CHESAPEAKE
BAY JOURNAL

April 2026 Volume 36 Number 2

Independent environmental news for the Chesapeake region

To stock or not to stock: PA's trouble with trout

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MORE WOMEN OUTDOORS

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Cleanup is underway but far from over PAGE 10

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A northern mockingbird sings from a tree at the Oxford Conservation Park in Talbot County, MD, established in 2017 as a grassland bird habitat. *See story on page 24.*

(Photo/Dave Harp)

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ON THE COVER

This brown trout was caught on the Little Juniata River in Pennsylvania. (Will Parson/Chesapeake Bay Program)

Bottom photos: left by Dave Harp, middle by Ashley Bailer, right by Dave Harp

CORRECTION

The answer to question 6 in the March Chesapeake Challenge was incorrect. The correct answer is A: vole (voles live mostly outdoors) and B: mouse (mice thrive indoors and outdoors).

EDITOR'S NOTE

Together, we'll grow

For a small team of writers and reporters, the *Bay Journal* churns out a huge amount of well-researched reporting for a wide range of topics and locations across the Chesapeake Bay watershed. And because we do this every day, every week, every year, we are well positioned to observe this irony: It's not enough.

Our staff is constantly encountering events and topics that we lack capacity to cover. Many communities with stream health and land use issues have little or no local media to raise awareness. Groups are working on creative solutions to environmental problems, and more people need to know about them. Government policies are constantly evolving, and the impacts usually aren't clear. Scientists have fascinating studies underway, and the wonders of nature abound.

Expanding our work and our audience is critical, for this generation and the next.

The articles in this issue remind me that environmental stewardship is a forever job. The complexity of interconnections is astounding. Oysters grew well but watermen struggled. Strategies for healthy trout populations are far from simple. AI, which is driving data center expansion and related concerns, may better calculate fertilizer needs and reduce nutrient pollution in waterways. The huge sewage spill on the Potomac River will likely happen elsewhere, because old infrastructure is rampant and communities are challenged to fund repairs.

But I'm not discouraged — because of you. *Bay Journal* readers are engaged with environmental issues. We know because we hear from you often! Our reporting supports your engagement, in the many forms it takes. So we know that the *Bay Journal* has an important job to do, one that reaches far into the future.

This work matters. So we aim to grow. We are working on plans and goals, as well as strategies to overcome recent funding challenges. If you have ideas or resources, please send them our way. Make a gift to our spring fundraising campaign. Share the *Bay Journal* with your friends, your workplace, your local library and your community groups. And together we'll grow!

— Lara Lutz

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BY THE numbers

5
Approximate number of miles that the wind can carry dandelion seeds away from their parent plant

10-60+
Typically number of offspring born to a single rabbit per year

102
In pounds, the largest recorded blue catfish caught in Virginia's portion of the Chesapeake Bay watershed (on the James River)

84
In pounds, the largest blue catfish caught in Maryland's portion of the Bay watershed (on the Potomac River)

25
In years, the potential lifespan of a blue catfish

345
Population of Smith Island, MD, in 2024

Pearls in oysters – How does that happen?

While humans have prized beautiful, iridescent pearls for centuries, the creation of those pearls is actually just an oyster's way of getting rid of a something like a splinter.

When a parasite or grain of sand enters an oyster's shell, a pearl starts forming to protect the oyster from irritation. The oyster's mantle tissue, which is responsible for making the shell, secretes nacre, also known as mother of pearl. Over time, the mantle coats the parasite or granule in layers of nacre until it forms a pearl.

The size, shape and color of the pearl depend on time, oyster species and environmental conditions.

Most oysters make pearls, but only those of the *Pinctada* genus, cultivated in the tropics and subtropics, make pearls deemed pretty enough for jewelry. Some of the Chesapeake Bay's eastern oysters (*Crassostrea virginica*) make pearls, but they're usually small and misshapen. Bay oysters are far more valuable for their ability to improve water quality and embellish restaurant menus.

— L. Hines-Acosta

Oysters form pearls to protect themselves from irritants. (U.S. Army)

Data centers & the environment

Free backgrounders from the Bay Journal

Communities across the Chesapeake region are concerned about the growth of enormous data centers, including their potential impact on the environment. Learn more with the *Bay Journal*'s free downloadable backgrounders. Use them for your own knowledge or share with your neighbors and community.

- Data centers and energy (*tinyurl.com/datacenters1*)
- Data centers and water (*tinyurl.com/datacenters2*)
- Data centers and air quality (*tinyurl.com/datacenters3*)

More news at bayjournal.com

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

- Salt levels are still rising in freshwater streams
- Opinion: An extinct species as the state shark of Maryland? That's a big megalo-don't.
- Video: The Potomac Interceptor sewage spill

ABOUT US

The *Chesapeake Bay Journal* is published by Bay Journal Media, an independent 501(c)3 nonprofit news organization dedicated to environmental reporting in the Chesapeake Bay region. *Bay Journal* reporting reaches an average of approximately 250,000 people each month through news articles, columns, films, the *Chesapeake Uncharted* podcast and more.

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BAY JOURNAL NOTEBOOK

The Bay Journal's Lauren Hines-Acosta was interviewed in March for the Virginia Press Room podcast. (Shannon Heckt/Virginia Mercury)

More than 23,000 views and counting

The January sewage spill into the Potomac River near the District of Columbia has drawn widespread attention. As the *Bay Journal* sorted out fact from fiction, reporter **Jeremy Cox** went to the scene of the spill in March with photographer **Dave Harp**. Their visit drove our latest written update and led to a short video for the *Bay Journal* YouTube channel. So far, it's generated 23,803 views. Add yours to the count by visiting our YouTube channel or *bayjournal.com/multimedia*.

Bay Journal reporters not only produce podcasts but appear on them elsewhere. Reporter **Jeremy Cox** was interviewed about investigative reporting and government transparency for the Five Dubs podcast of the MDDC Press Association. Reporter **Lauren Hines-Acosta** was a guest on the Virginia Press Room podcast. Produced by Virginia Public Media, the podcast offers insights on important Virginia news stories from the journalists covering them. She also talked about biosolids on the Virginia Soil Health Coalition podcast, 4TheSoil.

Editor-at-large **Karl Blankenship** attended the Bay in the Balance conference in Pennsylvania, where much of the discussion centered on agriculture. He received positive reactions to the Ag & the Bay series, and an excerpt read aloud drew applause. Afterwards, he joined editor **Lara Lutz** for a listening session with professors and students at Millersville University, hosted by **Justin Mando**, a member of our Board of Directors. The group offered enthusiastic feedback and ideas for future *Bay Journal* reporting.

And, as we continue exploring audio production, Jeremy's radio segment on shark research aired on Delmarva Public Media in March. The station received a great positive response from listeners.

A graduate student at the University of Michigan interviewed Jeremy and reporter **Tim Wheeler** about how journalists engage the public with Chesapeake Bay issues. Tim said the best journalism comes from getting on the scene, along with checking out everything and everyone, because things can seem to be clearcut or a settled fact when they aren't. And, he added, always communicate why people should care about the topic you're reporting on.

NEWS briefs

LOCAL
REGIONAL
NATIONAL

First VA offshore wind turbine joins electric grid

After more than a decade of work, Dominion Energy's Coastal Virginia Offshore Wind project began generating electricity 27 miles from Virginia Beach on March 23.

The first — and for now only — turbine to produce power is generating enough energy for an estimated 3,675 homes.

There's more to come. The $11.5 billion project will be the largest wind installation in the United States. Overall, it will have 176 turbines, which are expected to bring approximately 2.6 gigawatts of energy to the grid, or enough to power 660,000 homes.

The project was prompted by Virginia's Clean Energy Act of 2020, which requires Dominion Energy to deliver 100% of its electricity from carbon-free sources by 2045.

"This marks another major milestone for the project, adding much-needed electricity to help serve the fastest-growing power demand in the country," Dominion Energy spokesperson Jeremy Slayton said in an email.

The project is on schedule to be completed by 2027, despite recent challenges. Steel tariffs have added $500 million to the cost, according to Dominion, and the Trump administration issued a stop work order for the project, which a Norfolk judge reversed in January. *— L. Hines-Acosta*

PA environmental agency shuts down York junkyard

A Pennsylvania auto scrapyard with a long history of environmental violations has been shut down by state regulators in the wake of a February fire that sent oily waste into a Susquehanna River tributary.

On March 17, the Pennsylvania Department of Environmental Protection ordered J&K Salvage in York, PA, to stop accepting and processing waste and begin removing waste already at the site. The agency also asked a state court to jail the owner of the business and fine him more than $40,000 for failure to comply with a 2024 cleanup order.

"We will not tolerate flagrant disregard of the laws and regulations that exist to protect public health and Pennsylvania's air, land and water," said DEP Secretary Jessica Shirley.

The state's action came on the heels of a March 13 request by the Lower Susquehanna Riverkeeper for a federal court injunction to shut down the scrapyard. The edge of the property is less than 100 feet from Codorus Creek, which runs through York on its way to the Susquehanna.

The watershed group had sued in July 2025, accusing J&K of violating Pennsylvania's Clean Streams law as well as federal clean water and hazardous waste laws.

The riverkeeper group said its sampling of discharge from pipes into a stream leading to the creek detected unauthorized pollution, including a variety of metals and toxic chemicals such as per- and polyfluoroalkyl substances, or PFAS, known as "forever chemicals" for their persistence.

J&K had argued in federal court filings that the lawsuit was groundless. The case was pending when a blaze tore through the scrapyard on Feb. 25. Fluids from the facility and the water used to extinguish the fire ran into Codorus Creek, where an oily sheen could be seen far downstream.

