tier II generators. Because they don't have the most advanced pollution control systems, they may be used only briefly in the case of unforeseen power outages.

Current regulations require facilities use their emergency generators only during emergencies. Environmentalists prefer facilities use portable Tier IV generators, which emit less than a tenth of pollutants put out by Tier II models.

The revised rule would allow facilities to use Tier II generators even during planned power outages if the power company gives them less than 15 days notice. Planned power outages can happen when a utility such as Dominion Energy installs new transmission lines, builds substations or performs maintenance on the grid.

The rule also requires facilities to document when, where, why and how long each generator is activated.

According to Michael Dowd, director of DEQ's air and renewable energy division, planned outages will now qualify as "sudden and reasonably unforeseeable" when the facilities have less than 15 days' notice — because it might not leave enough time to bring in Tier IV generators.

> *"Cost and time are not [acceptable reasons] to harm human health."*
>
> — Julie Bolthouse, Piedmont Environmental Council

However, it's uncommon that facilities would be notified less than two weeks in advance. Dominion Energy spokesperson Jeremy Slayton said power suppliers could alert facilities up to years in advance of a planned power outage that would impact their operations. The outages wouldn't affect other customers because Dominion would redirect power from elsewhere to serve them.

Irina Calos, communications manager for DEQ, said in an email that the proposed change was a result of ongoing confusion regarding what constitutes "reasonably unforeseeable events" in the current rule.

Julie Bolthouse, land use director with the Piedmont Environmental Council, said the new guidance is meant to allow utilities and the data center industry to move faster and avoid paying for more expensive Tier IV generators to meet the energy demand. She said that is not an appropriate justification for increased pollution.

"Cost and time are not [acceptable reasons] to harm human health," Bolthouse said.

As of 2024, there were 8,000 diesel generators permitted in Virginia for data centers alone, and about half of them are in Northern Virginia. One data center in Prince William County has about 300 generators.

Bolthouse said the rule change could eventually lead to the state allowing facilities to use diesel generators as sources of power during spikes in energy demand, which would release more pollutants.

"This is going to increase the use of what's supposed to be [used during] emergency only," Bolthouse said. ■



Report: Climate change imperils toxic sites in Bay region

Scenarios at industrial sites combine natural disasters, technical threats and environmental impacts

By Jeremy Cox

Hundreds of hazardous industrial facilities are in danger of flooding across the Mid-Atlantic region in coming decades as rising seas pile coastal waters closer to their doorsteps.

More than 600 sites along the coast from Virginia to New York are expected to be at risk of flooding during a 100-year storm by the end of the century, assuming greenhouse gas emissions continue growing unchecked, according to a new study.

Nationwide, the total number of at-risk facilities is about 5,500.

Among the more notable sites in the Chesapeake Bay region that could face flooding by 2100: the Domino Sugar Refinery in Baltimore; the Fort Eustis Army base in Newport News, VA; the DuPont Spruance Plant in Chesterfield County, VA; and the Washington Navy Yard in the District of Columbia.

The study was authored by scientists at the University of California, China's Nanjing University and Climate Central, a nonpartisan science nonprofit. It was published in November in the journal *Nature Communications*.



The Washington Navy yard is one of the at-risk industrial sites. (Carol Highsmith/Library of Congress)

The researchers also found that coastal neighborhoods located near flood-imperiled facilities had a greater proportion of people of color, higher poverty rates, lower rates of home ownership and a lower percentage of vehicle ownership than those not living near such a facility.

"This analysis makes it clear that these projected dangers are falling disproportionately on [communities that] lack the resources to prepare for, retreat or recover from exposure to toxic floodwaters," said Lara Cushing, the paper's lead author and an associate professor at UCLA's Fielding School of Public Health.

The study mapped a variety of sites, including manufacturing plants, power plants, sewage treatment facilities, oil and gas port infrastructure and former defense sites. The 600 sites across jurisdictions in the Chesapeake Bay states include locations both inside and outside the estuary's watershed.

The 100-year flooding scenario refers to an inundation event that has a 1% chance of happening in any given year.

If hazardous chemicals mix with floodwaters, nearby residents could come into contact with a "toxic soup" of toxins and germs. Short-term health effects could include rashes, burning eyes and throat, headaches and fever.

Climate Central developed a mapping tool to help policymakers and land planners address hazardous sites that could become flooded.

"Our tool is a broad-based screening approaching that shows how risks can be reduced in key areas," said Rachel Morello-Frosch, a University of California, Berkeley, professor who contributed to the study.

The actual flooding risk may be greater because the researchers were unable to build into their model the impact of stronger hurricanes, which is another expected byproduct of climate change. ■



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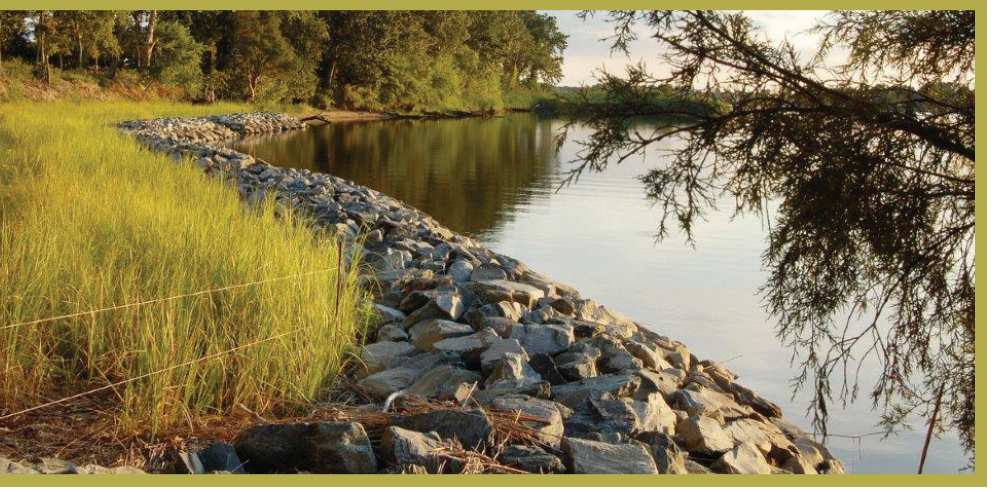
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Bay ‘dead zone’ varied in 2025 but near average overall

Drier, windier weather brought some relief by late summer

By Karl Blankenship



Nutrient pollution creates algae blooms that block sunlight from underwater grasses and rob the water of oxygen as they decompose, creating “dead zones.” (Dave Harp)

Overall oxygen conditions in the Chesapeake Bay during 2025 were near the average observed in recent decades. But as is often the case, “average” obscures conditions that at times were notably better or worse than normal.

In Maryland, the area affected by low oxygen was the 11th largest out of 41 years of monitoring, which was classified in the average range, according to the Maryland Department of Natural Resources.

A computer analysis of Baywide conditions by the Virginia Institute of Marine Science found that low oxygen, or hypoxic, conditions in midsummer were severe at their peak but didn’t last as long as these “dead zones” typically do.

Both analyses show that the summer started out with a smaller than normal dead zone through early June. Then conditions began to worsen. In early July, DNR monitoring noted that nearly 20% of the mainstem Bay within Maryland had too little oxygen to support most aquatic life. That was the fifth worst report for early July in 40 years of monitoring.

The situation improved a bit in late July and early August but remained notably worse than the long-term average. By late August, about 10% of Maryland’s portion of the Bay was hypoxic — roughly normal for that time of year. Increased winds and cooler air temperatures in August likely resulted in a decrease from the July peak, DNR reported.

Hypoxia is defined as water with less than 2 milligrams of oxygen per liter of water. Most aquatic life will not survive for long with that little oxygen.

Hypoxic conditions exist naturally in deep areas of the Bay, especially during years of high freshwater flows. That results in strong stratification in the water, which prevents oxygen-rich surface water from mixing with low-oxygen bottom water.

In the last century, areas impacted by hypoxia have expanded as increased amounts of nutrients spurred more algae growth. When the water contains more algae than fish and other aquatic life can consume, the excess sinks to the bottom and decomposes in a process that consumes oxygen.

DNR reported that freshwater flows during the first several months of the year were about 20% larger than normal, washing more nutrients into the Chesapeake and increasing the likelihood of large dead zones.

Then came an extremely wet May, which saw the highest precipitation on record for Maryland and the second highest for Pennsylvania. DNR scientists said the rain washed even more nutrients downstream and likely set up the spike in hypoxia seen in late June and early July. Hotter than normal midsummer weather likely exacerbated the problem, they said, because hot spells can reinforce stratification in the water and prevent mixing.

The weather turned cooler and drier later in the summer and winds picked up, which facilitated the mixing of water and relieved hypoxic conditions, DNR said.

A similar picture was painted by the Chesapeake Bay Environmental Forecast System developed by VIMS and Anchor QEA, an environmental engineering and consulting firm. The system employs computer models that use monitoring and other data to estimate Baywide hypoxia.

For the entire Bay, it showed conditions worsening through June, peaking in July with a relatively large dead zone that impacted about 12% of the Chesapeake. The zone shrank in August to better than normal conditions when temperatures cooled and winds from Hurricane Erin, which passed offshore, helped facilitate the mixing of water.

“Even in what we classify as an average year, the Bay can experience periods of prolonged stress,” said Marjorie Friedrichs, a VIMS professor. “July’s persistent hypoxia illustrates how sensitive the ecosystem is to subtle shifts in wind, temperature and river flow. Those changes can have real implications for the distribution and behavior of fish, crabs and other species that rely on well oxygenated habitat.”

The model also found that hypoxic conditions generally started later and ended earlier than in other years, with 60 days of sustained low oxygen, below the typical range of 78-116 days.

Taken as a whole, the model concluded that 2025 was an average year for the Bay’s dead zone. The total Baywide amount of hypoxia estimated by the model ranked 30th out of 40 years, and VIMS scientists said that generally fell into the normal range. ■

VA gas plant moves ahead despite community objections

Energy needs at odds with air pollution, environmental justice concerns

By Lauren Hines-Acosta

Tense public hearings and protests mocking Dominion Energy have followed the proposed natural gas plant in Chesterfield County, VA, throughout its approval process, which is almost complete.

If approved, the Chesterfield Energy Reliability Center will be the first new gas plant in the state since the passage of the Virginia Clean Economy Act (VCEA), which sets clean energy goals for the state. The surrounding community opposes the plant after experiencing 80 years of air pollution generated by a coal-burning power plant that operated on the same site.

The State Corporation Commission initially approved the plant, finding it necessary to meet the state's growing energy demand. The approval was then postponed on Dec. 16 to consider a petition from the Southern Environmental Law Center. However, the project received its final air permit from the Virginia Department of Environmental Quality days later. The SCC plans to respond to the law center's petition by Jan. 23.

"This may not be the initial outcome that we would like to see," said Nicole Martin, president of the NAACP Chesterfield County branch. "However, we didn't stop fighting, and that's what we will continue to do."

According to Dominion Energy spokesperson Jeremy Slayton, demand for electricity throughout the state is expected to double by 2045. To address that growth, the proposed natural gas plant would provide a total of 1,000 megawatts of energy and act as a "peaker plant," kicking in only during high demand. The utility expects it will operate 15%-20% of the year initially, but that could eventually rise to 37%. Dominion expects the plant to be operational by 2029.

It will cost $4.5 billion to build and maintain the facility over the life of the project. Customers could pay $1.36 per month on average to offset that cost.

Many of those customers crowded auditoriums to express their opinions at public hearings over the gas plant's air permit. Representatives from the Virginia Chamber of Commerce and union workers like Kevin Battle said the plant was necessary to provide businesses with reliable power and jobs.



Friends of Chesterfield members, who oppose plans for a natural gas plant in Chester, VA, depict Dominion Energy CEO Bob Blue as the Grinch on Dec. 10, 2025. (Lauren Hines-Acosta)

"Just as upset as these people are about having a new gas plant, you wait until your power does not work," said Battle, business manager for the International Brotherhood of Boilermakers Local 45. "They're going to be even madder about that."

Other area residents said the surrounding community, which is predominantly made up of people of color, did not want more air pollution after getting some relief from emissions after the 2023 closure of the coal plant that occupied the site for decades.

"This community does not deserve to have to pay with our health and also pay with our pocketbooks so [that] … folks over at Dominion Energy and [CEO] Bob Blue can make more money," said Jason Woodby, who lives five miles from the proposed gas plant site.

A group of Democratic legislators — including recently elected Lt. Gov. Ghazala Hashmi, then a state senator — signed a letter in March opposing the plant because it would undermine the VCEA.

The act requires Dominion to deliver electricity from 100% renewable energy sources by 2045. While most of the utility's new generation is planned to come from carbon-free sources, a quarter will come from eight new natural gas plants.

Chesterfield's gas plant would be the first to be built since the VCEA passed in 2020, and opponents of the project say that it would set a precedent allowing fossil fuel generation past the 2045 deadline. However, the act allows new generation from fossil fuels if there is a threat to reliability.

Dominion's service area is expected to double by 2039. The SCC said data centers, which enable the world's internet traffic, are one of the contributing factors to rising energy demand. Another is that peak demand during the summer and winter are expected to be about 19% and 25% greater, respectively, by 2030.

The commission said that new sources of power aren't coming online fast enough to replace the power plants being retired. The peaker plant would connect to existing infrastructure and stabilize the grid while more renewable energy projects come online.

The Sierra Club and other environmental groups argue that renewable energy projects could provide the same amount of energy as the natural gas plants if modeled correctly — and if PJM Interconnection, the regional grid operator, fast-tracked the renewable energy projects stuck in its queue.

The SCC, though, said it would be difficult to bring solar and battery storage projects online at the scale and pace to meet the demand. In response to public comments on the air permit, the state Department of Environmental Quality said solar and battery storage would need more than 5,000 acres of land to provide the same amount of energy as the 460-acre gas plant site.

The Southern Environmental Law Center's petition for reconsideration argued that the commission failed to consider the air pollution impact on the neighboring communities as required under the Virginia Environmental Justice Act. The petition also stated that Dominion cannot recover costs by charging ratepayers in the accelerated manner it proposed because the utility has not met its energy efficiency goals set out in the Clean Economy Act.

The SCC reviewed the Department of Environmental Quality's environmental justice report on the project but said "… had the [gas plant] scored even less favorably on the environmental justice category, the outcome of [the proposal's] evaluation would not have changed."

Residents are concerned about pollutants from the natural gas plant that could cause respiratory illness and heart disease if they reach excessive levels.

The natural gas plant would be cleaner overall than the coal units Dominion retired at the site in May 2023. However, residents don't want any additional emissions after living for almost two years without the coal units' air pollution.

Kevin Battle of the boilermaker's union highlighted at a public hearing in September that the peaker plant will use newer, more efficient turbines and will be monitored to ensure air pollution doesn't exceed federal standards.

The Department of Environmental Quality found that the project's emissions would meet the U.S. Environmental Protection Agency's air quality standards. However, the region experiences emissions from about 800 sources.

As the approval process inches towards completion, some community members are getting ready to fight the next seven gas plants. Glen Besa, co-founder of the Friends of Chesterfield, said he's heading to the statehouse to protect the VCEA and make it harder for utilities to build more gas plants. ■

New pact extends Chesapeake cleanup deadlines to 2040

Regional leaders sign updated agreement, aim yet again for faster progress

By Jeremy Cox and Timothy B. Wheeler

Leaders of the Chesapeake Bay cleanup approved major revisions Dec. 2 to the pact that has guided the effort for more than a decade, vowing speedier results despite uncertainty over federal funding.

"We are impatient," said Maryland Gov. Wes Moore, a Democrat and the outgoing chair of the Chesapeake Executive Council. "We want this to be the era of yes and now."

The reworked Chesapeake Bay Watershed Agreement extends deadlines for cleanup goals to 2040, 57 years after the first agreement was signed in 1983. The latest action comes after earlier versions of the agreement — inked in 1987, 2000 and 2014 — fell short of achieving the central goal of significantly reducing nutrient and sediment pollution.

Bay cleanup agreements are signed by the Executive Council of the Chesapeake Bay Program, a state-federal partnership that guides the restoration effort. The council is composed of the governors of Maryland, Pennsylvania, Virginia, Delaware, New York and West Virginia; the mayor of the District of Columbia; the chair of the Chesapeake Bay Commission and the administrator of the U.S. Environmental Protection Agency.

Many of the goals in the 2014 agreement faced a 2025 deadline. Last year, the Executive Council called on scientists and policymakers to wrap up its overhaul by the end of this year. Program staff had initially recommended a two-year process.