Local, state and federal agencies responded, placing booms to limit the sheen's spread and suctioning waste from the water. By mid-March, more than 4,500 gallons of oily water had been recovered from the tributary, according to Amanda Hancher, spokesperson for the U.S. Environmental Protection Agency's Region 3 office in Philadelphia.

The scrap yard's lawyer did not respond to an email seeking comment. *— T. Wheeler*

ICE detention center in MD faces environmental hurdles

The Trump administration's plans to convert a sprawling warehouse into an ICE detention facility in Western Maryland have been put on hold amid allegations that federal officials failed to follow environmental laws.

U.S. District Judge Brendan Hurson granted a two-week restraining order on March 11, pausing any construction or retrofitting of the 54-acre warehouse, which is near Williamsport. The judge later extended that pause until April 16.

Maryland Attorney General Anthony Brown filed the suit on Feb. 23 seeking to stop the U.S. Department of Homeland Security's construction of the Immigration and Customs Enforcement facility.

"DHS spent more than $100 million in taxpayer money to purchase a Washington County warehouse to serve as an ICE detention facility — without an environmental review and without

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briefs

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public input," Brown said in a statement. "The state of Maryland is filing this lawsuit because DHS must be held to the same legal standard as every other federal agency."

After purchasing the warehouse, ICE awarded a more than $100 million contract to convert it into a detention center capable of holding 1,500 beds.

The lawsuit contends that the facility is "likely to harm" a tributary to the Potomac River as well as landscapes inhabited by state-protected species. The federal government failed to conduct the required environmental review under the National Environmental Policy Act, according to the suit.

ICE officials have responded that such facilities will be well constructed and have undergone community impact studies and due diligence to ensure local infrastructure isn't overtaxed.

— J. Cox

Fish consumption warning issued for two PA creeks

Pennsylvanians have been warned not to eat fish caught from two Susquehanna River tributaries after toxic "forever chemicals" were found in them. In one case, investigations found evidence linking the contamination to historic use of sewage sludge on nearby farm fields.

The Pennsylvania Department of Environmental Protection and Health, along with the state's Fish and Boat Commission, issued a "Do Not Eat" advisory on Feb. 25 for all species of fish from Briar Creek in Columbia County and from Middle Spring Creek in Cumberland and Franklin counties after detecting high levels of perfluorooctane sulfonate, or PFOS, in them.

DEP also has supplied 30 water-treatment systems for residential wells along Briar Creek, and it plans to provide another 24 systems to treat well water at properties along the affected stretch of Middle Spring Creek.

The source or sources of PFOS pollution in those creeks are still under investigation, DEP spokesman Neil Shader said. In the case of Briar Creek, though, DEP's website says, "Based on the information that DEP has collected so far, it appears likely that a source of contamination is the historic spreading of sewage sludge on agricultural properties in the area."

The website says the state's investigation along Briar Creek began in 2024 after high levels of PFOS were detected in the drinking water well for a mobile home park in North Centre Township. They then began checking private wells in the surrounding area, promptly offering bottled water to nearly two dozen property owners where PFOS levels exceeded the federal safe drinking water standard.

DEP also checked properties around three farms in the area that had been permitted to spread sewage sludge on fields. "Sample results have shown impacts around each of the permitted application sites sampled, with impacted wells located in North Centre, South Centre and Mount Pleasant townships," DEP reported.

Meanwhile, the Fish and Boat Commission said it would discontinue annual trout stocking of the affected creeks until further notice.

Those are the second and third Pennsylvania streams where authorities have warned against eating fish because of PFOS contamination. The first advisory was issued in 2021 for the Neshaminy Creek basin, a Delaware River tributary that flows through Bucks and Montgomery counties.

— T. Wheeler

VA approves natural gas project despite resistance

The Virginia State Corporation Commission approved the Chesapeake Compressor Station on March 3, despite local environmental justice concerns over the past year.

Virginia Natural Gas plans on building the Chesapeake Compressor Station, which will ensure the company's northern customers will receive service in case there is a problem on the Eastern Gas Transmission & Storage pipeline. The compressor station would help push gas through that pipeline.

The local community in Chesapeake, VA, is predominantly made up of people of color. Residents are concerned about the health effects of air pollution from natural gas combustion in compressor stations. Commission staff said its analysis and the company's analysis of the project found that it "may potentially negatively impact several EJ communities" near the project.

In the commission's final order, it decided the project was necessary to ensure service for the company's northern customers and to provide Smurfit Westrock, a paper packaging company, with continuous service. The commission said the company addressed the environmental justice concerns by using two electric compressors to significantly decrease emissions. But environmental groups say that's not enough.

The $89 million project will cost ratepayers $1.96 a month on average. The company expects the station to be online by Nov. 1, 2027.

— L. Hines Acosta

Efforts to boost blue catfish harvest grow, but draw dissent

Opponents say subsidizing use for pet food could undercut market for human consumption

By Timothy B. Wheeler

Efforts to curb invasive blue catfish in the Chesapeake Bay by promoting their use in pet food drew federal support recently, though some warned the move could backfire.

The U.S. House of Representatives on March 17 passed a bill, co-sponsored by Reps. Sarah Elfreth, D-MD, and Rob Wittman, R-VA, that would provide federal grants to pet and animal food manufacturers to subsidize what they pay Maryland and Virginia watermen and seafood processors for the catfish. NOAA would be authorized to award $2 million in grants each year and to report on how — or whether — it increased blue catfish harvests.

Introduced in the 1970s to a few Virginia rivers as a new sport fishing option, blue catfish have since spread throughout the Bay watershed, where they feed on other fish and juvenile blue crabs, impacting those traditional fisheries.

Maryland and Virginia have both encouraged the commercial harvest of blue catfish to mitigate their spread, but consumers have been slow to take to the new menu option, and the low prices watermen earn to catch them has limited the growth of the fishery. Concerned policy makers have eyed the pet and animal feed industry for several years as a potentially significant market that could increase the demand for the fish.

"While we can all do our part and order blue catfish when we see it on a menu," Elfreth said, "this is not a problem that we alone can eat our way out of."

The measure passed the House overwhelmingly on a largely bipartisan vote of 320-66. Other co-sponsors included Reps. Steny Hoyer, D-MD and Jen Kiggans, R-VA, and all but one of the co-chairs of the congressional Chesapeake Bay Watershed Caucus supported it.

The dissenting caucus leader was Rep. Andy Harris, R-MD, who issued a statement calling the bill well-intentioned but counterproductive. He cited a March 12 letter opposing the bill from a coalition of four Maryland seafood companies that process blue catfish.

They complained that the measure, by associating blue catfish with animal food, could undermine their efforts to portray the nonnative species as "a high quality and desirable protein-rich seafood product." The coalition also worried that by letting pet food manufacturers pay watermen above-market prices for their harvest, it might divert the supply of blue catfish their companies need to survive and grow.

"Now is not the time," Harris said, "to undercut the great work of these small businesses and existing investments made by the taxpayers by subsidizing the purchase of product suitable for human consumption for the sole benefit of pet-food companies — especially when these processors are already selling fish byproducts unsuitable for human consumption for the purposes of conversion into pet food."

The measure now awaits Senate consideration.

Meanwhile, the U.S. Department of Agriculture announced it was awarding $1 million grants each to two businesses to increase their capacity to process blue catfish. One of the recipients is BSA Seafood LLC, which will use the funds to install new equipment at its processing plant in Denton, MD, and expand distribution of catfish to restaurants, markets and institutions.

Harris issued a statement applauding the USDA grant to the business in his Eastern Shore district. The funds will enable the company to remove more than 500,000 pounds of blue catfish annually from the Bay's tributaries and add 20 new jobs to its 15-person workforce.

The other recipient is Chippin Inc., a company based in Arlington, VA, that markets premium, "planet-friendly" dog food nationwide. It plans to upgrade its processing plant in Illinois to incorporate blue catfish into its dog food products. ■

Sewer limits bring building moratorium to Baltimore suburbs

Anne Arundel County forced to halt development to avoid sewage overflows

By Timothy B. Wheeler

A portion of Baltimore's suburbs, including a shopping complex and business district near the region's busy airport, has been put under a growth moratorium to control the threat of more wet-weather sewage overflows into the Patapsco River. The stoppage could potentially last for years.

Anne Arundel County's public works department announced the immediate development cutoff on Feb. 26, saying that peak wastewater flows in the northwestern portion of the county have exceeded the capacity of the sewer network to handle them.

Wastewater from that area travels through a sewer line maintained by neighboring Baltimore County before being treated at the Patapsco Wastewater Treatment Plant in south Baltimore City.

While the sewer lines can handle average daily wastewater flows, county officials said rainfall leaking into the aging, cracked pipes cause the peak flows to exceed limits set under an agreement Anne Arundel has with its neighboring jurisdictions. Anne Arundel has been piping wastewater to the city from that area since 1939, forging a pact in 1976 to share sewer and pumping station capacity with Baltimore and Howard counties.

Though the county has long paid to pipe wastewater to the Patapsco plant based on the average daily flow, the inter-jurisdictional agreement was amended in 1981 to limit the peak flow during rainstorms. County officials only recently realized they had been ignoring that limitation.

When county officials spotted the problem in February, they tried without success to obtain a greater share of the regional sewer capacity. The city and Baltimore County refused, citing legal obligations under consent decrees with state and federal regulators to reduce wet-weather flows and eliminate chronic sewage overflows.

"Our multi-county team exhausted all options before arriving at the conclusion that we cannot approve any new connections in these specific areas," said Karen Henry, director of the Anne Arundel County Department of Public Works. "Our primary focus is to protect the health of our residents and the environment by avoiding sanitary sewer overflows."

The Patapsco plant can treat no more than 73 million gallons of wastewater daily, and there are no plans to increase that capacity, according to Mary Stewart, city public works spokesperson. City officials "do not make decisions regarding local development opportunities," she said, but merely provide neighboring jurisdictions with computer-modeling estimates of how much wastewater the plant can accept.

Sewage overflows have been a problem for decades in Baltimore and its suburbs, posing health risks for swimming or wading in local streams or the harbor, especially after rainstorms. The city has spent $930 million repairing and replacing leaky sewer lines since agreeing to curb overflows in 2002.

The moratorium affects a relatively small part of Anne Arundel, and the 9,000 residents and businesses currently connected to the sewer there should not be affected, according to public works spokesperson Amy Mininger. But new sewer connections would be put on hold in neighborhoods and commercial properties on three sides of Baltimore-Washington International Thurgood Marshall Airport. Though the airport's wastewater also is piped through the combined interceptor to the Patapsco treatment plant, it is not affected, Mininger said. The airport has its own separate sewerage allocation under the multi-county agreement. County officials have identified 21 residential and commercial projects awaiting sewer connections that have been put on hold. Projects that have already received approval may proceed.

The county is talking with the airport to see if it has excess sewer capacity it would transfer for now, officials said. But longer term, the county is looking at diverting wastewater flows from the Patapsco plant to the Patuxent River or Cox Creek facilities, or to both. But that diversion could take at least five years to complete, according to a county notice. ■

An oyster a day could keep a crab's doctor away

Study shows that the bivalves can help reduce the spread of deadly parasites among blue crabs

By Lauren Hines-Acosta

With no wind to speak of, the water was calm along a pier on Virginia's Eastern Shore. And with no clouds to speak of, the sun beat down on Xuqing Chen as she filled a mesh cage with oysters on a hot summer day in 2021.

It was one of many days in the field for Chen, then a graduate student at the Virginia Institute of Marine Science (VIMS), as she took part in a study that concluded oysters likely do more than improve water quality. They can also save the lives of blue crabs — by feeding on a waterborne parasite that is often deadly to crabs.

"Our study shows that [oysters] actually have a hidden ecosystem service that hasn't really been well studied," said Jeff Shields, a VIMS professor and principal investigator for the study.

The researchers examined how oysters could filter out the parasite, *Hematodinium perezi*, which kills countless blue crabs every year. According to other VIMS research, the loss to the Virginia fishery may exceed $500,000 per year.

Xuquing Chen prepares a bag of crabs to be studied in Oyster, VA, in 2021. (Jeff Shields)

The *H. perezi* is most lethal to blue crabs in warm months and is found mostly in salty coastal bays, but the parasite is also present at the mouth of the Chesapeake. Crabs infect each other as they congregate in their underwater grass habitats.

The study, published in January in *Ecology*, a journal of the Ecological Society of America, was designed to test the hypothesis that oysters are reducing the parasites by feeding on them.

Researchers put parasite-free juvenile crabs in the middle compartment of a rectangular mesh cage, sandwiched between live oysters in the outer compartments. The bag was then lowered into the water in a modified crab pot for a prescribed period. Another bag, with no oysters in it, was simultaneously deployed. A third bag was deployed with the crabs sandwiched between oyster shells only — to rule out the possibility that shells alone might benefit the crabs.

The team placed the bags in Cobb Bay, South Bay and in Oyster, VA, for one to two weeks at a time. After nine trials between 2017 and 2023, the researchers tested almost 2,500 crabs.

Trials in the VIMS lab showed that the oysters removed 60% of the parasites from the water per hour on average. In the field, where there are more variables, the crabs sandwiched between oysters were almost one-third less likely to become infected.

According to most accounts, the oyster population in the Bay is now 1-2% of what it was prior to overharvesting and diseases of the 19th and 20th centuries. In the study's findings, Chen argues that the decline in oysters could have contributed to the increase of parasite-infected blue crabs. ■

‘Back to what it was’: DC sewage response shifts to cleanup

Emergency repair finished by mid-March, but full fix expected to take another 9 months

By Jeremy Cox

In a wooded gully a few dozen yards from the Potomac River’s north shore, workers put on white hazmat suits, thick gloves, rubber boots, hard hats and respirators. They toiled for hours, using garden hoes and rakes to scrape up the top few inches of soil — along with whatever was in it.

In this case, “whatever” means anything — human waste and toilet paper flushed down toilets, dirty dishwater, food scraps, grease and more — that surged out of a major sewage pipe after its Jan. 19 collapse.

“We’re trying to remove the impacts that were caused by the sewage overflow,” said Amanda Zander, who is overseeing the environmental remediation effort for DC Water, the public utility that owns the pipe. “The intent is to get everything up that wasn’t here before and just restore it back to what it was.”

An emergency repair was completed March 14 on what’s called the Potomac Interceptor, which ruptured just east of Interstate 495 in the Cabin John community of Maryland’s Montgomery County. For the first time in 55 days, full flows returned to the 6-foot-wide pipe. That enabled workers to drain the section of the C&O Canal that had served as an open-air bypass while the pipe was being fixed.

But the mess is far from over. DC Water officials say the historic canal, which is a unit of the National Park Service, will likely continue to reek until the remaining contaminated soils are removed, by May at the latest. A permanent repair of the pipe is slated for completion this fall.

The site’s full environmental rehabilitation, including the restoration of the impacted canal locks, isn’t expected to be done until around the end of this year.

Meanwhile, environmental advocates continue to push for a more expansive cleanup.

“Restoring the immediate damage caused by the collapse is essential, but ensuring full ecological recovery will require a broader commitment to science-based, watershed-scale restoration, as well as transparency and active community engagement,” said Katie Blackman, vice president of strategic programs and partnerships for the Potomac Conservancy. She added that the finalized remediation needs to match “the scale and scope of this unprecedented environmental disaster.”

Raw sewage from the January 2026 pipe collapse near the District of Columbia was diverted into the C&O Canal, then pumped back into the sewer line farther downstream. (Dave Harp)

The collapse is estimated to have discharged between 243 million and 300 million gallons of raw sewage into the Potomac River.

If there has been any silver lining, it’s that the rupture happened where it did, said Dean Naujoks, the Potomac Riverkeeper. Public drinking water hasn’t been impacted because the region’s intake pipes are located upstream from the collapse. And having the C&O Canal on hand to contain the spill was another stroke of luck, he said.

“The C&O Canal has been a huge savior of the river,” he added.

Naujoks called on DC Water and state environmental officials to continue the expanded water sampling in the river into the summer and beyond to assure the public its waters are safe.

“This right here is a popular access,” he said as he stood near the spill site. “This is one of my favorite stretches of the river to float [on]. I swam right here. So, there’s a lot of people that are in the boating community that are just not comfortable taking out [their boats] here.”

Naujoks has continued conducting his own monitoring of the site. His group made public their own testing results on March 9, showing extremely high E. coli levels in a ditch that passes through a stone culvert beneath the canal. The announcement suggested that waste passing through the canal was seeping into the culvert’s ceiling and dripping into the ditch below.

Two days later, when a *Bay Journal* reporter and photographer visited the collapse site, workers with the U.S. Army Corps of Engineers could be seen digging up muck near the culvert, and they had installed a small dam to stop the ditch water.

Also tromping around the site that day was a group of inspectors and other officials from the Maryland Department of the Environment. “We’re on the site every single day,” said MDE deputy secretary Adam Ortiz, wearing a hard hat. “And I do periodic check-ins just to see how the progress is coming.”

The pipe collapse began drawing intense scrutiny in mid-February after President Trump called it a “massive Ecological Disaster” on social media.

The nearby parking area off the busy Clara Barton Parkway is crowded with construction trailers, including ones belonging to DC Water, the Army Corps and the U.S. Environmental Protection Agency. The C&O Canal was still a few days away from being drained of its brownish-green torrent, and the air was tinged with a musty, earthy odor.

DC Water estimates that fixing the pipe and cleaning up after the spill will cost $20 million.

As this issue of the *Bay Journal* went to press, all public health advisories for the Potomac River, including a temporary ban on harvesting shellfish, had been lifted except for the part closest to the overflow site.

The 54-mile Potomac Interceptor receives sewage from a service area of more than 500,000 people, including from Dulles Airport and portions of Northern Virginia and Maryland’s Montgomery County.

The pipe was constructed in the 1960s, and its aging condition has been no secret. A decaying portion of the sewer line just a few hundred yards west of the collapse underwent an emergency fix that was completed earlier in January. Plans were in the works before the collapse for a 10-year, $625 million rehabilitation of the entire line.

DC Water officials were still working to determine the cause of the collapse as of mid-March. But in a public letter, David Gadis, the utility’s CEO, attributed the incident to an unspecified “highly unusual event — one that could not have been reasonably predicted based on the available inspection data.”

DC Water officials in early March released years of structural inspections conducted at or near the doomed section of pipe.

Most recently, last October, a third-party inspector used a video camera to examine the inside of the pipe and found what the firm described as two holes just slightly upstream from where the break eventually happened. Using the industry’s grading standards, RedZone Robotics, classified both locations as a 5, the highest urgency for repair. (The scale doesn’t prescribe a remaining useful life for each grade.)

DC Water’s engineers, though, dispute those findings, saying the alleged holes were actually dark concrete. No structural failures appeared “imminent” at that time, according to the utility.

A law firm on March 6 filed a federal class-action lawsuit against DC Water on behalf of property and vessel owners near the spill site. The suit alleges that the utility was aware of the pipe’s widespread corrosion before the incident but failed to act on it appropriately.

A DC Water spokesperson has said the utility won’t comment on ongoing litigation. ■

Video online at bayjournal.com

EPA regional administrator draws on farm experience

Former dairy farmer says agriculture has to be part of the process for Bay cleanup to succeed

By Karl Blankenship

When Amy Van Blarcom-Lackey was a teen growing up on a small dairy farm in northern Pennsylvania, she developed a firm commitment to conservation.