Pennsylvania Gov. Josh Shapiro, a Democrat, pushed the partnership to move quickly as he assumed the role of Executive Council chair for 2026.

"We live by three letters in Pennsylvania," he said at a press conference following a closed-door meeting with the council. "We focus on 'GSD.' Since this is a highbrow crowd, I'll just say that stands for 'getting stuff done.' … That is the way I intend to lead this organization forward."

Virginia Gov. Glenn Youngkin, a Republican, said he would continue pressing the Bay Program to pick up the pace even after he leaves office in January due to term limits.

"That's one of the main themes, I think, that this renewed commitment embodies not just aspirational goals but achievable goals that will be [met at] a reasonable, if not surprising, pace," he said.



Members of the Chesapeake Executive Council, which sets Bay Program policy, are pictured at a Dec. 2 public meeting in Baltimore, where they approved the revised Bay Agreement. (Timothy B. Wheeler)

Five jurisdictional leaders participated in the meeting, with Delaware's Democratic Gov. Matt Meyer and DC's Democratic Mayor Muriel Bowser joining Moore, Shapiro and Youngkin. The last time so many of the region's top elected leaders showed up to the annual gathering was in 2014 in Annapolis.

This year's meeting was hosted at the National Aquarium, which overlooks Baltimore's long-polluted Inner Harbor.

Environmentalists said they were encouraged to see the show of support from top political figures. But many lamented that the newly revised agreement didn't include more ambitious goals and that federal funding remains a question mark.

The changes reduced the number of goals from 10 to four and the number of outcomes from 31 to 21. But that streamlining isn't as drastic as it looks, said Kristin Reilly, director of the Choose Clean Water Coalition.

"If you look at the [new] agreement, yes, there's things that are missing now that have been combined, and there are a couple of new things," she said. "But I would say that the core goals and outcomes that were in the original one, you're still seeing them in there."

Of the 31 outcomes for 2025, 18 were achieved or are on track, according to a Bay Program review. Among them: restoring oyster reefs in 10 rivers, conserving an additional 2 million acres of land and improving fish passage.



The Bay cleanup agreement aims to expand the amount of occupied brook trout habitat by 1.5%, or 233 stream miles, by 2040, while increasing abundance at 10 long-term monitoring sites. (U.S. Fish and Wildlife Service)

But 13 objectives are far from completion. Those include some of the effort's most critical ecological goals, such as reducing nutrient pollution, creating wetlands, increasing forested streamside buffers and restoring underwater grasses.

In 2023, a group of Bay scientists published a report warning that efforts to improve the Chesapeake would continue to fall short without major changes. They urged that efforts shift from shrinking the oxygen-starved "dead zone" in the Bay's mainstem toward improving aquatic habitat in wetlands and along shorelines.

While the revised agreement doesn't specifically reference that 2023 report, Bill Dennison, a vice president of the University of Maryland Center for Environmental Science and one of the Bay scientists who helped write it, said the new pact does call for reorganizing the state-federal partnership and does give more emphasis to improving shallow-water habitat.

"It's like steering a battleship, you know?" Dennison said. "[The report] is calling for a pretty radical shift. What we've seen is a tendency in the right direction. But we have to keep vigilant and keep pushing."

Asked if restoring the Bay is a realistic goal, Dennison replied, "'Rehabilitation' I like better than 'restoration.' We're not going to restore it, but we'll rehabilitate it into this new Bay that's going to include blue catfish, climate change, microplastics and all the new, emerging challenges. But I think we can have a healthier Bay that we can all fish in."

The Trump administration has proposed funding the Chesapeake Bay Program at $92 million, the same level it has received over the last three years. While Bay supporters were relieved by that news, they're still worried about potential cuts to the U.S. Geological Survey, National Oceanic and Atmospheric Administration and other agencies whose research and expertise underlie much of the effort.

The EPA official who represented the agency at the Dec. 2 meeting, though, pledged that the administration stands "fully committed" to restoring the Bay and its 64,000-square-mile watershed.

"As we move forward, the EPA is committed to building on the progress we've made to working with each of you to ensure that the Chesapeake Bay remains a



Runoff from a soy field fills a farm ditch on Maryland's Eastern Shore. (Dave Harp)



Spat on shell oysters are loaded onto the Poppa Francis at the Horn Point Oyster Hatchery for transport to the Tred Avon River oyster sanctuary. (Dave Harp)

symbol of both environmental renewal and American resilience," said David Fotouhi, the EPA's deputy administrator.

Hilary Harp Falk, president and CEO of the Chesapeake Bay Foundation, said the updated agreement "was not everything that we wanted." For example, it doesn't include a tight enough timeline for water quality improvements, she said. But she added that it represents "the necessary next step, and we can build on what's in the agreement."

Also at the meeting, the council asked Bay Program staff to work with federally recognized tribal nations to develop recommendations by July 1 that could better integrate them into the partnership.

With Shapiro taking helm of the Executive Council, it marks the first time a Pennsylvania governor has held that role since 2005 under Democratic Gov. Ed Rendell.

Key goals in the Bay Agreement

Water quality

When the 2014 Bay Agreement was signed, the Bay Program had already missed two self-imposed deadlines for meeting water-quality targets — once in 2000 and again in 2010.

By then, many were questioning how well a fully voluntary approach would work. In 2010 President Obama signed an executive order that led the EPA to issue a total maximum daily load (TMDL) of nutrient and sediment runoff. This "pollution diet" sets limits for the amount of nutrients and sediment pollution that the Bay can receive, and it requires states to create and enact plans to meet those caps with "rigorous accountability measures."

The 2014 Bay Agreement then tied its cleanup goals to that mandate and set a voluntary deadline of 2025. But the program fell well short of its 2025 goals, too.

What now? Well, for one, the updated agreement aligns with the TMDL goals but extends the voluntary deadline to 2040 — doubling the duration allotted for the effort from 15 to 30 years from its launch date.

States will continue working on their individual cleanup plans until 2030, when new computer modeling is expected to be done. The new model won't alter the standards in the TMDL but will reassess how much work is needed to meet them.

Wildlife, fisheries, habitat

The latest agreement includes targets a variety of goals for the aquatic ecosystem.

- Tree cover: Sets a goal of planting 45,000 acres of trees in communities across the Bay region. (The 2014 goal of adding 2,400 acres wasn't met. Instead, the region lost more than 25,000 acres.) Increases the goal for streamside forest plantings from achieving 70% coverage by 2025 to 71.5% by 2040. Calls for planting and maintaining 202,000 acres of new forest.
- Blue crabs: Like the 2014 agreement, the revised pact ties the blue crab goal to population benchmarks established in the most recent stock assessment.
- Brook trout: Aims to expand the amount of occupied brook trout habitat by 1.5% or 233 stream miles, while increasing abundance at 10 long-term monitoring sites.
- Underwater grasses: Increases the Bay-wide goal from 185,000 acres to 196,600 acres. Sets targets of 90,000 acres by 2030; 95,000 acres by 2035; and 100,000 acres by 2040. (Approximately 82,800 acres proliferated in 2024.)
- Freshwater mussels: New to this agreement. Pushes for developing mussel conservation plans for 10 Bay tributaries, enacting "key recommendations" from at least five of the plans by 2040.
- Waterbirds: Another new goal. Calls for restoring or creating at least 3,000 acres of tidal wetlands and enhancing another 15,000 acres to improve habitat for waterbirds.
- Oysters: Restores or conserves at least 2,000 acres of oyster reef habitat mainly within focus areas. (The previous agreement required restoration in 10 Bay tributaries. That goal was met, encompassing 2,400 acres of new reefs.)
- Toxic contaminants: Promotes sharing of lessons learned, the latest science and cleanup strategies for PCBs, plastics, mercury, PFAS and other toxics.

Climate conditions and more

The Executive Council agreed in 2021 to add a provision to the Bay Agreement that many environmentalists considered overdue. Most of the multistate and federal partners agreed to integrate climate change considerations into their restoration work. (West Virginia declined.)

The revised agreement replaces explicit mentions of climate change with "changing environmental conditions." This was widely seen as following guidance from the Trump administration, which largely dismisses the existence of human-caused climate change.

Bay state officials and environmental advocates didn't oppose the shift in wording. They argued that broader language is more inclusive, encompassing a wider range of potential threats while allowing states and local communities to address climate impacts.

Some environmentalists have praised the plan for weaving references to changing conditions throughout the agreement, which, they say, better ensures that policymakers consider climate factors in their pursuit of other goals.

There is also a separate outcome titled "Adapting to Changing Environmental Conditions." It calls on the partnership to provide scientific and technical assistance to at least seven small watersheds on efforts to restore the environment or protect infrastructure from "changes in temperature, precipitation and landscapes."

Environmental workforce

In 2020, the Executive Council adopted a detailed plan to improve diversity among its leadership and work to end environmental inequities. That's gone now. The revised agreement replaces the former "diversity" outcome with a race-neutral "workforce" objective.

That provision aims to support a new generation of workers in environmental careers.

Management strategies

The Bay Agreement identifies the goals. The next step in the process — drafting management strategies — will describe how to get there.

The Bay Program has 18 months from the signing of the agreement to update or develop its strategies for meeting the various goals. Those plans must outline pollution-reduction actions and explain how the Bay Program will monitor, assess and report its progress.

Those commitments are required to be updated every six years. ■

Renewable energy empowers DC historic site, community

Mixed-use campus builds independent 'micro grid' to help local businesses

By Jonathan Forney

The St. Elizabeths East campus in the southeast of the District of Columbia was once home to a psychiatric institution known for segregating patients and performing inhumane conversion therapy. It ultimately faced a lawsuit — settled in 2007 — for violating the rights of its patients.

Today the campus, at the intersection of Oak Drive and Sycamore Drive, is home to the aptly named Sycamore & Oak mixed-use community and business center. The development is being powered by a combination of renewable energy and newly trained local employees, literally and figuratively.

GRID Alternatives is a California-based nonprofit that installs solar panels in low-income communities. Developer Redbrick LMD tapped the organization to provide solar installation and workforce development at Sycamore & Oak. It finished work in October. The project trained a cohort of 10 local residents, most of whom are from Ward 8, where the project is located, for the installation through its workforce development program.

GRID's Mid-Atlantic executive director, Jordan Taylor, said the project will help create an independent "micro grid" for the businesses operating out of the area.

The micro grid is a self-contained system that includes energy generation and consumption. Solar panels charge on-site batteries, and the facility pulls power from the batteries, allowing the entire operation to function independently of the regional energy grid.

"There is a resiliency piece built into it," Taylor said. "Ultimately the Black-owned businesses that are supported by Sycamore & Oak get to receive lower-cost power. It's a compounding feedback loop that's able to drive down costs for local businesses."

Taylor, a Baltimore native, said he used to think solar energy was only for the wealthy, but now he wants to help bring the economically and environmentally favorable technology to those who could use it most.

"Solar is the cheapest form of energy generation. Renewable energy opportunities are overly abundant," Taylor said. "With fuel-based energy, you constantly have to change where you're locating and sourcing fuel. From the processing and consumption of energy, you're emitting those into the local community, which is usually a low-income or disadvantaged community."



Solar panels rise above a building in the Sycamore & Oak mixed-use community site in Southeast DC, where they power an independent "micro grid." (Jonathan Forney)

As a new on-site renewable project, the DC Energy Conservation Code requires it to have net zero energy or net zero carbon compliance. This means there was virtually no impact on the environment.

"On-site renewables are no longer [just] optional," lead electrical engineer at Stantec Alex Haver said on LinkedIn. "They represent an opportunity to create more efficient, future-proof buildings that align with DC's long-term sustainability goals."

Taylor said that improvements in building science are not only better for the environment, but more cost-effective. These range from construction techniques to long-term energy usage over the lifetime of a building.

"We can build the same structure for 90% less energy consumption, both energy and water," Taylor said. "That's both a cost-savings measure, as well as an energy efficiency and ecologically friendly one."

The benefits of developing with sustainability in mind compound, Taylor said. Having fewer emissions improves the air quality and lowers the risk of respiratory illnesses among residents living in and around these communities.

"There are all of these other knock-on effects that are positive when it comes to looking at things more holistically and being more in tune with the entire environment," Taylor said.

As a National Historic Landmark, development on the campus was subject to heated debate between residents and preservationists. Cora Masters Barry, former wife of DC Mayor Marion Barry told the *Washington Business Journal* in 2024 that the campus "has been an eyesore on our community."

Given the institution's infamous legacy, some are open to putting something more positive in its place.

"This [redevelopment of the campus] is not a decision to erase history, but a commitment to the future that honors the lived experiences of our residents," Masters Barry said.

Dion Dickens is a DC native and a member of the cohort trained for the Sycamore & Oak project. He calls the new development "something new and fresh for the community."

"They're giving the community more opportunities," the construction assistant said. "It will just be up from here. A new start."

While the Sycamore & Oak solar installation and grid build-out is complete, GRID will keep working in southeast DC as several other buildings on the campus are slated for deconstruction and development and will be added to the micro grid. A new local cohort will be trained and deployed for its installation as well.

Additionally, St. Elizabeths' historic designation means that community involvement will be critical to determine what happens next.

"This [community involvement] gets good faith for the community members," Taylor said. "It gives them the ability to participate in the growth and the rejuvenation of any area."

"You have to include everybody in that, if we're talking about progress," Taylor said. "If certain people are left behind, then is that really progress?"

Taylor says that amid the uncertainty of federal employment in the region and the rise of artificial intelligence, workers are "having to pivot and find other opportunities."

"One of the things that we will always need are jobs where you're doing physical manipulation of something," Taylor said. "It's anything from traditional manual labor to technical specialized labor."

He says AI snuck up the labor market, but with time and forward thinking, employers can avoid repeating "the mistakes of the past." Renewable energy offers additional opportunities for local economies, outside of the job site, through localized grants, marketing and community partnerships. Educating residents on the financial and environmental benefits will be key.

"As we continue to develop, we should be more mindful, through building science and through newer technologies to reduce the impact that we have on the local ecology," Taylor said. "As well as maximize the additional benefits for consumers." ■

Jonathan Forney is a freelance journalist based in the District of Columbia.

Groups challenge advancement of Susquehanna hydro project

Conservationists say feds erred in granting preliminary approval of Cuffs Run dam

By Karl Blankenship



This view of the Susquehanna River is from a site in York County, PA, where approximately 1,000 acres, more than half of it forest, could be flooded for a proposed hydroelectric project. (Kelly Snavely/Lancaster Conservancy)

The Federal Energy Regulatory Commission failed to adequately consider widespread opposition to a proposed $2.3 billion Susquehanna River hydroelectric project when it granted a preliminary permit, opponents argued in court briefs filed in December.

Conservation groups charged that FERC made a "rubber-stamp" approval for the preliminary permit in November 2024, which allows studies to go forward on a proposal to build a 1.8-mile-long dam along a plateau above the Susquehanna, near where Cuffs Run enters the river in York County, PA.

The project would flood more than 1,000 acres, affecting about 50 residences, 580 acres of forest and 340 acres of farmland in what the groups described as "one of the most pristine parts of the Susquehanna National Heritage Area."

The heritage area was established by Congress in 2019 to help protect the natural, cultural, historic and scenic resources in the area while promoting tourism.

The preliminary permit does not allow the project to proceed, but it does allow the proponents, York Energy Storage, to raise money and begin the more than $10 million in studies that would be needed to submit a formal hydroelectric license application to FERC.

FERC routinely approves preliminary permits unless the project faces a permanent legal barrier, meaning that there is a clear legal reason the project could not proceed.

But the groups argued in briefs filed Dec. 18 with the U.S. Third Circuit Court of Appeals that FERC was interpreting "permanent legal barrier" too strictly. By doing so, they said, the commission ignored reasonable concerns and objections from landowners, businesses and organizations — who would be left in limbo about the land during the four-to-eight years it could take to complete those studies.

"It is inexcusable for FERC to rubber-stamp a preliminary permit and dismiss the impacts of that permit on the Susquehanna River region," said Ted Evgeniadis, the Lower Susquehanna Riverkeeper and one of those challenging the permit.

Opponents say the project is unlikely to be built. Similar projects have been proposed several times since 1990, but none has moved as far as seeking a formal license from FERC. But the continuing uncertainty posed by repeated applications for essentially the same project and affecting the same land poses a substantial burden on those being impacted, the groups argue.

"Five attempts since the 1990s have left communities and property owners in a state of uncertainty, held captive by a process never meant to be used this way," said Fritz Schroeder, president and CEO of the Lancaster Conservancy.