She started an organization, Teens United to Conserve, whose members would plant trees, monitor streams, look for mayflies and install stream buffers.

Her group teamed up with the Bradford County Conservation District, which was a state leader in planting streamside forests. Her father, James Van Blarcom, chaired the district's board.

"It was boots-on-the-ground work," Van Blarcom-Lackey said. "This was pre-cell phones and AI, so I made my little flyers, we went out to communities, and I would get students to join the club. The whole concept was conservation."

Today, as Region 3 administrator of the U.S. Environmental Protection Agency, Van Blarcom-Lackey said she brings a sense of conservation nurtured on a farm and supported by its conservation district.

She was named to the position by the Trump administration last April and is the first woman — and thought to be the first farmer — to hold the post.

The job puts her in charge of issues ranging from air pollution and brownfield revitalization to protecting drinking water in a region that includes Pennsylvania, Delaware, Maryland, Virginia, West Virginia and the District of Columbia.

But the reason she was chosen, she said, was her agricultural background. EPA's Region 3 includes almost all of the Chesapeake Bay watershed (a section of New York is part of Region 2), where states are counting heavily on reducing nutrient pollution from farms to clean up the nation's largest estuary.

It is challenging. Progress has been slow as increasing market demands have pushed farmers to steadily increase production, offsetting some efforts to reduce nutrient runoff.

She knows it's a big job. "We've achieved real successes in Bay restoration, but we've gathered this week because we all know how much more work remains," Van Blarcom-Lackey told an audience at the Bay in the Balance conference in March, which drew more than 200 people to develop ideas to accelerate progress.

EPA Region 3 Administrator Amy Van Blarcom-Lackey visits with Jim Hershey, a founder of the Pennsylvania No-Till Alliance, at the Pennsylvania Farm Show in January 2026. (EPA)

"Agriculture is essential to the watershed's environmental health and its economic resilience," she said.

Agriculture in the Bay region ranges from huge animal operations to small urban farms. States have different approaches for working with farms because the economics vary for different types of farming and soil differs from one place to another.

In part because of such complexities, Van Blarcom-Lackey said it was important that states lead the efforts, with EPA assisting.

"It's not a one-size-fits-all approach," she said in an interview with the *Bay Journal*. "We have to look at it from each state, each jurisdiction."

Region 3, she said, is working to elevate the role of agriculture and improve coordination with states and other agencies.

Within its Philadelphia-based headquarters, she said the region created an "Agriculture Action Team" that brings together staff from across divisions to improve internal coordination on agricultural issues.

She's met with officials from the U.S. Department of Agriculture's Natural Resources Conservation Service — the largest funder for farm conservation work — to improve coordination with the EPA.

And she's been meeting with state agriculture secretaries and farm organizations to help devise ways to ensure farms are profitable and able to support conservation efforts. The Chesapeake Bay Program, the state-federal partnership that leads the Bay cleanup effort, recently created an Agricultural Advisory Committee to serve as a liaison between the watershed's 80,000 farms and the restoration effort.

"Agriculture has to be at the table for it to be successful," Van Blarcom-Lackey said. "Maybe that's why we haven't achieved what we needed to before, because they weren't at the table … They have to have full buy-in to make it work. And it needs to be looked at through the lens of viability."

There are headwinds, though. The federal programs that in recent years poured record amounts of federal conservation money into agricultural programs are winding down, and state budgets are getting tighter.

Further, the farm economy has had several tough years, and farmers' adoption of conservation measures is closely linked to profitability.

> *"Agriculture has to be at the table for [the Bay cleanup] to be successful."*
> *— Amy Van Blarcom-Lackey*
> *EPA Region 3 Administrator*

But Van Blarcom-Lackey, drawing upon her own background, says more and faster progress is possible.

"A lot of discussions [at the conference] here today, everybody's like, 'We don't have enough funding.' And I'm just thinking, that's the way every day is on the dairy farm," she said. "We never have enough funding, so we figure out a way to make it work, and that's really been my approach within the region."

After growing up on a dairy farm, she went to Cornell University and studied agricultural communications. While at college, she made a trip to Ocean City, MD, getting her first glimpse of the Bay as she crossed the Chesapeake Bay Bridge. The Bay had been part of the focus of the conservation measures she worked on in Bradford County, far upstream near the New York border.

Her first job out of college was with a dairy cooperative. She went on to become Pennsylvania's first agricultural ombudsman, where she worked to resolve issues where farms and communities intersected.

She later worked as a lobbyist for farm groups before moving back to the family farm with her husband about 20 years ago. At the time they had about 50 cows, but with a growing family they realized they needed more cows to make ends meet. That meant building a new barn where the cows would be milked.

But when the cows walked back and forth between the older barn and the new barn — three times a day — the pathway was "getting filled with a lot of things that we don't want to run downstream," Van Blarcom-Lackey said.

With NRCS support, they launched a barnyard management project that improved the walkway and directed dirty water to a catch basin and ultimately to a manure lagoon.

It cost money, she said, but it also improved herd health. "We weren't having foot issues or hoof issues," she explained. "It created profitability because the animals were healthier because they were in a better environment to walk back and forth."

Dairy farming, especially for small– and medium-size operations, is always financially challenging. Van Blarcom-Lackey helped support the family by working in a bank, ultimately becoming a vice president.

Between work at the bank and on the farm, she calls herself a "fiscally conservative conservationist," a mindset she applies to the regional administrator position.

Among other things, she believes major headway can be made with relatively cost-effective measures such as planting nutrient-absorbing cover crops and using nutrient management plans to guide the field application of nitrogen and phosphorus. Both, she noted, can benefit farmers as well.

But solutions will often be complex, she acknowledged. "When I was younger, everything just was black and white. Now I realize, 'no, it's all gray.' You have to really look at it through a lot of different perspectives."

At the conference, "everybody's in that room because they want an improved Bay," Van Blarcom-Lackey noted. "It's just, how do we achieve it?" ■

PA trout anglers divided over state-run stocking program

Passions run high over best ways to support wild fish and meet angler expectations

By Carolyn Beans

As a child in the 1980s, Jared Manning never missed opening day of trout season. Freeman Run in Potter County, PA, flowed through his town of Austin and about 100 feet from his back door. By 8 a.m., he and his family were dropping worms to lure the plentiful trout freshly stocked by the local anglers club and the Pennsylvania Fish and Boat Commission. "You could look up and down the stream in either direction and see dozens of people," he said. "Mostly families."

As an adult, Manning developed a preference for chasing wild brook trout in remote streams. But he regularly returned to Freeman Run for the community, especially on opening day. Neighbors hosted cookouts. Often there was a chicken barbecue organized by the local church or Scout troop.

But that changed in 2021, when the Fish and Boat Commission stopped stocking Freeman Run, Manning said. The agency's fish survey, conducted in 2018, had shown that it qualified as a Class A wild trout stream — meaning it had a sufficient biomass of the wild fish to support what the agency calls "a long-term and rewarding fishery." Per state policy, Class A wild trout streams, with few exceptions, are not supposed to be stocked.

Many conservationists and anglers champion this policy of prohibiting stocking in healthy streams where trout reproduce on their own. Stocking can increase the competition for food and habitat, so most research has shown that stocking has either negative or, at best, neutral effects on wild trout, said ecologist Shawn Rummel, a senior manager and science advisor for Trout Unlimited's Northeast Coldwater Habitat Program.

But for many anglers accustomed to the bountiful harvest of stocked trout, there is simply no other way to fish. After stocking ended in Freeman Run, Manning said he was hard pressed to find anyone fishing there on opening day or any day.

Now, the Fish and Boat Commission has made the controversial decision to stock a portion of Freeman Run again — as part of a five-year study that will test whether the agency can protect wild trout in a Class A stream by stocking it with rainbow trout and prohibiting anglers from harvesting

An angler fishes for trout in a stream near Boiling Springs, PA. (Harvey Barrison//CC BY-NC-NC 2.0)

brown and brook trout.

"I've not been shy about recognizing that there are negative impacts to wild trout populations when stocking occurs," said fisheries biologist Kris Kuhn, director of the commission's Bureau of Fisheries. "The question here is, can we mitigate those negative impacts?"

Conservation dynamics

By the 1800s, brook trout (*Salvelinus fontinalis*) — the only salmonids native to Pennsylvania streams — were in trouble. Pollution and stream disruption from the mining and lumber industries had caused the population to dwindle, along with other native fish. An 1870s report from the Pennsylvania Fish Commission noted, "The large number of streams running through our state have become so depopulated of fishes by pollution and persistent wanton slaughter as to render them almost valueless to the people as a source of food."

So, the agency began stocking. In the 1880s it started releasing brown trout (*Salmo trutta*, native to Europe) and rainbow trout (*Oncorhynchus mykiss*, native to the western U.S.). Many other states also began stocking programs that continue to this day. Brown trout have been stocked in nearly every U.S. state.

In Pennsylvania, brown trout naturalized widely, surviving in waters too warm or polluted for native brook trout. These wild brown trout fisheries are now a major draw for many anglers.

Meanwhile, the "brookies," which are the state fish of Pennsylvania and several other states, are still in decline. The main threats are the warming climate and floods that disrupt overwintering eggs, said fish biologist Nathaniel "Than" Hitt, formerly with the U.S. Geological Survey and now a senior scientist with the West Virginia Rivers Coalition.

Jared Manning holds the brown trout he caught after hours of fishing in Freeman Run in 2021, the first season after the state discontinued stocking trout in the stream. (Jessica Manning)

But many studies have demonstrated that the presence of brown trout can also reduce brook trout numbers. Hitt's research suggests that brook trout are displaced by brown trout particularly in warmer waters where they could otherwise survive if not for the added competition.

The Fish and Boat Commission, along with conservation organizations such as Trout Unlimited, has spent decades working to clean up polluted streams, in part to encourage the return of brook trout.

But often when waterways become healthy enough for brook trout, there is pressure to stock them "even though we did that work in order to get native fish [to] recolonize," said Rummel of Trout Unlimited.

This fishing season, the Fish and Boat Commission is stocking 3.2 million trout in Pennsylvania waters, including rainbow trout, brown trout, brook trout and golden rainbow trout. Another 1.1 million trout will be stocked by cooperative nurseries, hatcheries run by local organizations such as sportsmen's clubs, that raise trout provided by state hatcheries as fingerlings.

The vast majority of these fish will never see a Class A wild trout stream. The commission's 2025-2029 Strategic Plan for Management of Trout Fisheries notes that "Class A waters contain the most abundant wild trout populations and, with rare exceptions, the [commission] manages these stream sections solely for the perpetuation of the wild trout fishery with no stocking."

Of the 1,316 stream sections designated as Class A, 14 are now stocked by the commission. Another 14 are stocked by other sponsors, such as cooperative nurseries, which typically stock once a season for events like fishing derbies.

Freeman Run study

Freeman Run is the latest of the Class A wild trout streams to receive an exemption from the commission for stocking. In October 2025, the commission's board voted to allow stocking of rainbow trout over the course of a five-year study beginning in 2026, in a 3-mile stretch of the stream labeled Section 4.

Anglers gathered for a fishing derby on Freeman Run in Austin, PA, in April 2018, three years before the Pennsylvania Fish and Boat Commission discontinued stocking the stream with brown trout. (Darwin Manning)

A volunteer with the Pennsylvania Fish and Boat Commission releases a hatchery-raised brown trout in Indiantown Run in Lebanon County, PA. (Tom Cherry, PA National Guard/CC BY-NC-ND 2.0)

A special regulation — designed to give wild trout an edge — requires anglers in Freeman Run to release any brown or brook trout they catch but permits them to keep rainbow trout. "Previously, the wild trout would have been open for five fish per day harvest," Kuhn said, "[but they] now have more protection than they did before we reinstituted stocking."

Rainbow trout are unlikely to naturalize in Potter County, though they have done so in some locations across the state, such as the Cumberland Valley, where water temperatures remain warm enough through winter.

The Fish and Boat Commission will periodically measure the wild trout population in Freeman Run to test the influence of stocking over time. As a comparison, they will also measure the wild trout population in Section 3, a Class A section immediately upstream of Section 4, which will not be stocked.

The agency will also count anglers and gather opinions. "If angler use isn't high enough to justify continued stocking, we may go back to the board and recommend that we discontinue the stocking," Kuhn said.

Angler views on the Freeman Run study, and stocking in general, vary widely. "[Freeman Run] is so popular and it is so heavily fished by all types of anglers," said John Mahn Jr., president of the agency's Board of Commissioners. "When it was decided that it would be stocked again, there was considerable uproar, and there still is."

During the public comment period prior to the board's vote to reinstate stocking, the agency received 96 comments that opposed the stocking and 13 that supported it.

Along with brown trout, Freeman Run also contains a sparse brook trout population. Native fish enthusiasts like Potter County resident Andy Mickey are especially opposed to stocking in streams that have brook trout.

"These funds could be far better spent studying, sustaining and improving wild brook trout populations," said Mickey, who chairs the Pennsylvania Chapter of the nonprofit Native Fish Coalition. He said all wild trout streams, not just Class A, should be off limits to stocking.

Jared Manning said he has in recent years often been one of very few pro-stocking voices from the public at meetings of the Fish and Boat Commission in Harrisburg. But that, he theorized, is because Austin is a small, mostly blue-collar town whose residents wouldn't be inclined to take off work to make the three-hour drive to the capital.

When the commission surveyed landowners along section 4 of the stream, 14 of the 17 who responded supported stocking as part of the proposed study.

The broader debate

This division over Freeman Run mirrors a wider disagreement over fish stocking in Pennsylvania. An estimated 60% of the total stream miles stocked by the Fish and Boat Commission are home to at least some wild trout, though in many places the populations are too small to support a fishery and, according to agency communications director Mike Parker, do not have suitable water quality and habitat for an abundant wild population.

But a 2023 survey by the commission of 3,383 Pennsylvania trout anglers found that 58% were in favor of moving stocking operations to nearby locations without wild trout rather than stocking where wild trout are present. Sixteen percent were opposed to moving stocking operations out of wild trout waters.

Stocking may have been necessary after pollution from mining and logging operations had wiped out much of the wild trout population, Mickey said, but "that's just not the situation we're in anymore."

Mickey favors fishing for brook trout on isolated, hemlock-lined streams. "It's just really special," he said, "to be able to watch that fish take your fly, and get a good look at it, and release it back to its home, knowing that it's a species that's evolved here since the beginning of time."

But for the anglers who take their kids fishing in the first week of trout season, they want to go where they will catch fish, and most of the time that means fishing for stocked fish, Mahn said. Still, he said he will vote to stop the stocking of Freeman Run if the study shows that the practice is harming wild fish.

Some anglers worry about what the study means for other Pennsylvania streams. "The biggest issue with stocking Freeman Run is the precedent it sets," Mickey said. "If [the Fish and Boat Commission] is willing to provide an exemption to stock this small, freestone Class A wild trout stream, where does it end?"

Mickey would support stocking in waters where the hatchery-raised fish can't travel into wild trout streams.

But finding suitable alternatives is challenging, Mahn said. Many streams near Freeman Run are Class A, and anglers are often committed to the waters their families have fished for generations.

Kuhn often tells people that fisheries science is not rocket science — it's harder. "We have to balance the biology and the social aspect, as well as the habitat."

"We understand that state fish and wildlife agencies must balance ecology with other complex factors but support the reliance on sound science as a priority to inform management decisions," said Mark Taylor, Trout Unlimited's eastern communications director.

Mahn hopes the Freeman Run study will ultimately give all anglers a bit of what they want, if not everything. "Isn't that the definition of compromise?" asked Mahn. "It's trying to please as many people as we can without damaging the fishery." ■

Carolyn Beans is a freelance science writer based in Pennsylvania.

Clean energy takes main stage in VA legislative session

Democrats' affordability agenda elevates solar policy, sends state back to RGGI

By Lauren Hines-Acosta

Virginia's legislative session ended on March 14. Overall, the new set of policies will help expand solar generation in Virginia, set the stage to regulate emerging toxins and provide some transparency from the data center industry.

Virginia Gov. Abigail Spanberger must review all bills by April 14. Lawmakers will return to Richmond for a special session on April 23 to finish hashing out the state budget.

Lawmakers filed a variety of solar bills. Sen. Schuyler VanValkenburg (D-Henrico) carried a bill that passed after failing in previous years. It creates an ordinance counties must use when reviewing new solar projects of 1 megawatt or more. Localities are allowed to reject proposals and modify the ordinance, but they must report any changes and rationales behind rejections to the State Corporation Commission (SCC).

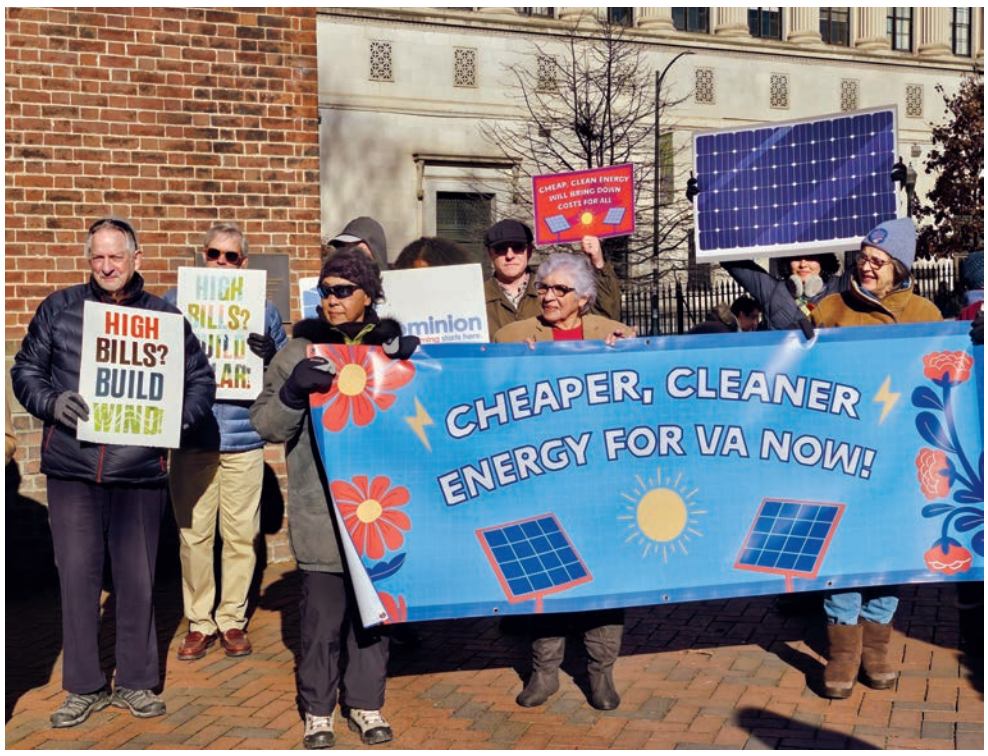
HB 395 allows renters to have portable solar installations, also called "balcony solar." Another bill helps make up for the rolled-back federal Solar for All program that provided grants to low-income individuals for solar installation. HB 1062 and SB 327 require utilities to petition the SCC to conduct a similar program that would operate for eight years and provide up to $300 million in grants.