"The preliminary permit system that FERC administers is designed to encourage responsible exploration. For the sake of the land, the people who call it home, and the integrity of the process itself, this preliminary permit should be overturned."



The Muddy Run Pumped Storage Facility is along the Susquehanna River in York County, PA, several miles downstream from Cuffs Run, where a similar facility is proposed. (Constellation Energy)

The Lancaster Conservancy along with the Chesapeake Bay Foundation, Lower Susquehanna Riverkeeper Association, Farm & Natural Lands Trust of York County and the Susquehanna National Heritage Area are challenging FERC's action.

Under the plan, a dam would back up water along Cuffs Run, creating a reservoir that would be filled with water pumped from the Susquehanna during periods of low energy demand. The water would be released through turbines during periods of peak demand to generate electricity.

Known as a "pumped storage" facility, the project has been widely opposed by most local and state elected officials in the area. The utility that owns two downstream hydroelectric dams also objects to the project, saying it would interfere with their operations.

After FERC approved the preliminary permit, opponents sought reconsideration, which FERC denied Jan. 21, 2025. They took the issue to court in March.

A decision is not expected until late 2026 or early 2027, after additional filings and oral arguments take place. ■

New year, new environmental battles brew in Bay states

Power shift in VA, budget crunch in MD, political gridlock in PA shape the conversation for 2026

By Jeremy Cox, Lauren Hines-Acosta and Timothy B. Wheeler

Partisan clashes in Pennsylvania and budget headaches in Maryland cloud prospects for climate and environmental legislation in those states this year.

But things are different in Virginia, where the election of a Democratic governor has raised expectations that measures stalled by her Republican predecessor will move forward. Here's an overview of the state of play this year for environmental and energy legislation in the three main Chesapeake Bay states.

Maryland

It's déjà vu in Annapolis. For the second year in a row, the Maryland General Assembly began wrestling with money woes and the state's energy future when its 90-day legislative session opened Jan. 14.

Lawmakers will be presented with the usual flurry of environmental legislation, including some they have failed to pass before.

But overall, environmental groups are reining in their legislative ambitions because of the state's fiscal straits.

"Our primary focus is going to be the budget," said Allison Colden, Maryland executive director of the Chesapeake Bay Foundation. "Without funding ... there's not much aggressive policy that we can move forward."

In 2025, lawmakers closed a massive $3.3 billion budget gap by slashing $2 billion in spending and raising the remainder with new and increased taxes and fees. In the process, funding for land preservation, clean energy, climate action and water pollution prevention took hits. Environmentalists felt relieved that they managed to fend off even deeper cuts.

This time, the budget gap isn't quite as big — at $1.4 billion. But with elections looming in November, Democratic Gov. Wes Moore and legislative leaders alike have sworn off any more revenue measures. Painful spending cuts appear likely.

The state's environmental agencies account for a tiny fraction of the overall budget, so cuts to them can't yield big savings. Worried activists hope to ward off any more raids on dedicated environmental funds.



Environmental advocates in Pennsylvania are likely to push this year for a bill that would require the amount of renewable electricity in the state's energy portfolio to reach 35% by 2035. (U.S. Dept. of Agriculture)

Last year, lawmakers took $300 million from the Strategic Energy Investment Fund, which collects payments from fossil-fuel energy companies to spend on solar power, energy efficiency and low-income bill relief. They also diverted $25 million per year for four years from Program Open Space, which funds acquisition and development of parks, natural areas and recreation facilities.

The energy investment fund is a particularly fat target, projected to generate about $700 million in new pollution payments in the coming year.

"This is a critical time for us to be increasing our investments in energy efficiency and electrification," said Josh Tulkin, executive director of the Maryland Sierra Club. State spending on clean energy is more needed than ever, he said, in light of the Trump administration's wholesale cancellation of federal funding.

Last year, amid uproar over rising electricity bills, legislative leaders pushed through measures aimed at fast-tracking development of new power projects, including solar and battery storage. But the legislation also invited proposals for natural gas-fired power plants — something climate activists warned would undermine Maryland's ability to reduce greenhouse gas emissions.

Caught off guard in 2025, activists hope this year to head off the gas rush. They are backing legislation to boost solar development at a time when federal support for renewable energy has been withdrawn. One bill would reform the way funds collected from utility companies get spent to incentivize more solar projects. Another would expedite and lower the cost of rooftop solar installments.

"This year, the most important topics are around energy affordability," said Kim Coble, executive director of the Maryland League of Conservation Voters. "That's why we really believe renewables need to be promoted because they are the fastest deployed, the cleanest and least expensive [ways to get more in-state power generation].

"That should be the conversation," she concluded, "not where do we build a gas plant."

Beyond the budget and energy, activists hope to win passage of a few environmental bills that have fallen short in previous years. Among the candidates:

- Dubbed the CHERISH Act, this measure would require state regulators to consider existing pollution in a community before issuing new pollution permits or renewing old ones.
- Transportation and climate: This bill would require state transportation planners to account for the climate impacts of building new highways.
- A "bottle bill," which aims to boost recycling by requiring consumers to pay a redeemable deposit on plastic bottles, cans and glass containers.

Maryland's waterkeeper groups also hope to see renewed legislation aimed at limiting toxic PFAS, or "forever chemicals," in farm and garden fertilizer and in a range of consumer products. They also hope lawmakers will approve a bill requiring inspections of residential septic systems.

Activists celebrated a couple of early wins from December's special legislative session. Lawmakers overrode gubernatorial vetoes of 2025 bills calling for studies of the environmental impacts of data centers and the costs to Maryland of greenhouse gas emissions.

Before the data center study gets underway, though, bills are expected to be introduced during the 90-day session to regulate the centers' massive and growing energy demands, which are driving up power bills.

Pennsylvania

It's hard to pass bills in Pennsylvania's sharply divided General Assembly, and environmental measures are no exception. That proved to be the case in 2025, and 2026 is shaping up to be more of the same.

Pennsylvania, in fact, was the last state to adopt its budget last year. The Republican-controlled Senate and Democratic-controlled House didn't broker a deal until Nov. 12, ending a nearly five-month standoff.

The $50 billion spending plan was made possible largely by Republicans conceding on school funding measures and Democrats relinquishing one of their hardest-fought environmental battles in recent memory: the state's participation in the Regional Greenhouse Gas Initiative (RGGI).

RGGI is a coalition of 10 Northeastern and Mid-Atlantic states that seeks to reduce carbon dioxide emissions from power plants by requiring the facility owners to pay fees if they exceed annual limits. In 2019, then-Gov. Tom Wolf, a Democrat, ordered the state to join the compact, but the move was challenged in court, leaving Pennsylvania's status in limbo.

Environmentalists blasted the withdrawal from RGGI. "I think it sent a bad message particularly when Pennsylvania is the fourth-largest global warming polluting state in the nation," said PennEnvironment executive director David Masur. "If any state should be participating in a program like RGGI, Pennsylvania should be the one."

But the budget did contain some positives for environmentalists, including a 5.5%



Plans to widen part of the Capital Beltway in Maryland have been controversial, with critics citing environmental and climate impacts. (Dave Harp)

increase for the Department of Environmental Protection. It also set aside $50 million for the Clean Streams Law, earmarking $35 million of that total to help farmers install more pollution-reduction projects.

The 2025 session contained few other highlights for environmental backers, Masur said. For a second year in a row, a push to open the door to community solar projects, which would enable residents to pool their resources to build private solar arrays, passed the House but faltered in the Senate.

The same fate — approved in the House, stalled in the Senate — befell a bill that would have required the amount of renewable electricity in the state's energy portfolio to be increased from 4% to 35% by 2035.

One of the few environmental efforts that crossed the finish line was an initiative that helps schools install solar panels. The Solar for Schools program has proved popular, with the state receiving $88 million in funding requests last year during its pilot phase, far exceeding the $25 million available dollars. The General Assembly re-upped the program in November's budget for the same amount of money.

Pennsylvania's legislature operates on a two-year schedule, so bills from last year are eligible to be revived this year.

But environmental advocates are prepared for more gridlock. Pennsylvania is one of just three states with a divided General Assembly, all but assuring a dismissal of any controversial propositions.

And with Gov. Josh Shapiro near the top of the 2028 Democratic presidential candidate discussion, state Republicans are seen as unlikely to hand him any significant political wins, such as approving his proposal to replace RGGI with a state-specific cap-and-trade program.

Among the environmental and energy holdovers from last year are Shapiro's pitch to create a state board to clear red tape for energy projects, a bill to tighten permitting requirements for projects in designated environmental justice communities, and a bipartisan measure prohibiting the sale and use of firefighting foam that contains forever chemicals.

Many environmental bills are likely to remain stalled, including measures to ban polystyrene takeout food containers and cups, expand the electric vehicle rebate program and help school districts acquire electric buses.

Virginia

Virginia Democrats have taken control of both chambers and now the executive branch with new governor Abigail Spanberger. Many advocates are cautiously optimistic that environmental bills vetoed last year will pass in 2026. The General Assembly session began Jan. 14.

Energy production remains a focus for advocates and policymakers. The Virginia Clean Economy Act requires Dominion Energy to source 100% of its energy from renewables by 2045 and install 16.1 gigawatts of solar and onshore wind energy by 2035.

One bill will amend the act to increase the amount of utility-scale solar projects that utilities have to build from 1% to 5%, and it expands the amount of solar capacity that can be built on previously disturbed land from 200 megawatts to 1,000 megawatts, or 1 gigawatt.

Some proposed bills attempt to expand solar energy. One calls for a new legal class of portable solar installations, such as photovoltaic panels made for balconies, for renters. Another measure, modeled on recommendations from the Commission on Electric Utility, would set statewide standards for utility-scale solar projects that counties would incorporate into their ordinances, but it would not mandate that localities approve any projects.

Spanberger's Affordable Virginia Agenda also has bills that require utilities to make energy efficiency improvements to at least 30% of qualifying households of low-income residents. Another bill will create a weatherization task force to identify solutions to barriers that low-income customers face when trying to enroll in current energy efficiency programs.

Spanberger also plans on returning Virginia to the Regional Greenhouse Gas Initiative, which makes power plants pay a fee if they exceed their emission limits. The state's RGGI membership is in limbo, pending court decisions.

Many bills from 2025 aimed at regulating data centers are back — for example, tying clean energy requirements to the tax breaks that data center companies receive for their servers. Those servers require lots of water to stay cool, so other bills would require companies to report water use to the Virginia Department of Environmental Quality and prohibit the use of nondisclosure agreements to conceal that usage.



Electric vehicle parking is featured near a data center in Loudoun County, VA. (Dave Harp)

Several other bills are also in play.

- Environmental justice: A bill supported by Virginia Interfaith Power and Light would require state agencies to evaluate cumulative pollution impacts on vulnerable communities before approving new permits.
- Habitat and wildlife: The Chesapeake Bay Foundation supports measures that would fund an oyster stock assessment, allow the state to reuse dredged materials to build habitat, and establish and fund a three-year study of the menhaden population in the Bay, as opposed to coastwide, with a pause on the fishery while scientists conduct the research.
- PFAS: The Potomac Riverkeeper Network is pushing legislation that would require setting interim safety standards for toxic PFAS in biosolids (sewage sludge), test biosolids for the chemicals and establish a protocol for disposing of contaminated biosolids. Many farmers use biosolids to fertilize their fields, and biosolids containing PFAS are making their way from Maryland to Virginia farm fields and raising health concerns. ■

Change in underwater grass beds means less 'fish food'

Warmer water is the apparent culprit in shifting the Bay's dominant grass species

By Karl Blankenship

A transformation in the seagrass meadows hidden under the surface of the Chesapeake Bay may have huge implications for fish and crabs living in the estuary.

Eelgrass, once the dominant species of underwater grass in the Bay, has declined in recent decades — a casualty of climate change in a warming Bay — and is steadily being replaced by a more adaptable species known as widgeon grass.

New research finds that the transition to widgeon grass, or in some cases no grass at all, likely means much less food for fish in the future.

Scientists have long worried that stringy widgeon grass, now the Bay's most abundant species of submerged aquatic vegetation, or SAV, does not provide the same ecological value as lush eelgrass meadows.

A new study backs that hunch with hard numbers: The shift from eelgrass to widgeon grass could mean a 60% reduction by 2060 in worms, clams and other fish food typically found in the grass beds.

The findings "have several serious implications for the Chesapeake Bay," researchers from the Virginia Institute of Marine Science cautioned in a paper recently published in the *Marine Ecology Progress Series*.

Their research provides a case study of how climate change will fundamentally alter critical parts of the Bay ecosystem, resulting in a future system that is significantly different — and potentially less productive.

The bottom line, said Chris Patrick, a VIMS scientist specializing in seagrass research, is that each square meter covered by eelgrass, compared with widgeon grass, produces a greater abundance of the worms and clams that fish and crabs like to eat.

The research was conducted by Patrick and two former VIMS students, Lauren Alvaro and Marc Hensel, who set out in 2021 to study differences in organisms that were living in comparable beds of widgeon grass and eelgrass.

"We've got this change that's happening, and we really need to know, 'What does it mean?'" Patrick said. "What are the consequences of a species swap?"

As recently as the 1960s, eelgrass could be found as far north as Kent Island in Maryland. But worsening water quality and the devastating deluge from Tropical Storm Agnes in 1972 restricted it to lower portions of the Bay.



A blue crab hides in eelgrass off Maryland's Smith Island in February 2016. (Dave Harp)

Eelgrass, though, has turned out to be especially sensitive to warm temperatures, suffering several severe heat-related die-offs in recent decades. And the plants are even more vulnerable when warm temperatures are combined with cloudy water conditions because they are less able to get sunlight energy needed to reduce heat-related stress.

But the transition to widgeon grass, another species that tolerates high salinities, has not been a one-to-one trade when it comes to the Bay's ecosystem. Eelgrass is present year-round with peak growth in the spring and fall, providing areas for juvenile fish and crabs to hide and producing food for waterfowl to eat most of the year.

Widgeon grass can also be a perennial plant, but its peak growth is limited to late spring and summer, meaning it provides much less shelter and food during most of the year.

The new study found that the differences in the two plants also result in a significant variation in the amount and type of fish food the beds produce.

Widgeon grass leaves are thin, stringy and only a few inches long. Eelgrass leaves are thick and strap-like and can reach lengths of nearly two feet, which forms sheltering canopies over bottom areas.

"There's no real comparison," Patrick said. "Widgeon grass has very short, clumpy, really thin leaves. It looks like a lawn, whereas the eelgrass is dense and thick, like a jungle."



Widgeon grass floats on the surface of the Chesapeake Bay off Holland Island in June 2014. (Dave Harp)

The study found that a square meter of ground covered with eelgrass produced a greater biomass of tiny invertebrates — the base of the food chain — and produced significantly more of the larger clams and worms that sustain predators like blue crabs and finfish.

The study estimated that widgeon grass Baywide is producing 28.6% less biomass of small organisms than eelgrass and 22.2% less of the larger organisms (secondary production), that fish and other predators rely on.

That disparity is expected to grow as eelgrass continues to decline because of warming Bay temperatures.

Models used to predict future conditions anticipate that eelgrass will shrink from about 20,000 acres to about 6,200 acres in 2060 if Bay nutrient reduction goals are met, or it could fall as low as 5,200 acres if water quality does not improve

The difference is more extreme when it comes to available fish food. Under the scenario where water quality goals are met, the scientists estimated that secondary production would decline 15% from current levels. But if conditions remain unchanged, it could decrease by 60% — in part because widgeon grass too would suffer significant losses.

"We think that we're going to have some loss of productivity and that, if we can continue to reduce nutrients, we can ameliorate that somewhat," Patrick said.

One glimmer of good news is that those numbers were produced using 2022 estimates of underwater grass coverage. In the last two years, eelgrass has made a comeback in some areas as clearer water has allowed it to move into deeper areas which may also be cooler.

If those areas prove to be what biologists call "thermal refugia" for eelgrass, and if water remains clear enough for it to persist, those future predictions might change.

"Water clarity has been improving," Patrick said. "If it continues to improve, and the beds get deeper and deeper, and [there are] thermal refugia, maybe these massive collapses we're expecting won't come to pass, at least not on the time horizons that we've been talking about."

But, he added, "Those are a bunch of ifs and maybes." ■

Court upholds MD waterfront development restrictions

Ruling nixes county approval of shoreline housing project on Kent Island

By Timothy B. Wheeler

A Maryland judge has invalidated an Eastern Shore county's move to advance a long-disputed housing project on the shore of a Chesapeake Bay tributary. The court found in part that the county's action violates the state's 41-year-old law regulating waterfront development.