Data centers, which enable the world's internet traffic, were another hot topic involving energy. Northern Virginia has the largest concentration of data centers, and the state must find a way to meet the industry's growing energy and water needs.

HB 496 allows localities to require projects like data centers to submit estimates of their annual water use and ensure that information is publicly available. To obtain observed data, SB 553 requires water providers to report monthly how much water they provide to any data center with an air permit.

Mike Rolband, director of the Virginia Department of Environmental Quality, said at a Senate committee meeting that SB 553 will help the department's water supply plans.

Data centers also use diesel generators as emergency backup generators. There are about 9,000 across the state that have the potential to emit air pollution. One new law will prohibit DEQ from issuing air permits for generators that emit more pollutants than Tier IV generators. Tier IV emissions are less than a tenth of those from the commonly used Tier II generators. The bill originally pushed the industry to adopt battery backup power, but it passed only after that provision was removed.



Renewable energy advocates rally outside the Richmond capitol in January. (Lauren Hines-Acosta)

A handful of bills aimed at restoring coastal habitat passed this year. HB 52 requires the Virginia Marine Resources Commission to reuse dredged material to rebuild shorelines like those on the shrinking Tangier Island in the Chesapeake Bay. Another measure prohibits the Commonwealth Transportation Board from planting invasive plants on the right-of-way of any state highway.

A slew of new laws will help protect wetlands, which provide habitat and mitigate flooding. HB 390 establishes a Habitat Policy Oversight Committee, which will provide the Marine Resources Commission with input on regulations that affect tidal wetlands. HB 237 updates the state's Coastal Resilience Master Plan to identify and protect places where marshes may retreat inland in the face of sea level rise.

Del. Betsy Carr (D-Richmond) introduced bills aimed at limiting and ending "reduction" fishing for menhaden in the Chesapeake Bay. Menhaden are fatty fish that support osprey and striped bass and are widely used for bait in commercial and recreational fishing. Many debate whether the industry that reduces menhaden into fish oil is overharvesting the population. Carr's bills failed, but there is still a proposed budget item to fund research that could end the debate.

While the menhaden issue has a long history of debate, emerging toxins gained traction this year. Per- and polyfluoroalkyl substances (PFAS), or "forever chemicals," are ubiquitous and nearly indestructible compounds. Some are linked to heart and reproductive health issues.

Forever chemicals are present in biosolids, which is sewage sludge that farmers use as fertilizer. Biosolids containing forever chemicals like PFOA and PFOS are making their way from Maryland to Virginia farm fields and raising health concerns.

Sen. Richard Stuart (R-Caroline County) and Del. Alfonso Lopez (D-Arlington County) passed bills that most notably empower farmers. They require sewage treatment plants to test for PFAS in their biosolids monthly beginning in 2027. For test results under 50 parts per billion of either PFOA or PFOS, the plant must notify the landowner two weeks before applications to farm fields. If either average exceeds 50 parts per billion, the biosolids cannot go on farmland.

The session ended with lawmakers from both chambers still hashing out the state budget. One of the debates causing the stalemate was whether or not to end the retail sales and use tax exemption on computer equipment. It allowed data centers to save $1.6 billion in last fiscal year, according to the state's 2025 Comprehensive Financial Report. But Senate Democrats are trying to end the exemption by Jan. 1, 2027, and use the funds for infrastructure and education. ■

Virginia set to return to RGGI

After years of lawsuits and rallies, Virginia is set to return to the Regional Greenhouse Gas Initiative (RGGI) — an 11-state partnership that makes power plants pay a fee if they exceed their greenhouse gas emission limits. In 2022, former Virginia Gov. Glenn Youngkin withdrew Virginia from RGGI through an executive order, although a Virginia Circuit Court judge ruled that the order was unlawful in November 2024.

When Virginia was an active member, RGGI funds paid for low-income energy efficiency programs and flood mitigation projects across the state while lowering greenhouse gas emissions.

State senate Republicans like Sen. Ryan McDougle (R-Hanover) said RGGI will raise energy costs as utilities pass the emission fees onto ratepayers. Republicans say that pushing clean energy mandates such as RGGI go against Democrats' affordability agenda.

On Feb. 20, Virginia Gov. Abigail Spanberger signed the state's "caboose" budget, which contained language requiring the state to re-enter RGGI. The state Department of Environmental Quality must reissue the regulation and sign a new service agreement with RGGI Inc. within 90 days of the budget passage, which is May 21.

EPA's 'endangerment' repeal: What it means for the Bay

Less regulation for airborne pollution could impact water quality, human health

By Jeremy Cox

One of the Trump administration's latest environmental rollbacks could have implications for public health, climate change and water quality in the Chesapeake Bay region.

The U.S. Environmental Protection Agency on Feb. 12 finalized a repeal of its "endangerment finding" for several greenhouse gases, including carbon dioxide. The 2009 finding states that greenhouse gases "threaten the public health and welfare of current and future generations."

The repeal effectively removes the legal underpinning for federal climate policy, including regulating emissions from vehicles and power plants.

At the same time, the EPA rescinded all federal greenhouse gas emission standards applying to highway vehicles and engines.

Calling it "the single largest deregulatory action in U.S. history," EPA Administrator Lee Zeldin argued that repealing the endangerment finding would give American consumers a freer hand over the kinds of vehicles they can buy. The EPA estimates that the Obama-era finding has cost consumers more than $1 trillion in the vehicle and engine sector alone.

Opponents of the repeal say the move is contrary to the law, long-established science and the effort to fight climate change. A coalition of states, counties and cities filed a lawsuit March 19 seeking to overturn the repeal. The plaintiffs include the attorneys general of Delaware, Maryland, Virginia and the District of Columbia as well as Pennsylvania Gov. Josh Shapiro.

Supporters of the endangerment finding in the Chesapeake Bay region worry that its repeal could have harsher consequences here than in many other parts of the country. That's because the region is considered the most vulnerable to sea level rise on the East Coast, and many of its urban areas face a disproportionately high risk of being sickened by air pollution.

Environmentalists are also concerned that the repeal could set back the Bay cleanup.

Efforts to reduce pollution in the Bay and to battle climate change are intricately connected, experts say. Heating the planet causes the atmosphere to hold more moisture. The heavier rains that follow

About a third of the nitrogen entering the Chesapeake Bay every year comes from air pollution. Approximately half of that comes from vehicle emissions. (Dave Harp)

are expected to dislodge more sediment, leading to more silt and nutrient pollution in the Bay.

Warmer waters also hold less oxygen, making them more susceptible to "dead zones," where virtually all aquatic life that can't flee dies.

In that sense, the future health of the Bay depends on reducing greenhouse gas emissions, said Quentin Scott, federal policy director for the Chesapeake Climate Action Network.

"We have to address the root causes of climate change, and the endangerment finding repeal makes addressing those root causes much more difficult," Scott said. Without the finding as the legal foundation, federal greenhouse gas rules are reduced to "at-will" regulations that can be more easily overturned by courts, he added.

In 2007, the Supreme Court ruled that the government could regulate greenhouses gases under the Clean Air Act, paving the way for the EPA to make the endangerment finding two years later.

The "best scientific information available" shows that greenhouse gases "contribute significantly" to air pollution, said Christopher Hoagland, director of the Maryland Department of the Environment's air program, on behalf of his agency in written comments last year when the repeal was still pending.

Rachel Lamb, MDE's assistant secretary for climate policy, called the administration's decision "in contrast to everything we understand about the state of the science." She suggested that the state could seek "other strategies," perhaps including new regulations, to address greenhouse gas reductions required by state law.

In Maryland, the transportation sector accounts for 35% of the state's greenhouse emissions, the largest of any sector, Hoagland noted in his letter. He expressed concern that the repeal would jeopardize Maryland's ability to require cleaner vehicle emission standards than what the federal government mandates.

Maryland is one of 17 states that have adopted California's stricter vehicle emissions regulations under an EPA waiver. The list includes four others in the Chesapeake watershed: Delaware, New York, Pennsylvania and Virginia.

Under Democratic Gov. Wes Moore, Maryland in 2023 signed on to California's updated standards, which require all passenger cars and light trucks to be electric vehicles by 2035. The waiver's status is currently in litigation, though, after the Republican-controlled Congress passed a Congressional Review Act resolution revoking it last year.

An MDE analysis suggested that the new California vehicle regulations would result by 2040 in an additional reduction of 6,000 tons of nitrogen oxide (NOx) compared to the previous requirements. Carbon dioxide emissions were also expected to decline by 82 million metric tons from vehicular and power plant sources.

The new state restrictions would lead to a healthier public, the MDE report asserted, estimating about $40 million in annual health benefits from decreases in respiratory and cardiovascular illnesses and from fewer lost workdays.

An anonymous EPA spokesperson said that repealing the endangerment finding would not harm public health, pointing to the same models used by "previous administrations and the climate zealots." The change, the person added in their statement to the *Bay Journal*, also has no effect on the ongoing regulation of "traditional" air pollutants, such as nitrogen.

Air regulations don't just make people healthier; they can make the Bay healthier as well, scientists say. Airborne nitrogen that falls back to the earth or directly on the water's surface accounts for about one-third of that nutrient in the Bay.

About half of that airborne nitrogen typically leaves tailpipes and smokestacks as NOx. The other half is in the form of ammonia, mostly from agriculture. From 1985 to 2015, federal air regulations helped reduce the amount of nitrogen entering the Bay from NOx emissions by an estimated 60%, research shows.

"Such a huge proportion of our [Bay cleanup] progress has come from the air deposition and NOx," said Joe Wood, a Virginia-based senior scientist for the Chesapeake Bay Foundation. "If you roll back some of those NOx emissions regulations, it has huge implications on our capacity to not just save the Bay but break even."