Queen Anne's County Circuit Court Judge Lynn Knight ruled in favor of three environmental groups and neighboring landowners who challenged the county commissioners' approval of a plan to build up to 90 homes on 101 acres of fields, woods and wetlands on Kent Island overlooking the Chester River.

Reversing previous denials of intense development on that site, the Queen Anne's commissioners voted in July 2024 to rezone the tract and include it in a county-designated growth area. Officials called the decision a compromise because it reduced by more than half the number of homes the landowner had originally sought to build there.

Along with eight neighbors, the Queen Anne's Conservation Association, Chesapeake Bay Foundation and Chesapeake Wildlife Heritage filed a lawsuit contending that the commissioners acted illegally in blessing the Chesterhaven Beach development plan.

Some saw the case as a test of Maryland's Chesapeake Bay Critical Area Act, passed in 1984, which aims to reduce polluted runoff and protect shoreline habitat by limiting the intensity of development near the Bay and the tidal portions of its tributaries. On relatively pristine "resource conservation areas" like this one, the law permits just one home per 20 acres.

Because of its proximity to the Western Shore, Kent Island has been subjected to intense development pressure for decades, even before the Bay Bridge was built. The resulting growth has embroiled the county in seesaw political struggles and some epic court battles.

The partnership seeking to develop Chesterhaven Beach contended the project was "grandfathered" from Critical Area limits because a map laying out 186 home sites there had been submitted back in 1959. But opponents of the development argued that the plan had not proceeded far enough to warrant exemption by the time the law took effect. A 1995 appellate court ruling denied the grandfathering claim.



The Chesterhaven Beach property sits along the Chester River in Queen Anne's County, MD, covered by fields, woods and wetlands. (Dave Harp)

Queen Anne's County officials nevertheless proceeded as if the site would someday be developed. They agreed to reserve capacity in the county's wastewater treatment system for the unbuilt homes and took a down payment for that from the owner.

In 2007, though, the county commissioners removed the growth designation for Chesterhaven Beach as part of a new long-range land use plan. The partnership persisted, though, and in 2022 asked to restore the site's status as part of a growth area. The commissioners denied it then on a 4-1 vote but indicated they might reconsider.

In July 2024 they did, and this time approved the request on a 3-2 vote, after an attorney for the county opined that the home sites mapped out long before the Critical Area Act were legally recognized "lots of record." The approval included a condition that the developer reduce the maximum number of dwellings to 90.

James Moran, then president of the Queen Anne's board of commissioners, said the majority decided to redesignate the tract for growth just to get it off their agenda after so many years of debate. Moran noted that it still had to go through several levels of review that could alter or reduce the scale of the project further.

"We're stuck in the middle, damned if we do, damned if we don't," he said last year. "Let the courts decide ... We want to get it resolved."

But opponents contended the county was trying to make an end run around the Critical Area law. And the state's Critical Area Commission, which oversees compliance with the law, intervened in the lawsuit on behalf of the project's opponents.

In a nine-page opinion, Judge Knight agreed with all six arguments opponents raised against the project. She specifically found that the county had failed to notify the state Critical Area Commission, as required by law, of its intent to approve the project. She also ruled that the county had acted illegally in reversing its prior decision to disallow more intense development of the Chesterhaven Beach tract.

Opponents of the project hailed the ruling as a victory for wildlife habitat conservation and water quality.

"Time and again, this developer has wasted everyone's time trying to convince someone —anyone — that he somehow has grandfathered lots that do not exist," said Jay Falstad, executive director of Queen Anne's Conservation Association. "And time and again, the Courts have ruled against him. With this latest decision, hopefully the matter is now settled."

"This proposal completely disregarded the health of the Chesapeake Bay and was simply against the law," said Alan Girard, the Chesapeake Bay Foundation's advocacy director. "We are pleased and encouraged that the Queen Anne's County Circuit Court ruled against this dangerous, illegal development plan and upheld Maryland's commitment to protect our land and water."

Falstad added that he hoped the court's ruling sets a precedent for quashing other development plans hatched long ago that might also claim grandfather exemptions from the Critical Area Law.

Erik Fisher, chair of the Critical Area Commission, declined to comment on the judge's ruling while an appeal could still be filed. But he pointed out that there is a way under the law that the Chesterhaven Beach project might still move forward.

All affected counties have a limited "growth allocation" of acreage where they can permit more intense waterfront development than would otherwise be allowed, he explained. Queen Anne's officials would need to invoke that provision, Fisher said, and the state commission would have the final say whether to approve it.

By last year, Queen Anne's had already used up two-thirds of its 1,500-acre growth allocation to permit other waterfront development, and the commissioners opted then not to use any of their remaining allotment on this project.

Reached by email at the Maryland Association of Counties conference Dec. 10 in Cambridge, Moran, recently tapped to head the board of commissioners again in 2026, replied that the county will not appeal the judge's ruling.

Joseph Stevens, a lawyer for the Chesterhaven Beach partnership, did not return a phone message seeking comment. ■

Lone resident's complaints lead to stream pollution lawsuit

Potomac River group, state of MD sue La Plata over alleged wastewater plant violations

By Timothy B. Wheeler



Mike Madatic sits on a footbridge over the stream behind his house in La Plata, MD, where the water has turned gray and smelled of sewage repeatedly since December 2024. (Dave Harp)

The squeaky wheel gets the grease," as the saying goes. When it comes to enforcing environmental laws, it can take a lot of squeaking from a lone, concerned citizen to get action.

Returning home in December 2024 from hunting in the woods behind his house in La Plata, MD, Mike Madatic didn't like the look — or smell — of the stream flowing through his backyard. The water, usually crystal clear, had turned murky gray, and a similarly colored sludge had built up along the banks. He detected a rank sewage-like odor.

Madatic immediately suspected that something had gone wrong at the municipal wastewater treatment plant about a mile upstream of his house. Yet when he contacted the town officials, he said, "Their answer was, 'It's not our problem.'"

Thus began a nearly yearlong ordeal, during which the stream repeatedly turned gray, especially after heavy rain. An unnamed tributary of Port Tobacco Creek, which ultimately flows to the Potomac River, the creek would stay cloudy for days and sometimes weeks afterwards, Madatic said, often emitting whiffs of what smelled to him like sewage.

Every time that happened, Madatic, a retired federal employee, complained to the town and the Maryland Department of the Environment (MDE). He said that town officials either ignored him or told him the wastewater plant was not the source. A state inspector, though, informed him after his first complaint that there had been a "washout" at the plant. But his subsequent emails in spring and summer, reporting more episodes of gray and smelly water, drew little or no response.

"It was intolerable from my point of view," Madatic said. "The smell was terrible, and the fact that all that sewage was just going into the Potomac River. It was not good. We had been putting millions and millions of dollars into the river trying to get it cleaned up. Nobody seemed to care. I care."

Frustrated, Madatic finally reached out to the Potomac Riverkeeper Network. The nonprofit environmental watchdog group responded by asking him to help collect water samples from the creek upstream and downstream of the treatment plant.

From May through July, Madatic and riverkeeper staff detected "gray water, foam and sewage odors — particularly following storm events," according to a court filing by the group. On multiple occasions, it added, lab analyses of water sampled by the outfall measured elevated levels of E. coli, a type of bacteria often found in fecal matter.

In July, the Potomac group formally notified the town of its intent to sue, alleging that the treatment plant was violating its state-issued discharge permit and the federal Clean Water Act. A couple of months later, MDE filed its own lawsuit. The state alleged several instances of unreported sewage overflows from the plant both before and during the time Madatic had been complaining, plus a total of 63 exceedances of the facility's discharge permit going back to 2021 and continuing up to the time of the lawsuit.

MDE spokesman Jay Apperson declined to comment, citing the pending litigation.

The Potomac Riverkeeper Network subsequently filed a motion to intervene in the state's lawsuit against the town, which was granted.

This is not the first time La Plata's treatment plant has been in the dock. MDE has cited it repeatedly over the past 20 years for sewage overflows and treatment bypasses that dumped polluted water into local waterways, including the stream that flows past Madatic's house.

In 2012, the town paid $50,000 in penalties to settle an MDE enforcement action for a series of sewage overflows from 2009 through 2011.

A decade later, it paid another $9,714 for more overflows in the preceding five years.

On some occasions, MDE has let the town off without penalties, instead requiring the installation of new sewer lines or making upgrades to pumping stations. In 2010, after the town failed to meet the state's deadline for upgrading the plant to reduce nutrient pollution, municipal officials avoided a penalty by signing another consent agreement with MDE to complete the task on a new timeline.

Reached by telephone, Chuck Stevens, the town's manager, acknowledged overflows and discharge violations at the plant in recent years but said they stemmed from a combination of heavy rains, aging equipment and ongoing upgrades that temporarily limited the facility's ability to handle storm-swollen flows.

"Obviously, the town wants to be in compliance and maintain compliance," Stevens said. With repairs and upgrades finished earlier this year, he added, the plant has been "largely in compliance" since summer.

But on July 31 — two days after Stevens told town commissioners the plant was in compliance — an MDE inspector found that the plant's discharge exceeded permitted limits on certain pollutants through June. The inspector called for corrective actions to clean up the plant site and reduce the likelihood of polluted stormwater running off into the stream. There have been no inspections since.

"We're working very closely with MDE," Stevens explained, as well as with the Maryland Environmental Service, a not-for-profit business unit of the state that operates several small municipal wastewater plants and solid waste facilities. The town also hired a private engineering firm to assess the plant's operation and the source of the violations.

The engineering consultant attributed sewage overflows to compromised sewer lines that allow rainwater in, overwhelming the plant's treatment capacity. It also said the aging plant, built in 1971, needed extensive repairs, upgrades and replacements.

The town has upgraded the plant before, with state financial assistance, and increased its capacity to treat up to 1.5 million gallons of wastewater daily. It wants to increase that to 2 million gallons daily in the near future to handle expected population growth and development.

"To the town's credit, they have not been waiting around for the state to take enforcement action to address some of those operational issues," said David Flores, the Potomac Riverkeeper Network's vice president and general counsel. But he noted that his group has been pointing out problems and violations at the plant for at least the last decade.

"There's some big work ahead that needs to be done," he said, particularly in addressing the porous sewer lines. The Potomac group is "eager to engage both the state and the town," he added, "in helping chart a path for longer term compliance."

Madatic simply wants his clean stream back — now — so he can see fish in it again.

"It's still ongoing," he said one day in late December, after emailing MDE about another gray water episode. "The creek is full of sewage. They have not got to the root cause of the problem yet."

He said he'd like to see MDE do something more than fine the town, such as prohibiting new water and sewer hookups until the plant can operate violation-free for several weeks straight.

Meanwhile, he said, "I'm not going to give up. Every time [the water quality] goes south, I'm going to let everybody know about it." ■

Bacteria from septics, agriculture pollute VA's Hardware River

State prediction that James River tributary would be cleaned up by 2026 now in doubt

OUR WATERWAYS

By Lauren Hines-Acosta

Editor's note: This article is part of a series about smaller streams and sections of rivers in the Chesapeake Bay watershed. To suggest a waterway to feature, contact Jeremy Cox at jcox@bayjournal.com.

Andy Wilson, president of Friends of the Hardware River, treks through the bamboo that's invaded the edge of his 118-acre property in Scottsville, VA. At the end of his pasture, he sees the rope swing his grandchildren use to dive into the Hardware River, which quietly trickles by.

"This spot epitomizes the river," Wilson said. "It's small but beautiful."

But beautiful doesn't always mean healthy. In 2016, the Virginia Department of Environmental Quality (DEQ) estimated it would take 10 years to remove the Hardware River, a lesser-known tributary of the James River, from its list of waters impaired by bacteria. With that 10-year mark approaching, it's unlikely that the river will be de-listed in 2026, but agencies, advocates and passionate landowners seem determined to eventually make it happen.

"The quality of the James is so dependent on what's happening in those headwater streams and all the tributaries," said Amber Ellis, James River Association restoration director. She said it's crucial to ensure the tributaries are clean because it's easier to improve the water quality upstream before it reaches the James.

The 23-mile-long Hardware River snakes through Albemarle County and part of Fluvanna County in central Virginia. It joins the James about 50 miles west of Richmond at the Hardware River Wildlife Management Area, where people hunt, fish and kayak.

The river and land attracted industry as settlers moved through Virginia. Farming in Albemarle County transitioned from tobacco to wheat in the mid- and late 1700s. Mills quickly popped up along the river to power manufacturing and small towns.

The Jefferson Mill dam has been on the Hardware River for more than 200 years.



Andy Wilson of the Friends of the Hardware River looks toward the confluence of the Hardware and James rivers near Scottsville, VA. (Lauren Hines-Acosta)

The property adjacent to the dam was slated to become a residential dwelling, including plans to install an eel ladder at the dam to help eels move upriver.

The listed property owner, Aaron Van Duyne III, declined to comment for this article. But Bill Fritz, development process manager for Albemarle County, found that while a permit for the eel passage was approved, none of the inspections needed for construction have taken place. This could indicate that no work has been conducted.

Wilson and his brother Robin have sometimes, with permission, launched their kayaks from the property. Since buying his own farmland in 1971, Wilson has loved spending time on the river, and in 2010 he formed the Friends of the Hardware River to improve its health.

DEQ first listed the river as impaired by bacteria in 2002. According to the agency's 2016 Water Quality Improvement Plan, 21% of the water samples taken from the mainstem between 1979 and 2007 were above the safety standard for E. coli. And 28% of the samples from the river's north fork, taken from 1995 to 2006, exceeded the standard too. Livestock wading in streams, failing septic systems and runoff from fields fertilized with manure were identified as main sources of bacteria.



The Hardware River meets the James River in Fluvanna County, VA. (Meghan Marchetti/Virginia Department of Wildlife Resources)

The water quality plan recommended fencing off cattle from the river, planting cover crops and using rotational grazing to reduce bacteria in the water. More streamside trees could help filter runoff too. The report also found 463 failing septic systems and 116 of them needing repairs.

DEQ, the James River Association and the Thomas Jefferson Soil and Water Conservation District have since put some solutions in place. DEQ and its partners have installed 273,000 feet of fencing and planted almost 1,500 acres of cover crops. The James River Buffer Program has installed more than 100 acres of forest buffers. As for septic systems, 12 have been replaced, 19 have been repaired and 109 have been emptied.

Between 2015 and 2023, fecal bacteria declined by 31%. At the same time, nitrogen in the river has declined by 39,000 pounds per year and phosphorus by about 1,000 pounds per year. DEQ said historical fertilizer has left phosphorus in the soil, and nitrogen responds better to the practices targeted toward reducing bacteria.

Anne Coates, executive director of the Thomas Jefferson Soil and Water Conservation District, said much of the success has come from farmers adopting practices to reduce runoff from their fields and encouraging others to do the same.

"We rely heavily on success with the producers we work with because we know that, ultimately, they can be our best advocate if things are going well for them," Coates said.

Between state and federal funding, almost $2.8 million has been spent to help farmers install water quality improvement methods and about $185,000 on fixing septic systems. But Coates said it's still a significant upfront cost for farmers who could spend up to $100,000 before getting reimbursed. Plus, the conservation district's Septic System Repair and Maintenance Program covers only 50% of the cost for most applicants.

Despite the river's challenges, Albemarle County's new comprehensive plan has set higher expectations for water quality in the region. The plan outlines goals to create a streamside buffer assistance program and a water quality monitoring program.

The river could receive further protection if the Virginia Department of Conservation approves a request by Albemarle County, where the Hardware River's north and south fork come together, to designate the Hardware as a Virginia Scenic River.

While the cleanup effort has been slower than the state initially estimated, DEQ spokesperson Irina Calos said the biggest opportunity for improvement lies in educating the public about the link between land use and water quality, which encourages further stewardship.

"I wish all of our tributaries had such passionate residents that want to help their local waterway," Ellis said. "The Hardware is lucky to have the people that live in its watershed and along it." ■

MD tightens recreational catch limit for yellow perch

Harbingers of spring continue to decline amid survival struggles for younger fish

By Timothy B. Wheeler

On a frigid, breezy morning in early January, Steve Lay bundled up against the cold and took his boat out from Havre de Grace to the mouth of the Susquehanna River. He dropped a line in the water, hoping to hook his favorite fish — yellow perch.