Keith Eshleman, a scientist with the University of Maryland's Center for Environmental Science's Appalachian Laboratory who has extensively studied air pollution impacts on water quality, is less certain that the repeal will significantly alter the cleanup.

The vehicle and power plant industries have been on pollution-cutting trajectories for so long, he said, it will likely take them a long time to change course, assuming they choose to do so. "This may be a bump in the road. It may be a hiatus," Eshleman said. "But it's not the end of making that transition."

Further, after years of successfully reining in atmospheric nitrogen, there just isn't that much more progress to be made on that front for the Bay, he said. According to computer modeling conducted for the Bay cleanup in 2024, a nationwide net-zero cap on carbon dioxide emissions from all sectors by 2050 would only lower nitrogen in the Bay from airborne sources by 5%. ■

Amid oyster bounty, Bay watermen suffer dismal harvest

Prolonged winter freeze, out-of-state competition and health scares cripple the market

By Timothy B. Wheeler & Jeremy Cox

It's the best of times in recent memory for Chesapeake Bay oysters. It's just the opposite, though, for the Maryland and Virginia watermen who make a living harvesting them.

The Bay's oysters have recovered from the MSX and Dermo diseases that decimated the population a little more than two decades ago. Recent reef surveys found them more abundant and fecund than they've been since the diseases hit in the late 1980s.

That's good news for the Bay because oysters are a keystone species that help filter the water. They also build reefs that provide habitat for fish, crabs and other marine life.

Until recently, the oysters' comeback was good for watermen, too, as they enjoyed increasingly robust wild harvests. The bounty peaked in the 2022-2023 season, with landings in Maryland of 723,000 bushels — the highest in 36 years. Virginia's harvest from public and privately leased oyster grounds likewise topped 700,000 bushels then, the best since the late 1980s.

This season, though, oyster landings plummeted, as did the prices paid to watermen for their catch. In Maryland, midway through the six-month season — normally from Oct. 1 to March 31 — the harvest was running 44% below what it had averaged the previous five years. Prices paid to watermen were down even more at 66% below the five-year average.

"It's been a terrible year, one of the worst that I've ever seen," said Jeff Harrison, head of the Talbot Watermen Association. His group set up a relief fund to help watermen who might be in financial distress.

Watermen in both Maryland and Virginia say the 2025-2026 wild oyster harvest season was hammered by a triple whammy: a glut of oysters nationally, icy weather and a flurry of bad PR for oysters.

Warning that Maryland's oyster industry faced devastation, Gov. Wes Moore in late February asked U.S. Commerce Secretary Howard Lutnick for federal disaster assistance to help watermen weather their economic crisis. Moore's request followed one submitted weeks earlier by U.S. Rep. Andy Harris, whose district covers the Eastern Shore.

Harris, Maryland's lone Republican member of Congress, said that the season was affected by "a confluence of factors that individually weren't so bad." But "taken together" they all but ruined the industry's fortunes in Maryland.

Chumley Fisher offloads oysters from Chet Schwartz's boat on Tilghman Island, MD. (Dave Harp)

"Our watermen are pretty resilient," he added. "They're like our farmers. They have good years and bad years. But if you have a couple bad seasons in a row, then you're in trouble."

Frozen water, health concerns

The pleas for federal help came amid a prolonged cold snap that from late January through mid-February froze large portions of the Bay and its rivers, especially along the shores. Watermen couldn't get their boats out. Harrison said his boat was iced in on Tilghman Island for about two weeks.

But problems with selling their harvest began well before that frigid snap and continued after the ice melted. By Thanksgiving, when consumer demand for oysters is normally strongest, many watermen found that their usual buyers were limiting how many bushels they would take. Some declined to take any oysters for part or most of every week.

It didn't help when news broke in late December of a nationwide salmonella outbreak that the U.S. Centers for Disease Control and Prevention linked to eating raw oysters. Eighty people were sickened in 23 states, including three in Maryland and six in Virginia, with no reported deaths. Investigators were unable to pin down a common source for the illnesses.

An oyster shucker at Wittman Wharf Seafood in Talbot County, MD, displays an oyster. (Dave Harp)

Then, in late January, a huge sewer line near the District of Columbia ruptured, releasing a massive wastewater spill into the Potomac River. Maryland regulators ordered a precautionary closure of oyster harvesting for 60 miles downriver to the U.S. 301 bridge. It was lifted March 10. But distributors and consumers became even more skittish about buying oysters from farther downriver in the Potomac and elsewhere in the Bay.

It added up to a "perfect storm" of economic challenges for the Chesapeake oyster industry, said Andrew Scheld, a fisheries economist with the Virginia Institute of Marine Science.

The region's oyster industry might be becoming a victim of its own success, Scheld observed. The oyster population rebound that enabled harvests to increase ultimately outpaced the market for them. Now, recent surveys show that the oyster biomass — the overall weight of oysters in the ecosystem — is at an all-time high in more than 30 years of recordkeeping and more than five times higher than the population's low point in 2002.

"There are plenty of oysters out there. They're just not being harvested," said Mitch Tarnowski, who leads an annual survey of Maryland's oyster reefs for the Department of Natural Resources.

The same was true farther south. J.C. Hudgins, president of the Virginia Watermen's Association, said in early March he'd had no trouble hitting his boat's 16-bushel limit, usually within two hours, on the Piankatank River. But, he added, this past season was the worst for selling the harvest in 25 years.

Less demand for oysters

Like virtually every oysterman, Hudgins didn't go out on the water in the morning unless he heard that his buyer would be purchasing his catch at the end of the day. During the season's lowest point in January, he was unable to work for seven out of a possible 22 days. Some harvesters were stuck at the dock for up to 12 days.

Wholesale buyers said they had to cut back on what they bought because they were getting fewer orders from restaurants and seafood markets.

Jason Ruth, owner of Harris Seafood Co., which buys and shucks oysters at a plant in Grasonville, MD, said the Bay's oyster industry is being squeezed by competition from other states and generational shifts in seafood consumption.

Over the past decade, Ruth said, the Chesapeake oyster industry has been "propped up" by slumps in yields in Louisiana, Texas, North Carolina, Mississippi and Florida.

Pat Whewell of Tilghman Island culls oysters aboard Lonnie Gowe's boat in Maryland's Broad Creek. (Dave Harp)

A worker shucks oysters at Wittman Wharf Seafood in Talbot County, MD. (Dave Harp)

Freshly shucked Tilghman Brand oysters are packaged at Wittman Wharf Seafood in Talbot County, MD. (Dave Harp)

But this year, other states' estuaries are brimming with oysters, too.

"With Florida and Mississippi reopening," Ruth explained, "the entire industry is flooded with product, causing reduced prices and low demand. Most processors are now only buying what they can sell locally rather than [marketing to] other states, which directly impacts the watermen's ability to work daily."

Ruth said his company "managed relatively well despite declining sales" because it has a "diverse clientele and product line" that buffered it from the declines affecting buyers who rely more heavily on shipping oysters to surrounding states.

Even so, Ruth said the industry is suffering from a gradual shift in consumer tastes.

"While the demand for boutique aquaculture oysters has grown over the last decade," he said, "the shucked oyster sector — the larger part of the industry — has seen a 60-year nationwide decline." Rising production costs and trends toward healthier eating have weakened sales because "shucked oysters are primarily used for fried dishes or heavy stews, which are less popular today."

"People aren't going to spend $20 for a pint of oysters," Hudgins agreed. "It's pretty expensive eating. I think people are feeding their families in other ways."

Federal disaster relief

In response to the prolonged sub-freezing weather, Maryland's Department of Natural Resources (DNR) extended the wild oyster season by two weeks until April 14. While watermen welcomed the gesture, many weren't sure it would help much if they still couldn't sell their harvest.

Federal disaster assistance, if granted, could provide Maryland with some funds to throw an economic lifeline to cash-strapped watermen. There is precedent. In 2008, the National Oceanic and Atmospheric Administration gave Maryland and Virginia $10 million each after blue crab harvests plummeted for unknown reasons. That money paid watermen for off-season work to retrieve derelict crab pots and perform oyster reef upgrades.

Federal help is far from assured, though, and might take months to materialize.

"We won't be the only ones asking for disaster relief," DNR Secretary Josh Kurtz cautioned concerned Eastern Shore legislators.

In years past, troubles with more valuable commercial fisheries on the West Coast and in the Gulf of Mexico have usually cornered the limited funding. In 2023, NOAA rejected Maryland's bid for disaster aid to counter the depredations of invasive blue catfish on the Bay's crabs, striped bass and other commercially valuable fish.

Not everyone suffered as much or thinks federal help is needed. The Virginia Marine Resources Commission extended the state's oyster season by two weeks in three key regions in response to the icy conditions, but no one there called for joining Maryland in seeking disaster relief. Virginia's Hudgins said he's fine with that because the deep freeze in the lower half of the Bay was nowhere near as bad as in Maryland.

Marketing needs

With the ice gone and the lifting of the Potomac harvest closure, watermen expected some improvements in harvest and markets in the final weeks of the season.

But even if next season brings better weather, the Bay oyster industry's future remains clouded by economic challenges, even as its bivalve population thrives. Maryland watermen say they could use the state's help marketing their harvest.

"This is Maryland — we're known for our seafood," Talbot's Harrison said. "Why can't we sell it?"

The Maryland Department of Agriculture's marketing department already promotes oysters along with the rest of the state's seafood and farm products. But much of the publicity has focused on touting farm-raised oysters and getting consumers to eat invasive blue catfish.

Matthew Scales, MDA's seafood marketing director, said his office is doing what it can to boost the state's bivalves. He took a delegation, including a chef and an oyster farmer, to the Seafood Expo North America in Boston in March to show off the Bay's bounty.

The long-term task is clear, he said. "It's a generational thing. How do we get more [and younger] people cooking with oysters," making oyster stew, oyster stuffing, oyster po-boys and the like.