"I like them better than rockfish," said Lay, a waterman and outdoorsman who's been fishing and crabbing the upper Chesapeake Bay for decades. No disrespect to the Bay's iconic striped bass, but Lay prefers the taste and firm flesh of a pan-fried "cold water fish" like yellow perch.

Now, though, recreational anglers will have to bring home fewer to fry up. Citing a six-year run of poor spawning or survival of young fish, the Maryland Department of Natural Resources on Jan. 8 halved the allowable daily recreational catch from 10 fish a day to five.

It's a sobering caution flag for a colorful fish that once drew crowds. Bright yellow with orange pelvic fins and dark vertical bars down their sides, yellow perch are harbingers of spring. They live year-round in the rivers and creeks of the Bay, but in late February and early March they swim far upstream to spawn in shallow fresh water. The females lay gelatinous streamers of eggs that often end up tangled in fallen tree branches and other debris in the water.

Their spawning runs used to draw scads of anglers eager to leave winter behind and catch their first fish of the year. On the January morning in question, some did so from kayaks or small boats, but many simply lined up along creek banks and cast from shore.

There was once a robust yellow perch commercial fishery, too, which topped 200,000 pounds in the late 1990s, with much of the catch shipped live to stock freshwater lakes and ponds in the Midwest.

Not so much lately. The yellow perch population in Maryland has been up and down over the decades, but nowadays mostly down. The commercial harvest, limited to a four-month season from December through March, was just 16,000 pounds in 2025, well below the annually adjusted catch limit. The recreational catch isn't tracked, but anecdotally, it is believed to be down considerably as well.

"You used to see 10 boats fishing in a particular area. Now you see two," said Scott Lenox, an avid angler from Ocean City who pursues yellow perch in Eastern Shore streams. He also chairs DNR's Sport Fisheries Advisory Commission. "It's been really hit or miss the last couple years."



Steve Lay of Havre de Grace, MD, catches a yellow perch near the mouth of the Susquehanna River. (Dave Harp)

Fisheries managers describe the recreational catch restriction as a precaution while they try to figure out what's going on with yellow perch.

"It's not like taking a nosedive, but it's definitely not getting better," said Carrie Kennedy, director of tidal and coastal monitoring and assessment in DNR's fishing and boating service.

Surveys indicate yellow perch are experiencing "recruitment challenges," Kennedy explained. Though there still seem to be enough adult fish to sustain the population, the number of recently spawned juveniles showing up in annual net surveys has been low for the last six years straight.

This isn't the first time yellow perch have struggled. Their numbers began to swoon in the 1970s, leading DNR to clamp down in 1989. Several rivers on both sides of the Bay were closed to commercial and recreational harvest — and some still are. Elsewhere, anglers were put on a five-fish a day creel limit, while commercial harvest was shut down statewide for all of February that year.



Recreational anglers fish for yellow perch in early January around an old dock at Perryville on the Susquehanna River. (Dave Harp)

The population recovered some in the 1990s, leading DNR to relax regulations. The recreational creel limit went back up to 10 fish a day, and the Chester and Patuxent rivers reopened to limited commercial harvest.

While recreational regulations have remained unchanged for years, the commercial fishery has operated under a catch cap that is set annually based on trawl surveys. In the upper Bay, which has accounted for 80% to 90% of the statewide commercial landings, the cap was reduced nearly 70% overall from 2018 through 2025, yet the harvest came up short most years.

Lay, one of just a handful of watermen who still fish commercially for yellow perch, said the cap has been reduced so much that many have quit, saying it's no longer worth going out.

When DNR asked for public feedback on what to do about yellow perch, some watermen suggested closing the fishery altogether. Instead, while restricting recreational catch, DNR decided to raise the upper Bay cap by 28% for each of the next three years, to 18,000 pounds.

Kennedy called the harvest limit increase an "experiment" intended to provide some stability for commercial fishermen. She said DNR would be keeping close tabs on the harvest and would lower the cap again if surveys show "unexpected and drastic" changes in the spawning stock.

Scott Lenox said the lower limit won't keep him from going out. "Five keepers is plenty for me," he said. Something had to be done, he added.

Some have wondered if invasive blue catfish are a factor in the dearth of young yellow perch. Proof of that is lacking, but there has been research linking poor survival of yellow perch eggs and larvae with the spread of pavement and buildings along streams where the fish spawn.

Whatever the cause, DNR's analysis shows that the upper Bay population of spawning age females has been trending downward since the late 1990s. With declining fish habitat and poor juvenile survival, Kennedy said, "The only thing we have to control is fishing."

One good spawn producing a bumper crop of young could "start to really turn the ship around a bit," she said. But she acknowledged she isn't sure when — or if — the stock can rebound to its past abundance.

Some diehards, like Steve Lay, still seek yellow perch — even during December and January, when they tend to school up in deeper water near the mouths of rivers. On that January day, there were six other boats out with his, though he said he'd seen as many as 30 in that area before.

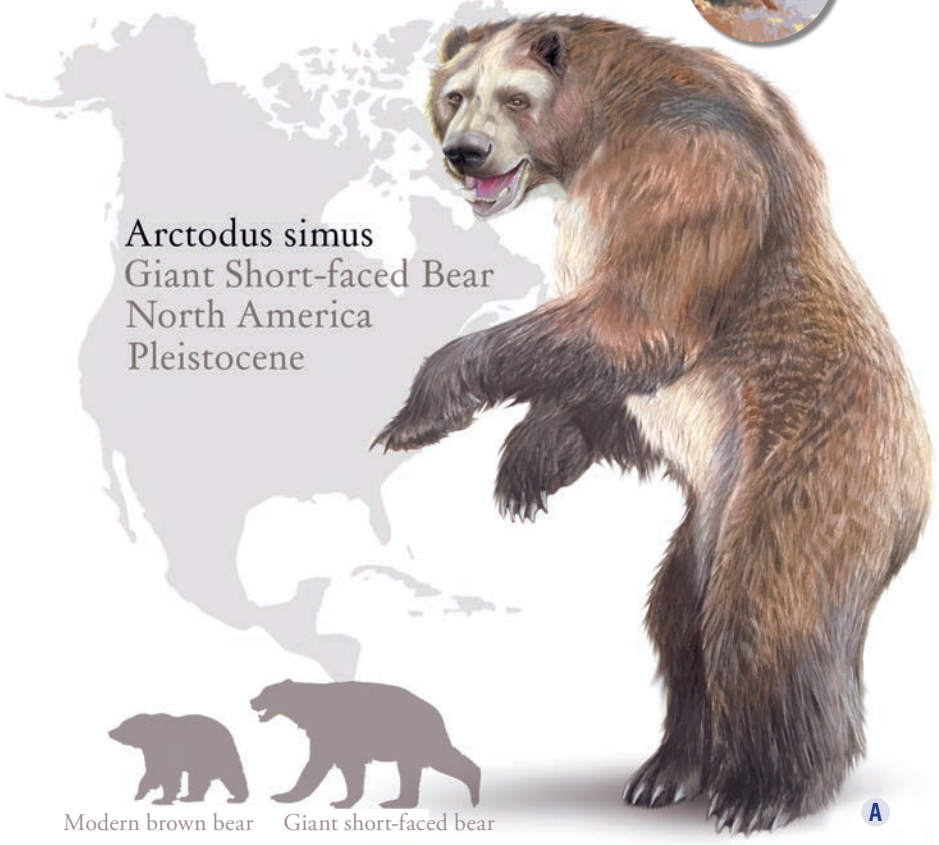
"It used to be a lot of fishermen participated," he said. "It was a good fishery, something to do in the winter when there was nothing else to do." ■

CHESAPEAKE CHALLENGE



— Kathleen A. Gaskell

Bygone behemoths of the Bay watershed





Title image: *A 1903 painting of Smilodon populator, the largest of two sabertooth cat species that lived throughout the Americas in the Pleistocene Epoch, by Charles Robert Knight. (American Museum of Natural History)*

A *An illustration by A. James Gustafson of the giant short-faced bear, which lived throughout North America until its extinction in the late Pleistocene Epoch. (Courtesy of A. James Gustafson)*

B *Jaap Roos stands with a model of a giant ground sloth that he created for the Historyland museum near Rotterdam, Netherlands. Fossils suggest that some individuals of the species may have been significantly larger than this. (Japp Roos Art/CC BY-SA 4.0)*

C *An illustration by A. James Gustafson of the woolly mammoth, which roamed most of Eurasia and parts of North America in the Pleistocene Epoch. (Courtesy of A. James Gustafson)*

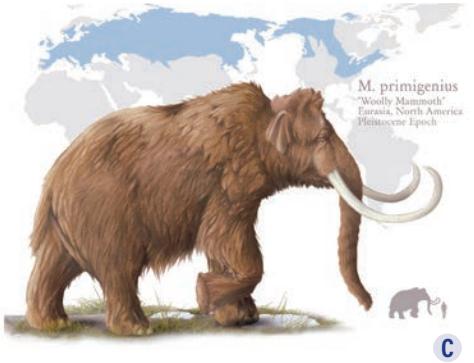
In the frigid days of the last Ice Age, the Chesapeake Bay watershed was a different place: a tundra with open woodlands that supported a variety of megafauna, most of which went extinct in the late Pleistocene Epoch that ended some 12,000 years ago. Here are four of the more monstrous mammals.

Fast on its feet: The giant short-faced bear (*Arctodus simus*) was one of North America's largest Ice Age land predators. Males were up to 11 feet tall when standing upright, 5-6 feet across the shoulders and over 1,500 pounds. They had long, slender limbs and forward-facing toes (unlike today's bears, which are pigeon-toed). Paleontologists estimate they could hit speeds of 40 miles per hour when chasing prey.

Beaver's beta version: North American giant beavers of the *Castoroides* genus stood 6-7 feet tall and weighed over 200 pounds. Although they had 6-inch incisors, the teeth were not as chisel-like as those of today's beavers and could not bring down a tree. The animals had small brains, which many cite as the reason they were unable to build dams. Instead of woody vegetation, they ate aquatic plants. Their long, narrow tails were not as flat as those on a modern beavers.

Quite the claws: Jefferson's ground sloth (*Megalonyx jeffersonii*) got its name from none other than Thomas Jefferson. When first presented with a fossil featuring 8- to 20-inch claws, Jefferson called it *Megalonyx*, ancient Greek for "giant claw." This herbivore grew up to 10 feet long and could weigh more than 2,000 pounds. It walked on all fours but stood on its back feet to forage, forming a tripod with its muscular tail and using its claws to rip dow leafy tree branches.

Armed to the teeth: The North American version of the saber-toothed cat (*Smilodon fatalis*) — often called a saber-toothed tiger but not related to modern tigers — stood just over 3 feet, was just shy of 6 feet long and could weigh over 600 pounds. Its jaws could open 130 degrees (twice that of modern cats), the better to reveal its 7-inch canines. These serrated, slender teeth could be fragile and were less suited for crushing bones than they were for puncturing and slicing prey (bison, ground sloths, horses, camels and even young mammoths and mastodons).



Pick your prehistoric pachyderm

To see an elephant in the Chesapeake Bay watershed today, visit a zoo. During the last Ice Age, though, you merely had to look around. The region was home to two species of elephant-like mammals: woolly mammoths (a molar was found near the prehistoric Potomac River) and mastodons (a skull was found near the Hampton Roads Bridge Tunnel). Can you tell them apart? Answers are on page 32.

1. Which one was about the size of today's African elephant, weighed 4-8 tons and grew 14 feet tall?
2. Which one was 8-10 feet tall and weighed 4-6 tons?
3. Which one is more closely related to modern elephants?
4. Which one was part of a separate but now extinct evolutionary line that branched out from the line that would become modern elephants?
5. Which one's teeth had nipple-shaped bumps that crushed and chewed woody vegetation? (The shape of its teeth gave the animal its name, derived from "breast tooth" in ancient Greek.)
6. Which one's teeth were flattish parallel rows of low ridges used to graze and grind tough grasses?
7. Which one had a high, domed skull as well as a lump on its back? Scientists believe the lump stored fat, which provided energy during food shortages.
8. Which one had smaller ears to help prevent the loss of body heat?
9. Only the males of this species had tusks, which as a rule were straighter than those on the other species. Some specimens have been found with a smaller tusk growing from the chin.
10. Which one had curved, 15-foot tusks (that sometime crossed) and were used to dig for shrubs and grasses under snow?
11. Which one's name derives from "mole" and "burrower" in old Russian? (The first bones discovered were buried, leading to the belief that they belonged to a gigantic underground creature.)

Columnist Kathleen A. Gaskell served as the Bay Journal copy editor for more than 30 years until her retirement.



Mid-Atlantic Black history: A journey with a new map



Top photo: The 1810 Mifflin House in Wrightsville, PA, gave refuge to freedom seekers on the Underground Railroad as they prepared to cross the Susquehanna River. (Susquehanna National Heritage Area)

Inset photo: A historical marker tells the story of McAllister's Mill, a stone grist mill along Rock Creek in Gettysburg, PA, that sheltered escapees from slavery. (hmdb.org)

By Jeremy Cox

An effort to map sites important to African American history in the Chesapeake Bay region has uncovered dozens of previously undocumented examples and shed new light on many more — many with close ties to waterways and the Bay itself.

State preservation offices, the National Park Service's Chesapeake Gateways Network and the National Trust for Historic Preservation collaborated on the five-year, $400,000 project, known as the Chesapeake Mapping Initiative.

The effort centered on documenting places associated with influential Black people and important historical events involving African Americans — before those locations fade into history themselves.

"Even just finding one more historic site that we didn't know about before was a win," said Lawana Holland-More, director of grantee impact and engagement for the trust's African American Cultural Heritage Action Fund. "African American history is American history, and these places are our tangible contributions to it."

In many cases, researchers learned they were 5-10 years too late: An old structure had been demolished, for instance, or decay had taken its toll, or the human repositories of vital information were no longer alive.

Holland-Moore said she hopes that the project helps communities protect more sites important to the story of African Americans in the Chesapeake region.

"Being able to formally recognize these sites is so important to their preservation," she said.

The initiative focused on three Bay states: Maryland, Pennsylvania and Virginia. Because of budget and time constraints, team members narrowed their surveys to portions of each state's geography.

Many of the featured places and people are connected to the Chesapeake Bay and the region's rivers, but not all.

In Virginia, where researchers focused on African American watermen, the effort documented 97 sites overall. In Maryland, team members focused on Calvert, Kent and Somerset counties and identified 350 sites. In Pennsylvania, the effort added 52 places to the state's catalogue of historical sites, added information to more than 50 other sites and identified locations for potential archaeological research.

Here is a look at a few of those sites with ties to the woods and waterways of the Bay region.

Kings Landing Park (MD)

Along a gentle bend in the Patuxent River, Kings Landing Park in Maryland's Calvert County presents a full plate of recreational amenities: a 200-foot pier for fishing, horseback-riding trails, tree-shaded hiking paths, a swimming pool and a paddlecraft launch within easy reach of the sinuous Cocktown Creek.

The park also offers a window into how young African Americans interacted with nature during the Jim Crow era and beyond.

The 260-acre park was once the setting of a summertime camp for Black youth from Baltimore. The YMCA in the city's Druid Hill neighborhood purchased the property in 1946 and transformed it into Camp Mohawk. Campers enjoyed swimming, tennis, canoeing, archery, nights around the campfire and other outdoor activities.

The camp operated until 1980. Four years later, the state bought the property, and today the Calvert County Department of Parks & Recreation manages it with the Calvert Nature Society.



Samuel Outlaw opened a blacksmith shop in Onancock, VA, in 1927 that served local watermen and farmers for decades. (Blake McDonald/VA Department of Historic Resources)

Camp Mohawk's history can still be glimpsed at the park. Seven of the original cabins remain, and they have been restored to bring back their original atmosphere — including authentic camper-scrawled graffiti.

Outlaw blacksmith shop (VA)

For decades, Samuel D. Outlaw served as a vital cog in his community's economy. In the days before big box hardware stores, farmers, watermen and others turned to him when they needed metal tools for their work.

The small building stands on the outskirts of Onancock, VA, a quaint town on the state's Eastern Shore. Outlaw opened his blacksmith shop there in 1927 and ran a successful operation for more than 60 years.

Through the Chesapeake Mapping Initiative's efforts, the site was added to the National Register of Historic Places in 2023.

"Unlike many blacksmiths who learned their trade as apprentices and journeymen, Outlaw attended the four-year blacksmithing program at the Hampton Normal and Agricultural Institute's Armstrong-Slater Memorial Trade School," notes the site's National Register application.

Outlaw used a forge, cast-iron vessels, vises and planers to fabricate metal tools and parts. He contributed to the region's seafood industry by supplying and repairing crab dredges, clam rakes, oyster tongs, rudder shafts and other items.

Outlaw scaled back operations in 1972 but continued repairing hand tools until his retirement nearly 20 years later.

What distinguishes the privately owned site from many of its brethren in the database is that it's open to the public. A nonprofit operates the building as a museum, touting it as a "rare surviving example of an African American-owned industrial site."

Wednesday tours can be arranged by calling 757-656-3460.

Seagull Beach (MD)

An advertisement published in 1956 in the Washington Afro-American newspaper proclaimed to readers that this resort was "catering to the DISCRIMINATING YOU."

Was that a coded message? Racial discrimination had led to segregated beaches throughout the Bay region. In answer to "whites only" beaches, other locations sprang up that furnished Black audiences with shoreline outlets for fun, music and relaxation. Places like Seagull Beach.

Nestled along the Patuxent River near Prince Frederick, MD, Seagull Beach's heyday was from the late 1940s to the late 1960s. It drew African American families, church groups, schools and fraternal organizations from across the Mid-Atlantic region.

They were attracted by activities such as swimming in a pool, boating, dancing and fishing. They could buy picnic baskets filled with food or purchase meals at the clubhouse.

The site was also part of the "Chitlin Circuit," a network of venues that showcased Black talent during the Jim Crow era. James Brown and Ray Charles were among the acts that performed there.

Michael Kent, a local historian and former president of the Calvert County NAACP, contributed a report to the mapping initiative. He included Seagull Beach, he wrote, to spark memories and renew interest in that chapter of history.

"Having oral histories attached to various places may hopefully inspire younger generations to preserve certain parts of property that relate to local oral history," Kent wrote.

Seagull Beach and most of the surrounding area are now mostly given over to suburban homes and gated homesteads. But public access is afforded just slightly upriver at the Hallowing Point Boat Ramp and Beach at 6904 Hallowing Lane in Prince Frederick.

Available activities include boating, kayaking/canoeing and fishing along the beach.

McAllister's Mill (PA)

McAllister's Mill is memorialized by a historical marker in a parking lot outside a defunct miniature golf course just south of Gettysburg, PA. The mill site itself is located on private land about a quarter-mile away on Rock Creek, a Monocacy River tributary.

But it is sometimes open for guided tours through the Historic Gettysburg Adams County Preservation Society. Ruins are all that remain of the 1700s-era stone grist mill that provided shelter to hundreds of freedom seekers along the Underground Railroad, the famous network of routes, residences and supporters that aided people escaping slavery.

Situated only six miles north of the Mason-Dixon Line, McAllister's Mill was often the first taste of freedom for those escaping bondage. In 1836 the mill also hosted a significant gathering of abolitionists, during which the group agreed to publish the anti-slavery writings of Thaddeus Stevens, who would become one of the top abolitionist voices in Congress.

For information about tours, call 717-659-8827.

Mifflin House (PA)

A developer once proposed building a warehouse on this 87-acre farmstead overlooking the Susquehanna River in York County. The plan alarmed preservationists because the property was both a stop on the Underground Railroad and a Civil War battle site.

In 2019, the developer agreed to give them two years to raise the $5.25 million purchase price. The Conservation Fund put up the money in 2022 and held onto the property until it could be bought by the Susquehanna National Heritage Area.

The site, located in Wrightsville, includes a 225-year-old stone farmhouse, historic barns and fields. It is now being repurposed into the headquarters and visitors center for the heritage area, which was created by Congress in 2017 to promote the region's history and attract visitors.

During the first half of the 1800s, the farm served as a safe house on the Underground Railroad. Dozens of freedom seekers are thought to have found refuge at the site, near what was then the only bridge across the Susquehanna between Harrisburg and Port Deposit, MD.

And in 1863, about a week before the Battle of Gettysburg, the farm fields and surrounding woods became enmeshed in a skirmish in which 1,500 Union soldiers, including freed Black men, held off 1,800 Confederate attackers.

In May, the site opened for the first time to the public, albeit on a limited basis. ■



Seven cabins have been restored at Kings Landing State Park in Maryland, offering a glimpse of the site's past as a summer camp for Black youth from 1946 to 1980. (F. Delventhal/CC BY 2.0)

Here comes the sun (and wind) and there's no stopping it



By Tom Horton



The sun rises over the Chesapeake Bay. (Dave Harp)

Maybe the weather, soggy and leaden, was prophetic that May morning nearly 50 years ago.

The *Baltimore Sun* had dispatched me to cover the first national Sun Day from atop Maine's Cadillac Mountain, where the continental U.S. first spins into light.

Sun Day was designated by President Jimmy Carter to promote a switch to solar and wind energy. "Nobody can embargo sunlight, no cartel controls the sun [and] it will not pollute," Carter told a rained-soaked crowd in Golden, CO.

Carter was so right, but a couple of years later President Ronald Reagan had stripped his predecessor's solar hot water panels from the White House.

In hindsight, economics and technology back then cut mercilessly against a significant turn toward renewable energy. Nor was fossil-fueled climate change yet alarming.

That's all changed now, to the point that advances in solar and wind and battery storage make President Trump's "drill baby, drill" as unlikely to succeed as Carter's sunnier ambition back in 1978.

Just in the last few years, energy from above has emerged as a universal winner over energies from the depths, cheaper and more efficient across the board, and the best answer to climate change. Solar and wind are now on pace to supply more than half the world's total energy needs by the 2040s. A couple of our states, blue California and red Texas, are among the world leaders in deployment of these renewable energy sources.

"[It has] nothing to do with politics. It's the economy, plain and simple … the price flip [favoring renewables] is epochal, the fastest energy transition in history."

So said noted author and solar activist, Bill McKibben, at a recent session in the District of Columbia promoting his latest book, *Here Comes the Sun.*

The book is as inspiring as the most popular Beatles song, whence came its title, but also cautionary. While there's little doubt renewable energy will win out, McKibben says, it's going to be "on the bleeding edge of possible" to deploy it fast enough to cut the world's carbon dioxide emissions in half by 2030 or so.

That's what the best science says is needed to avoid severe impacts from climate change.

"Before the decade is out, we have to break the back of the fossil fuel system," he writes. "[We] have to land the sun on Earth."

That's going to take less quibbling among environmentalists than many might like about the inevitably dirty mining of lithium for batteries. (Eventually, lithium can all be recycled.)

And then there are solar panels covering fertile farmland, a prickly issue around the Chesapeake Bay watershed and other regions. McKibben notes that we already put nearly half the nation's corn in our gas tanks, a disastrous, politically driven policy that meets just 3% of our energy needs.

The same acreage in solar panels would meet more than 100% of energy needs, he says.

And China? Well, with its commanding lead in production of solar equipment, it's likely to be "the Saudi Arabia of sun," McKibben writes.

But that won't necessarily give the Chinese the same outsize influence as that of present-day Saudi Arabia in a petrochemical world. Indeed, the most interesting and hopeful part of what McKibben has to say is how moving toward sun and wind power will be more equitable for humanity.

That's because you can't own the sun, as you can underground oil and gas and coal. There will be no Exxon or Koch brothers of sunlight, he argues.

Here's one of his examples: Currently, 40% of the Earth's ship traffic moves oil and gas and coal across oceans. "The sun does that automatically as it moves horizon to horizon."

Solar lends itself to decentralized energy. Rural folk in Pakistan have in the last few years hugely cut dependence on diesel fuel by simply laying out grids of cheap solar panels from China across fields, relying on YouTube to learn how to wire them up.

Europeans have deployed millions of "balcony" solar panels, hung from the sides of houses and plugged into standard outlets (only Utah currently permits this in the U.S.).

This echoes Carter in 1978: "No cartel controls the sun." Indeed, listen to McKibben's answer to the question he hears most often — why doesn't Big Oil just buy up and transform itself to Big Solar? "Basically," he says, "they don't because there isn't as much profit to them."

That also means, he says, that free markets alone won't drive renewable energies fast enough. Government subsidies will be needed.

The pushback on renewable energy from fossil fuel industries, he writes, is only partly about money. It is about control. Solar, he contends, is "anti-fascist."

McKibben agrees with the environmental mainstream that rooftops and parking lots should be priority locations for solar panels. That approach is about four times cheaper to do in Europe, he says, mainly because they've streamlined building codes and regulations.

Nuclear power, he thinks, can play a role in providing energy because it emits no carbon dioxide, but the years it takes to develop a new plant (or a new oil or gas field, for that matter) makes it less promising in the near term.

"You can build a solar farm in weeks," he says. Clearly, we must build many now.

McKibben reminds us of a question asked by philosopher Friedrich Nietzsche in his 1882 *Parable of a Madman*, written about a century into the fossil fuel era: "What were we doing when we unchained this Earth from its sun?"

The parable is more remembered for its conclusion: "God is dead." ■

Tom Horton has written about the Chesapeake Bay for more than 40 years, including eight books. He is a professor emeritus at Salisbury University and lives in Salisbury, MD.

The Potomac made me an Olympian. Help me return the favor.

By Aquil Abdullah

I became the first African American man to represent the United States in rowing at the Olympics because of the Potomac River. Through long humid summers and cold winter evenings, I trained on this water.

Rowing past the Kennedy Center, under Memorial Bridge and by Reagan National Airport, I felt the river calling me to give more, even when I doubted there was more to give.

Now the river needs the same from all of us.

Back in November, the Potomac got another "B" on its report card from the Potomac Conservancy. Our river still isn't reliably safe for swimming or eating its fish. Polluted runoff, worsened by heavier rains from climate change and more hard surfaces from construction, washes in fertilizers, oil and trash faster than natural systems can cope.

Five million people drink this water. The same river where I flipped my boat as a novice rower, the same river where I trained for the Olympics — that's the river flowing through our taps. I *am* the Potomac River (60% of me, anyway). If you live in the District of Columbia area, you are too.

Not only does the river nourish our bodies, it's also the lifeblood of our community. When people can fully use their river, entire cities transform. Property values rise. Health improves. Communities cut off from the waterfront reconnect. Tourism expands. Rivers become assets that unite cities rather than risks to be avoided.

Many Potomac lovers hoped for relief from DC's $2.7 billion Clean Rivers Project. According to Dr. Moussa Wone, chief engineer at DC Water, this project has cut 98% of sewage overflows into the Anacostia River that feeds the Potomac, capturing over 19 billion gallons so far.

But the Anacostia represents just 1% of the Potomac watershed, which is nearly the size of Switzerland and spans four states plus DC. No single entity can fix this alone.

The Potomac Conservancy is working to accelerate forest restoration and protect land in the watershed through its Clean Water, Healthy Communities campaign. When forests disappear, we lose our defense against urban runoff. The conservancy's goal of raising $8 million through this campaign will help strengthen these natural defenses.



A rowing crew glides upstream on the Potomac River with Arlington, VA, in the background. (Geoffrey Dudgeon/CC BY-NC 2.0)

But making the river swimmable and fishable again takes more than utilities and nonprofits. It takes businesses and property owners protecting streamside forests on their land. It takes local governments strengthening land use protections. It takes state legislatures funding such conservation. It takes individuals planting trees, restoring shorelines and demanding accountability.

A vegetated buffer strip just 50 feet wide along streambanks can reduce polluted runoff by 75%, according to Mike Nardolilli, head of the Interstate Commission on the Potomac River Basin.

We've seen what's possible. On the Chicago River — once so foul that it wasn't uncommon to see methane from rotting waste bubbling to the surface — 300 people went swimming this past September. They were celebrating a river that is swimmable for the first time in 98 years. Today, riverfront property in Chicago is prime real estate. Cafes line the banks. Families can check a water quality app before going in.

The Willamette River in Portland, the Charles in Boston, the Patapsco in Baltimore, the James in Richmond. All once polluted too, they are now hosting their own swimming events and witnessing riverfront economic development. These aren't dreams — they're blueprints.

The difference between those rivers and the Potomac? The cities those rivers flow through decided to finish the work. They built the infrastructure. They changed the laws. They made it possible for a kid to jump into the river without getting sick.

That's what I want for the Potomac. Not someday. This decade.

In December, the Chesapeake Bay Program's Executive Council, composed mostly of the governors of the six Bay watershed states and the mayor of the District of Columbia, met in Baltimore to approve a revised Chesapeake Bay Agreement that sets a new 2040 restoration deadline. Now that this commitment is on the books, I'm calling on them to follow through — to renew their dedication not just to the Bay, but to tributaries like the Potomac, which provides 25% of the Bay's fresh water. And not just dedication to benchmarks, but to the people who drink from, fish from and want to swim in these waters again.

We can protect streamside forests in the headwaters — the source of our drinking water. We can advocate for water protection laws. We can restore shorelines. We can hold polluters accountable and support policies that prioritize community health.

Most importantly, we can act like people who understand that we *are* the river.

There's a Hawaiian phrase that means a lot to me: *Malama Aina. Malama Kai*. It says, "Care for the land. Care for the water."

The Potomac River gave me a chance to become an Olympian. After December's meeting, Bay state governors can give our river and everyone who depends on it a fighting chance by standing firmly behind the commitments they just renewed. ■

2004 Olympic rower Aquil Abdullah was born and raised in the District of Columbia and continues to train on and advocate for the Potomac River.

SHARE YOUR THOUGHTS

The *Bay Journal* welcomes comments on environmental issues in the Chesapeake Bay region.

Letters to the editor should be 300 words or less. Submit your letter online at *bayjournal.com* by following a link in the Opinion section or use the email address below.

Opinion columns are typically a maximum of 900 words and must be arranged in advance. Deadlines and space availability vary. Text may be edited for clarity or length or to conform to *Bay Journal* style rules.

Contact T. F. Sayles at 410-746-0519 or *tsayles@bayjournal.com*.



A trio of ring-billed gulls hunker down during a snow storm. (Dave Harp)

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There's no greater sign of the *Bay Journal*'s success than compliments and donations from readers like you. Your gifts make our work possible, from coverage of the Bay and its rivers to wildlife, forest health, growth and more. We are grateful for your donations. *Please continue to support our success!*

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Portsmouth, VA

Lawrence Workman
Jonestown, PA

Charles Wright
Virginia Beach, VA

Mary Ellen Young
Newport News, VA

Louise Zeitlin
Annapolis, MD

Dorothy Zientak
Stevensville, MD

Thomas Zinn
Lusby, MD

BULLETIN BOARD

EVENTS / PROGRAMS

WATERSHEDWIDE

GreenScapes Online Symposium
9 am–4 pm, Feb. 13. This online lecture series explores landscape sustainability and the environment, bringing together experts in horticulture, ecology and design to share solutions that work — from small gardens to large public landscapes. Gain tools for plant selection, soil preparation, habitat design. Ages 18+. $50. Registration: montgomeryparks.org (select "Events").

PENNSYLVANIA

Ecological Gardener Training Program
Four months of weekly classes beginning Feb. 3; Horn Farm, York. This program focuses on rebuilding biodiversity in human-managed and human-impacted spaces. Participants dig deep into native plants, plant communities and stewardship of biodiverse native habitat gardens. For those exploring a career in ecological landscaping or home-scale lawn conversion, community rain garden installation, wildlands restoration. Info: hornfarmcenter.org (select "Training").

VIRGINIA

Amphibian and Reptile Monitoring
7-8:30 pm, Jan. 22; Rust Library, Leesburg. Join Loudoun Wildlife Conservancy for an introductory look at local amphibians and reptiles, how residents can help protect their habitats and learn about related conservancy programs that help these fragile species. Registration: loudounwildlife.org (select "Events").

Celebrating Aldo Leopold's Birthday
1–3 pm, Jan. 11; Leopold's Preserve, Broad Run. Join Bull Run Mountains Conservancy in celebrating the 139th birthday of conservationist Aldo Leopold. A guided hike will be followed by an indoor film screening just a few minutes' drive away. Free. Registration: leopoldspreserve.com (select "Calendar").

Young Birders Walk
8 am, Jan. 25; Gilbert's Corner Regional Park, Aldie. With a combination of scrub, brush and meadow, this park is a birding hotspot. Note: This is exclusively for young birders ages 10-18; a parent/guardian is welcome. Register: loudounwildlife.org (select "Events").

Winter Lecture: Old-Growth Forests
10–11 am, Feb. 4; Bull Run Mountains Conservancy, Broad Run. The mid-Atlantic regional manager for the Old-Growth Forest Network will discuss the ecological qualities, benefits and threats to old-growth forests and share examples in the mid-Atlantic. Registration: loudounwildlife.org (select "Events").

Mapping a Conservation Vision for Northern Virginia
10–11 am, Mar. 4; Bull Run Mountains Conservancy, Broad Run. Matt Gerhart, conservation director of the Northern Virginia Conservation Trust, will discuss the ways that the trust has used GIS analysis to prioritize their conservation efforts. Registration: loudounwildlife.org (select "Events").

Stream-to-Sea Stroll
10 am–12:00 pm, Jan. 24; York River State Park, Williamsburg. Discover life in four aquatic ecosystems as you hike to a small woodland and marsh stream, freshwater pond and brackish/saltwater river. Net and identify different crustaceans and fish, and take note of plant life. Standard parking or admission fee applies. All ages. Info: dcr.virginia.gov/state-parks/events (search event date).

Waterfowl Walk/Watch
10 am–12 pm, Jan. 31; York River State Park, Williamsburg. Enjoy a winter birding adventure to discover duck species and habitats. Look for waterfowl from a shallow pond, tidal creek and the river. Bald eagles also frequent the area. Standard parking or admission fee applies. Open to all ages. Info: dcr.virginia.gov/state-parks/events (search event date).

Wood Duck Nest Box Building/Youth Event
12–2 pm, March 7; Leopold's Preserve, Broad Run. Join Prince William Ducks Unlimited to build and install wood duck boxes. Pizza and drink provided. Waterproof boots/waders and extra dry clothes recommended. Youth must be accompanied by an adult. Free. Registration: leopoldspreserve.com (select "Calendar").

MARYLAND

Winter Tree ID Workshop
10 am–12 pm; Jan. 31; Glen Arboretum, Towson. Dr. Vanessa Beauchamp of Towson University will discuss bark texture, leaf buds, and leaf and bundle scars that vary between species. Peek into the pith of a twig to see how its chambers help with ID. Using a dichotomous winter tree key, learn the parts of the branch and their roles. After the hike, lab stations will be available to practice ID of samples. $25. Registration: marylandnature.org (select "Get Involved/Calendar of Events").

Eastern Neck Wildlife Walks
Jan. 10, Feb. 7, March 7; Eastern Neck National Wildlife Refuge, Rock Hall. Presented by the Friends of Eastern Neck. Free. Ages 12+ (no pets). Info: fws.gov/refuge/eastern-neck (select "Winter Walks").

Winter Greens
10 am–1 pm, Feb. 7; Gatewood Preserve, Prince Frederick. Explore the meadows and forests in search of the ferns, herbaceous plants and trees that are green in winter. Ages 16+. Free. Registration: calvertparks.org (select "Calendar").

Hiking and Hops
11:30 am–3 pm, Jan. 10; Palmer State Park, Bel Air. Join Sierra Club's Greater Baltimore Group for a 3.4 mile hike. Trails are well maintained with some hills. Learn about morel habitat, see native persimmon and hornbeam trees, see industrial ruins with dense quartz deposits. Afterwards, celebrate your hike at a local brewery. Registration: sierraclub.org/Maryland (select "Calendar").

Sea Kayaking 101
9 am–3 pm, Feb. 28; Cult Classic Brewery, Stevensville. This annual event presented by the Chesapeake Paddlers Association highlights kayaking safety, guiding participants through everything from the purchase of a sea kayak to destinations in the Bay region and beyond. $40. Lunch, snacks, beverages provided. Registration: eventbee.com/v/2026sk101#/tickets.

Calvert Parks Hiking Book Club
10 am–12 pm, Jan. 31; Battle Creek Cypress Swamp Park, Prince Frederick. Discuss *The Hidden Life of Trees: What They Feel, How They Communicate: Discoveries from a Secret World* by Peter Wohlleben, then take a guided hike. Ages 18+. $8/pp. Info: calvertparks.org (select "Calendar of Events").

Winter Lecture Series: Ospreys on the Patuxent
7–8:30 pm, Feb. 26; Annapolis Maritime Museum, Annapolis. Avian ecologist Alex Pellegrini explores the fascinating world of the osprey. Registration: amaritime.org (select "Events").

Maple Magic Celebration
1–4 pm, Feb. 21; Kings Landing Park, Huntingtown. Join a hike to tapped maple trees, watch sap being boiled into syrup, enjoy a toasted marshmallow at the campfire and participate in fun learning activities. This is a self-guided, drop-in event. Guided hikes to the sugar bush at 1:15, 2:15, 3:15 pm. All ages, adult supervision required. $8/family. Registration: calvertparks.org (select "Calendar").

Turtles of Maryland Workshop
2–4:30 pm; Feb. 14; Natural History Society of MD, Baltimore. Twelve species of turtles in Maryland are threatened by habitat loss and nine are declining. Learn how to tell turtles apart and the dangers they face. See live turtles! Children 10+ welcome w/adult. $20/pp. Registration: marylandnature.org (select "Get Involved/Calendar of Events").

Corvid Conundrum
1–2:30 pm, Jan. 24; Howard County Conservancy, Elkridge. Learn to spot the difference between crows and ravens and get an in-depth look. Then take a one-mile hike in Patapsco Valley State Park to try out new ID skills. Recommended for adults. $5/pp. Registration: howardnature.org (select "Events").

Submission Guidelines

SUBMISSIONS
Because of space limitations, the ***Bay Journal*** is not always able to print every submission. Priority goes to events or programs that most closely relate to the environmental health and resources of the Bay region.

DEADLINES
The ***Bulletin Board*** contains events that take place (or have registration deadlines) on or after the 11th of the month in which the item is published through the 11th of the next issue. Deadlines are posted at least two months in advance.
March issue: February 11
April issue: March 11

FORMAT
Submissions to ***Bulletin Board*** must be sent as a Word or Pages document or as text in an e-mail. Other formats, including pdfs, Mailchimp or Constant Contact, ***will only be considered if space allows*** and type can be easily extracted.

CONTENT
You must include the title, time, date and place of the event or program, and a phone number (with area code) or e-mail address of a contact person. State if the program is free or has a fee; has an age requirement or other restrictions; or has a registration deadline or welcomes drop-ins.

CONTACT
Email your submission to bboard@bayjournal.com. Items sent to other addresses are not always forwarded before the deadline.

Answers to CHESAPEAKE CHALLENGE on page 23

1. Woolly mammoth
2. Mastodon
3. Woolly mammoth
4. Mastodon
5. Mastodon
6. Woolly mammoth
7. Woolly mammoth
8. Woolly mammoth
9. Mastodon
10. Woolly mammoth
11. Woolly mammoth

BULLETIN BOARD

Patuxent Research Refuge, National Wildlife Visitor Center

Patuxent Research Refuge offers free public events and activities on its South Tract in Laurel. No preregistration required except where noted. List special accommodation needs when registering. Registration and info: 301-497-5772 or fws.gov/refuge/patuxent-research/events.

- *Kids Discovery Center:* 10 am–12 pm (35-min. time slots, on hour) Wed. thru Sat. Ages 3-10 w/adult. Crafts, puzzles, games, nature exploration. Jan.- River Otters; Feb.- Field Mice and Voles; Mar.- Frogs and Toads. To register large groups, email michael_cangelosi@fws.gov.
- *Hollingsworth Wildlife Art Gallery:* 10 am-4 pm Wed.-Sat. Jan.- Wildlife photographer David Jonathan Cohen's new exhibit, "In the Galapagos Islands," with a print-sale fundraiser for Friends of Patuxent. Sally Lightfoot crabs, birds found only in the Galapagos. Reception: 2-4 pm, Jan. 24. Feb. - William Michaels, marine biologist/photographer: wildlife/habitats. Mar. - Fine Artist Amanda Spaid of Greenbelt exhibits her paintings.
- *"Wingspan" Game Days:* 10 am-1 pm; Jan. 9, 24; Feb. 13, 28; Mar. 13, 28. Ages 12+. No experience needed. Play the award-winning board game. Sign in at front desk.
- *Family Fun:* Staffed: 10 am-1 pm, Jan. 16/17, Feb. 27/28, Mar. 20/21. Jan./Feb.- Winter Wildlife. March through May: Reduce/Reuse/Recycle. Independent activities (drop in): 10 am-4 pm, Wed.-Sat. All ages.

VOLUNTEER OPPORTUNITIES

WATERSHEDWIDE

Become a water quality monitor

Become a certified Save Our Streams water quality monitor through the Izaak Walton League of America and collect macroinvertebrates to determine the health of your local stream. Visit iwla.org/saveourstreams to get started. Info: vasos@iwla.org or 301-548-0150.

Potomac River watershed cleanups

Learn about shoreline cleanups in the Potomac River watershed. Info: fergusonfoundation.org (select "Cleanups").

PENNSYLVANIA

Middle Susquehanna volunteers

The Middle Susquehanna Riverkeeper needs volunteers. Monitor local waterways and provide monthly online updates: search "Susquehanna sentinels." Water sampling: search "Susquehanna Riverkeeper survey." Individuals, families, scouts, church groups welcome. Info: MiddleSusquehannaRiverkeeper.org/watershed-opportunities.

Nixon County Park

Volunteer at Nixon Park in Jacobus. Front desk greeter: Ages 18+ can work alone, families can work as a team. Habitat Action Team: Volunteers locate, map, monitor, eradicate invasive species; install native plants, monitor hiking trails. Info: NixonCountyPark@YorkCountyPA.gov,717-428-1961 or supportyourparks.org (select "Volunteer").

VIRGINIA

Virginia Living Museum

Virginia Living Museum in Newport News needs volunteers ages 11+ (11–14 w/adult) to work alongside staff. Educate guests, propagate native plants, install exhibits. Info: thevlm.org/support/volunteer.

Cleanup Support & Supplies

The Prince William Soil & Water Conservation District in Manassas provides supplies, support for stream cleanups. Groups receive an Adopt-a-Stream sign recognizing their efforts. For info/to adopt a stream/get a proposed site: waterquality@pwswcd.org.

Friends of Dragon Run

Dragon Run is an all-volunteer land trust dedicated to the preservation, protection and wise use of the Dragon Run watershed. Volunteer opportunities include assisting with kayak trips and hikes, property monitoring, citizen science surveys, maintenance, educational and community engagement projects. Info: vicepresidentdragonrun@gmail.com or DragonRun.org.

Invasive Plant Removal

Dyke Marsh, Alexandria. Friends of Dyke Marsh conducts invasive plant removal year-round in Dyke Marsh, a freshwater tidal marsh one mile south of Alexandria. Volunteers are supplied with tools and gloves and are taught how to recognize invasive plants. Info: fodm.org/volunteer.

MARYLAND

Chesapeake Bay Environmental Center

Help with educational programs; guide kayak trips and hikes; staff the front desk; maintain trails, landscapes, pollinator garden; feed or handle captive birds of prey; maintain birds' living quarters; monitor wood duck boxes; join wildlife initiatives. Participate in fundraising, website development, writing for newsletters, events, developing photo archives, supporting office staff. Info: bayrestoration.org/volunteer.

Maryland State Parks

Search for volunteer opportunities in state parks at ec.samaritan.com/custom/1528 (select "Search Opportunities").

Patapsco Valley State Park

Opportunities include daily operations, leading hikes and nature crafts, mounted patrols, trail maintenance, photographers, nature center docents, graphic designers, marketing specialists, artists, carpenters, plumbers, stone masons, seamstresses. Info: 410-461-5005 or dnr.maryland.gov/publiclands/Pages/central/patapsco.aspx (select "Volunteer").

Smithsonian Environmental Research Center

SERC in Edgewater is recruiting volunteers for Chesapeake Water Watch, Environmental Archaeology, the SERC Lab, Project Owlnet, Science and Faith, Chesapeake Otter Alliance. Info: serc.si.edu/participatory-science/projects.

National Wildlife Refuge at Patuxent

Opportunities include Kids' Discovery Center help, volunteering at the Bookstore & Nature Shop, events, hospitality, public conservation-education programs. Call 301-497-5772.

Lower Shore Land Trust

The Lower Shore Land Trust in Snow Hill needs help with garden cleanups, administrative support, beehive docents, native plant sales, pollinator garden tour, community events. Info: 410-632-0090, fdeuter@lowershorelandtrust.org.

RESOURCES

WATERSHEDWIDE RESOURCE

How to Create Wildlife Habitat Guide

Nature's Action Guide: How to Support Diversity and Your Local Ecosystem, a new book by Sarah F. Jayne, provides gardeners with 15 actions anyone can take to create or restore ecologically functioning wildlife habitat in a yard or other space. Covers how to support wildlife food webs, support pollinators, protect and manage the watershed, build soil and sequester carbon. Info: mgnv.org/book-review.

Become a Certified Bay-Wise Homeowner

Learn how to maintain your landscape to preserve the health of local waterways, the Chesapeake Bay and our environment. By changing a few simple practices, like recycling on site, capturing and using water where it falls, planting natives and shrinking your lawn footprint, you can earn certification from the University of Maryland Extension's Bay Wise Program. Info: go.umd.edu/get-bay-wise.

Clean Energy Home Toolkit

Guides and resources for weatherizing your home, cutting energy bills, buying an electric car, and information on rebates and incentives. Info: environmentamerica.org/pennsylvania/center/resources/clean-energy-home-toolkit.

MARYLAND

New Maryland Native Plant Guide

The Maryland Native Plant Society has a new guide, *Native Plant Guide Piedmont Region*. The 180-page book includes information on howto support gardening success, photos and descriptions of over 300 featured plants, site-specific plant lists, aquatic plant recommendations, managing invasive species, an index of plants native to the Maryland Piedmont and more. Available to download (free) or purchase. Info: mdflora.org/piedmont.

Maryland Outdoors App

The Maryland DNR's free "MD Outdoors" app, (replacing the AccessDNR app) includes: maps, directions and amenities of state parks, trails, wildlife management areas, boat launches, water access sites; hunting season and harvest reporting; location sunrise/sunset times; tide time tables; fish and shellfish identifier; state fish records; hunting, fishing and boating regs. Download: dnr.maryland.gov/Pages/dnrapp.aspx.

University of Maryland Extension Home & Garden Info Center

Submit your questions to a team of Maryland certified professional horticulturists, Extension faculty and master gardeners; view gardening resources; connect with the master gardener program for local classes and other in-person learning opportunities. Info: extension.umd.edu (select "Programs," then "Home & Garden Information Center").

Bay Safety Hotline

Call the Maryland Department of Natural Resources' Chesapeake Bay Safety and Environmental Hotline at 877-224-7229 to report fish kills, algal blooms; floating debris posing a navigational hazard; illegal fishing activity; public sewer leak or overflow; oil or hazardous material spill; critical area or wetlands violations.

VIRGINIA

Living Shoreline Cost Share

The James River Living Shoreline Cost Share Program is administered by the James River Association and is available to homeowners whose property is within the James River watershed. Info and links to programs elsewhere: jamesrivershorelines.org/apply.html.

Virginia Public Lands Recreation Search

With over 1,000 wild places to explore, Explore the Wild is your online tool to find the best public lands in Virginia to hunt, fish, boat, paddle, view wildlife, hike and go primitive camping. Info: dwr.virginia.gov/explore.

Forging ahead with a new plan and renewed hope for the Bay



By Kate Fritz

Hope — it's only a four-letter word, but it conjures up big things. And when I think of the needs of our Chesapeake Bay watershed, there are a lot of big things that keep me hopeful.

Hope is the desire for something to happen. We employ hope as a practice of identifying where we are, where we want to be and the steps needed to get there. Hope is the start of building resilience. The hope of individuals and organizations alike helps fuel this resilience. I see hope as an important characteristic of progress; it's a key component that drives resilience by motivating individuals to persevere through adversity. Resilience has many synonyms: toughness, strength, durability, give, tenacity, fortitude and grit. It is hope that fuels resilience and motivates our movement to keep going, because we know our work is for the long haul.

For over five decades, scientists, policy wonks, elected officials, community champions and everyone in between have been focused on solving the problems that challenge the Chesapeake Bay. Ever since U.S. Sen. Mac Mathias of Maryland chartered the first scientific study on what ails our waters in 1975, our understanding of the Bay's challenges has only deepened. And in those 50-plus years our collective network of practitioners, problem solvers and watershed champions has grown exponentially. As our knowledge has grown, so has our hope for achieving our goals.

While I've only been involved in this work for the last 23 years, I have to believe that so much of our progress was built on the hope of individuals before me. Since the start of Chesapeake restoration many decades ago, our movement has built resilience in both our ecosystems and human systems. It is the collective hope of our movement that has driven some incredible outcomes, benefiting our Chesapeake communities and their waterways.



Attendees of the Alliance for the Chesapeake Bay's HBCU/MSI Summit in September 2025 enjoy networking with like-minded conservationists. (Courtesy of the Alliance for the Chesapeake Bay)

Many things keep me up at night, but there are just as many that keep me jumping out of bed in the morning — things happening that point us in the direction of hope for our rivers and streams. Things that remind us that our incredible watershed is truly resilient in the face of present and emerging challenges.

Future generations getting involved today

Hope can motivate people to action in their everyday lives. In September, the Alliance for the Chesapeake Bay held its third annual HBCU/MSI Summit (Historically Black Colleges and Universities and Minority Serving Institutions). We hosted about 90 students and 10 faculty members from universities in Maryland and the District of Columbia. These students came together as a community to further their professional development and connect through their love for the environment.

Pursuing degrees in an array of academic disciplines, including biology, environmental science, business and creative studies, these students had energy and enthusiasm that was contagious. "This was an enriching and needed experience for me," one student said. "I had an incredible time being surrounded by like-minded people who provided me with so much insight."

These students and faculty members left the weekend with brand-new friends, a renewed hope for the Bay's future, and the excitement to dig into this work. Our future generation of Chesapeake champions is already hard at work.



Laura McCann, a volunteer with the Nanticoke Watershed Alliance's Creekwatchers program, enters data from water samples taken from Deep Creek in Seaford, DE. The Nanticoke group was one of the first organizations to join the Chesapeake Monitoring Cooperative, now in its 10th year. (Charlie Nick/Chesapeake Bay Program)

Four decades of community science

Hopes and dreams can drive long-term efforts. This year, the water quality monitoring program, RiverTrends, is celebrating its 40th anniversary, coinciding with the 10th anniversary of the Chesapeake Monitoring Cooperative. Both of these programs have helped train 800-plus volunteers to collect water quality data, which has resulted in over 1 million data points in one centralized hub, the Chesapeake Data Explorer. Coming from all seven Bay jurisdictions, this data helps inform educational efforts as well as policy decisions. The hard work and hopes of hundreds of individual volunteers have given us long-term data sets, helping monitor and assess our rivers and streams. This collective hope has enabled an all-volunteer effort to become a sustainable solution that gives agency to community members and a voice to our waterways through science.

A vision for the next 15 years

Hope needs regular attention in order to be renewed and sustained. In December 2025, the Chesapeake Executive Council approved the updated Chesapeake Watershed Agreement. This is the fourth update of the agreement since the original was signed in 1983. A multi-jurisdictional accord, it sets our sights on the progress we need to make between now and 2040. It sets a vision of "... building a future that is environmentally and economically sustainable, resilient and full of possibility — where everyone can enjoy and help conserve the natural beauty of the Bay and the lands and waters that surround it, today and for generations to come." The new agreement continues to focus on the long-term work needed in our watershed, and it is a blueprint for hope and resilience for the next generation working to restore our rivers and streams.

As we enter our fifth generation of progress towards cleaner rivers and streams in the Chesapeake region, we must keep hope and resilience in the forefront. We have so much success to build upon and so many reasons to remain hopeful for this watershed that 18 million of us call home. When we face the Chesapeake's challenges head-on, with hope in the forefront of our minds, there is little we can't achieve. A "hope" mindset will fuel our resilience because we must keep going.

After all, hope isn't just another four-letter word. ■

Kate Fritz is the chief executive officer for the Alliance for the Chesapeake Bay.

The long-tailed duck, a unique winter visitor from the north



By Alonso Abugattas

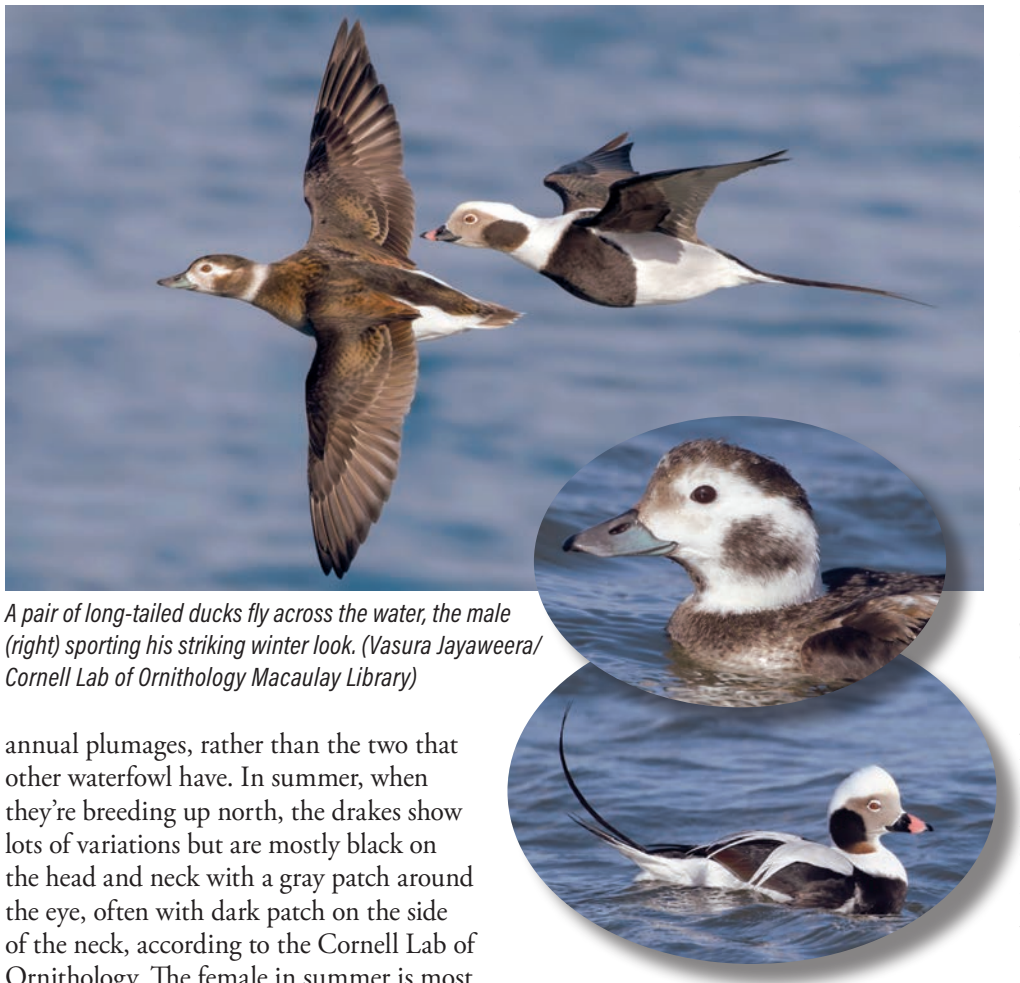
The long-tailed duck, like many other arctic-breeding waterfowl, is a Chesapeake Bay visitor you'll only see this time of year. The rest of the year they are found well north, on their circumpolar breeding grounds across the tundra and boreal freshwater wetlands of Russia, Alaska, Canada and the Nordic countries.

Belonging to the sea duck subgroup of diving ducks (as opposed to dabbling ducks), the long-tailed duck has many unique traits. For starters, it is the only species of the *Calangula* genus. Its full scientific name, *C. hyemalis*, roughly translates from Latin as "noise of winter" — no doubt because it is among the most vocal ducks. Male long-tails especially are known for their clucking, growling and what most refer to as yodeling. It's said that you will likely hear them before you see them.

In North America, *C. hyemalis* hasn't always been known as the long-tailed duck. In our continental neck of the woods, until just a few decades ago, it was usually called an oldsquaw — a term that all at once managed to offend women, elders and Native Americans. So, the U.S. and Canada fell in line with the rest of the English-speaking world and adopted the more physically descriptive term: long-tailed duck.

That name is quite fitting, at least for the males (drakes), which have two long black feathers that extend 4 or 5 inches beyond the main tail feathers — sometimes held out straight (when in flight, for instance) and sometimes curving jauntily skyward. And, speaking of style, the drake's non-breeding plumage (in winter, when we are likely to see them) is a striking and neatly blocked arrangement of blackish-brown, gray and white. The female is vaguely similar looking, but less striking and highly variable among individuals.

Speaking of appearances, adult long-tails are unique in that they have three distinct annual plumages, rather than the two that other waterfowl have. In summer, when they're breeding up north, the drakes show lots of variations but are mostly black on the head and neck with a gray patch around the eye, often with dark patch on the side of the neck, according to the Cornell Lab of Ornithology. The female in summer is most often just a lighter version of her winter look.



A pair of long-tailed ducks fly across the water, the male (right) sporting his striking winter look. (Vasura Jayaweera/ Cornell Lab of Ornithology Macaulay Library)

Top inset: A nonbreeding female in her winter plumage. (Kojo Baidoo/Cornell Lab of Ornithology Macaulay Library)

Bottom inset: A male long-tailed duck rests between dives off Barnegat Light in New Jersey. (Kojo Baidoo/Cornell Lab of Ornithology Macaulay Library)

In the fall, between breeding (basic) plumage and nonbreeding (alternate) plumage, both sexes have a "supplemental" plumage that varies so widely that it's difficult describe in simple terms. The male's head and neck become mostly white, according to Cornell, while the female's colors change only slightly.

Long-tails are the smallest of all sea ducks, with proportionally small bills and short necks. Adult males weigh between 2 and 2.5 pounds, while females range from 1.5 to 2 pounds. They have streamlined bodies, 15-23 inches long, and are very fast fliers — upwards of 50 mph!

Another thing that sets them apart from diving ducks and other sea ducks is their remarkable diving ability. They can stay underwater for a minute and a half and endure very cold water, making them the deepest divers of all ducks. Propelling themselves downward with their feet — and, unlike other ducks, also with their wings — they can dive as deep as 200 feet. That's far deeper than any other diving duck. And they spend most of their time underwater, 3-4 times as much as on the surface.

In winter they're diving mostly for crustaceans and mollusks, plus vegetation and the occasional finfish. In summer, their diet broadens to include insects and insect larva.

The long-tail's winter habitat is mostly offshore ocean waters but also deep freshwater bays and lakes. In winter, they are the most social of all sea ducks, at least with their own kind, arriving normally in November by migrating at night. Over water they have a distinctive low, twisting flight pattern, but they fly much higher when over land. Their winter territory stretches as far south as coastal North Carolina and sometimes farther. But there are also significant numbers that winter much farther north around the Great Lakes and Canada's Maritime Provinces — even on Hudson Bay and along the west coast of southern Greenland.

By May or June, they are back on the circumpolar breeding grounds, usually nesting in loose colonies and fairly close to freshwater. The hens choose the nesting sites, often returning to tried-and-true spots. A hen may stay with the same male for years, but the male does not assist with the nesting or raising the young.

The hen builds a bowl-like nest on the ground, using grass, leaves (especially from dwarf willow and birch) and moss. After the second egg is laid, she also lines it with her own down. She lays 5-11 eggs, incubating them for 24-29 days. Females use a distraction display, splashing water and spreading wings to draw predators away from their eggs or young.

The young fledge 35-40 days later but start feeding and taking shallow dives soon after hatching. The young may also "creche," which is when the young are pooled together in large groups with 3-4 females, often the older ones, taking care of them. As the females are molting and flightless during this time, they are normally on the water for safety. Males are also molting at this time and tend to congregate in large flocks, also on the water.

Survival odds are not great. Only about 30% of eggs hatch, and only 10% survive the first 30 days of life. Predators include arctic foxes, gulls, arctic jaegers, crows, snowy owls and peregrine falcons. Due to the short breeding season, long-tails rarely attempt a second brood.

Though not under great hunting pressure, because they're considered less than ideal table fare, other dangers exist. Entanglements in gill nets, oil pollution, lead exposure, climate change and overfishing of their food have all taken a toll, adding up to an estimated 50% decline in the last 50 years — and in Alaska as high as 80% since the late 1950s. Partners in Flight puts the total population at about 3.2 million individuals, qualifying the species as "vulnerable" on the "Red List" of threatened species compiled by the International Union for Conservation of Nature. ■

Alonso Abugattas, a storyteller and blogger known as the Capital Naturalist, is the natural resources manager for Arlington County (VA) Parks and Recreation. You can follow him on the Capital Naturalist Facebook page and read his blog at capitalnaturalist.blogspot.com.

Winter birds have cold weather survival 'down' pat



By Kathy Reshetiloff

It was barely dawn on a typical frigid January morning. I sipped my coffee, trying to decide what I'd need to fend off the cold today: sweater and windbreaker, fleece or down jacket. I watched the cardinals and chickadees at my feeder. The frosty morning air didn't seem to bother them at all. I decided on the down jacket.

Birds have developed remarkable adaptations to survive cold and severe weather. Look outside on a blustery winter day and you'll still see songbirds flitting at feeders and ducks swimming in icy creeks. Nearly a million waterfowl fly to the Chesapeake region from northern breeding grounds each year. The winters here suit them just fine.

Many birds, about 340 species, leave North America to winter in the tropical regions of Mexico, Central America, South America and the Caribbean — gracing us North Americans with their presence only in the warmer months. Many others, waterfowl in particular, spend only the winter months here and head to their boreal and arctic breeding grounds in the summer. Others are content to live hereabouts year-round, regardless of temperatures. But how do they survive the cold?

Birds, like all mammals, are warm-blooded, meaning they must maintain a constant body temperature as the temperature around them changes. To do this, they spend much of their time feeding so they can generate enough heat. It's a vicious cycle though: They must eat to keep warm so they can gather more food. And only birds that can switch from a summer diet of mostly insects to a largely vegetarian one (seeds, buds and winter berries) can survive the winters here. Some meat-eating birds, like hawks and owls, may also remain if enough prey is available.

One feature that sets birds apart from other animals is their feathers. The bodies of birds are covered with an outer layer of fairly stiff but flexible contour feathers and an underlayer of fluffy down feathers. The contour feathers provide protection against wind, rain and snow. The down feathers act as insulation.



Above: A white-throated sparrow perches on a branch at Virginia's Shenandoah National Park. (N. Lewis/National Park Service)

Left: A dark-eyed junco, often called a "snow bird," perches on a branch. (Vickie J. Anderson/ CC BY-SA 4.0)

Tightly knit together and overlapping, feathers protect the skin and hold a layer of air over the bird's body. Because birds control the position of their feathers through muscular movements, they are able to puff themselves up. By adjusting their feathers, they create and trap larger pockets of warm air near their skin, enhancing insulation.

Most birds have an oil gland located at the base of their tails. Secreted oil is rubbed over the feathers with their beaks or bills. This is known as preening, and it creates a shield that helps block wind and repel water. Ducks, geese and swans can survive in water that is close to freezing because the amount of oil in their feathers makes them waterproof. They also have a layer of subdermal fat, as do water birds, to keep them warm.



A male northern cardinal visits a snowy backyard. (Gene Ellison/CC BY-NC-ND 2.0)

Anyone who has gone outside on a cold, windy day without a hat knows that uncovered body parts lose heat quickly. The same is true for birds. But they can adjust to this in several ways. Often, birds will stand on one leg, tucking the other up among their feathers. Birds are also observed with their beaks tucked under their feathers. Smaller birds often drop on the ground to cover both legs with their fluffed-up bodies.

To minimize heat loss from legs, the arteries and veins in legs of many birds lie in contact with each other and function to retain heat. Arterial blood leaves a bird's core at body temperature while venous blood in the feet is cool. Heat is conducted from the warm arteries to the cool veins. Arterial blood reaching the feet is already cool, and venous blood reaching the core is already warm.

Waterfowl have fleshy feet with little blood circulation, so they are less sensitive to cold. Constriction of blood vessels reduces the amount of blood flow to the feet at low temperatures. Thus, the core temperature of a duck or gull standing on ice may be 104 degrees, but the temperature of their feet may be just above freezing.

All of this may seem of little importance as you bundle up in layers to face another wintry day. But just imagine how dull the landscape would be without these hardy souls. Winter songbirds, waterbirds and waterfowl are often the only wildlife we see at this time of year.

And we do love our birds. In fact, the 2022 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, conducted by the U.S. Fish and Wildlife Service, found that 96.3 million of us — nearly four out of ten Americans age 16 or older — consider themselves birdwatchers, whether it's in their own backyards or away from home. According to the survey, that accounts for $38 billion in federal, state and local tax revenues.

As I scraped the frost off my windshield, I found myself envious of the many ways these delicate animals adjust to the cold. Then I ran back inside to look for my gloves. ■

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