But Scales only has a $170,000 budget, funded by a license surcharge watermen pay to promote Maryland seafood. Crabs also face out-of-state competition.

The state has done a lot to promote its farmed oysters over the last decade, said Robert T. Brown Sr., president of the Maryland Watermen's Association. The public fishery could use the same attention, he said.

"Mother Nature's been good to us," Brown said, "given us [great] natural oyster recruitment up and down the Bay … and now we need help because without more markets for next year, our [oyster industry] is going to be in dire need."

Making a living on the water is getting tougher as fuel and equipment costs continue to climb, Hudgins said. He was getting $30-$40 per bushel for his harvest, he said, which adds up to $280-$320 per day in take-home pay. But after factoring in his own costs, he said, "you're lucky if you can put $150 in your pocket per day. And it ain't no easy job. You're freezing your butt off. It's cold."

Environmentalists have often been at odds with watermen over oyster management, but the Chesapeake Bay Foundation issued a statement in support of Moore's request for disaster relief.

"One of the most important ways people connect with the Chesapeake Bay is through eating seafood and fishing," said Allison Colden, the foundation's Maryland executive director. Without watermen, she added, "there's certainly a lot fewer eyes on the water and a lot fewer people caring passionately about the Bay." ■

AI tool helps farmers keep nitrogen in food, out of water

Tool helps farmers precisely apply fertilizer where other conservation methods fall short

By Lauren Hines-Acosta

Artificial intelligence can be a drain on the environment but, in some scenarios, it may also help solve one of the Chesapeake Bay's biggest problems: overfertilizing crops.

An AI program, PlantMap3D, promises to help farmers apply only as much fertilizer as they need to supplement nutrients left behind by cover crops.

Cover crops, usually grasses and legumes, are grown by farmers during the offseason when fields aren't producing their main cash crops. Cover crops reduce nutrient pollution in agricultural runoff by inhibiting erosion and taking up nutrients, storing them in the plants and the soil for later use by cash crops.

The AI technology will analyze the cover crops and calculate the amount of nutrients they have added to the soil before the farmer plants the cash crop. Environmentalists hope it will reduce nutrient pollution in waterways, and it could also demonstrate the limitations of cover crop nutrients. Enrolled farmers in three Bay watershed states will start using the program this spring.

In excess amounts, nutrients from chemical and manure fertilizer can create "dead zones" in the Bay that deprive aquatic species of oxygen. Based on a scientific model from the Chesapeake Bay Program, conservation practices like cover crops have reduced nutrient pollution in the Bay. The model estimates that the two main forms of nutrients, nitrogen and phosphorus, entering the Bay have decreased by 15% and 22% respectively between 2009 and 2024. But it's unclear if that's truly what's happening on the ground.

Mike Twining, vice president of innovation at Willard Agri-Service, which helps implement the AI tool on farms, said that while not all Bay goals have been met, "I also would [say] we've come a really long way." He added that "technologies like this will enable us to get better."

The Nature Conservancy, in partnership with Willard Agri-Service, Growmark FS, North Carolina State University and the U.S. Department of Agriculture, plans to bring the AI program to 150,000 acres across Maryland, Delaware and Pennsylvania.

Backed by about $16 million from the USDA's Natural Resources Conservation Service and about $11 million in partner contributions, the tool will be free to eligible farmers. And if they end up seeing a dip in production, the program will pay them up to $50 per acre.

U.S. Department of Agriculture technician Zack Grzywacz programs a camera to identify plants at the Beltsville Agricultural Research Center in Maryland on April 29, 2025. (Matt Kane/The Nature Conservancy)

Different cover crops work with nitrogen in different ways. Legumes, such as peas, are nitrogen "fixing" crops because nitrogen gas in the plant's roots is converted to ammonia by soil bacteria. Ammonia is a form of nitrogen that the plants readily consume.

Grasses like rye and oats, by contrast, are nitrogen "scavengers." They tend to absorb nitrogen from the soil — though they return it to the soil after the cover crops decompose on-site.

Many farmers use a mix of cover crops because one species can enhance the other. For instance, grass and legume cover crops can even out each other's rates of decomposition to give time for microbes to eat up the nutrients. But sometimes one crop can overpower the other, creating patchy spots and an unclear picture of how much nitrogen is present.

A camera mounted to farming equipment in Beltsville, MD, records plant diversity as it passes over cover crops in April 2025. (Matt Kane/The Nature Conservancy)

"Cover crops are a great tool and good practice, but they bring complexity," said Chris Reberg-Horton, North Carolina State University professor.

This is where PlantMap3D comes in. It starts with cameras on farm equipment that take pictures of the cover crops as farmers drive the equipment across the field. Then, the AI software will identify the plant species in all the photos. The process produces a map and measures how much biomass of each species is present.

Simultaneously, Reberg-Horton feeds the model with information about the chemical makeup of the soil, recent weather patterns, the plant species and their growth stages. By the end, the farmer has a map showing which areas of their land need more or less fertilizer.

The Nature Conservancy expects this program will prevent three million pounds of nitrogen from being applied to fields and potentially running off into Bay waterways. According to Reberg-Horton, the amount of fertilizer applied after using the technology varied at experimental farms.

Twining, with Willard Agri-Service, said the program will help farmers understand the biology of cover crops. "This deeper understanding" he said, "will ultimately create the win-win everyone is looking for — better environmental outcomes and more profitable Mid-Atlantic farmers."

Charlie White, professor of nutrient management at Penn State University, said PlantMap3D might not provide a farmer with the full picture of their nitrogen fertilizer needs because it only provides nutrient information on cover crops, without accounting for nitrogen that may be available from the soil as well. PlantMap3D relies on the farmer to calculate how much fertilizer they'd use if they didn't have the cover crop information as a starting point.

At the very least, White said, it could help farmers understand the short-term nutrient impact of their cover crops.

"We need lots of tools available," White said. "I'm glad that [PlantMap3D] is getting people to talk about the need for improving nitrogen fertilizer recommendations. All of those things are critically needed and helpful." ■

MD climate-smart roadmap for agriculture outlines challenges

Farmers will need to adjust to rising temperatures, more intense storms

Rick Abend's soy field near Madison, MD, has been decimated by saltwater intrusion because of unusually high tides. (Dave Harp)

Farmland stretches toward the Susquehanna River in Lancaster County, PA. (Will Parson/Chesapeake Bay Program)

By Karl Blankenship

For farmers in Maryland, the problems posed by a changing climate are not just something to worry about in the future: They've been feeling the impacts for years.

Rising Chesapeake Bay water levels are causing saltwater intrusion, which has harmed production on thousands of acres of farmland and threatens thousands more.

Poultry growers have to spend more on energy to manage higher humidity and temperatures in chicken houses, while longer dry spells and more frequent heavy rain are hurting crops and livestock. Rising temperatures are increasing threats from pests and pathogens.

Those problems will become more profound in the future, according to new report that lays out a "climate smart" plan to help Maryland farmers adapt to changing conditions while increasing production and minimizing environmental impacts.

The report, *Maryland Climate Smart Agriculture: Roadmap to Resilience*, was prepared by the nonprofit Hughes Center for Agro-Ecology and the University of Maryland College of Agriculture and Natural Resources. It drew on input from researchers, farmers, state agencies, conservation groups and a variety of stakeholders.

"Producers told us that what they're seeing, what they're experiencing, is not normal," said Ernie Shea, a co-chair of the team that produced the report. "We're having increasing episodes of droughts followed by extreme variations in precipitation, from drought to floods."

Shea, president of the nonprofit Solutions from the Land, which focuses on agriculture and forestry conservation, said climate change is "a threat multiplier" for future Maryland agriculture.

"We need to be stepping up our efforts," he said, "to adapt, improve resiliency and make sure we are protecting the state's number one commercial industry."

Climate impact on farms is important to Bay cleanup activities as well. Rising water causes saltier water to inundate farmlands, where it kills crops and increases phosphorus runoff, which spurs algal blooms.

More intense rain, meanwhile, can wash more water-fouling nutrients off the land, and many common conservation practices used to reduce that runoff, such as cover crops or streamside buffers, may become less effective.

"What worked 10 years ago, when we had a certain set of conditions, whether it's rainfall or temperatures, may not work today, when we have more intense rain [and] higher nighttime temperatures that disrupt productivity," Shea told a state legislative hearing. "These best management practices … need to be keeping up with the changing conditions."

The report was commissioned by the state General Assembly in 2022 to provide a better picture of how climate would impact the state's $8.5 billion annual agricultural industry, which covers a third of the state's land, and what measures are needed to help it adapt.

Acknowledging that farms in the state already need to become more efficient and productive to meet future food demands and remain profitable, the report said climate change will make that even more of an uphill battle.

Springs are getting wetter, summers are hotter, new pests are migrating from warmer regions and "false springs" have caused early blooms in orchards, hampering fruit production.

The report predicts that all counties will suffer decreased corn production by 2050, particularly on the Eastern Shore, driven by more frequent "corn killing" high temperatures.

A key need to help adapt, the report said, is more research. Maryland needs crop varieties that are more tolerant of higher temperatures and drought conditions and more resistant to pests and pathogens. Salt-tolerant species are needed as well. And more diversification is needed beyond today's common corn-soybean crop rotation. Just as important, the report noted, is to have a market for any new crop.

"Crop diversification needs to be based on a good understanding of ag markets and the practical consideration of economics," said Puneet Srivastava, associate dean for research with the University of Maryland College of Agriculture and Natural Resources, who was co-chair of the report team.

"If you come up with a crop that might survive in climate change scenarios but there is no market, then probably that crop diversification would not succeed," he said.

More localized information about climate impacts is needed, too. While regional and global impacts are understood, there is often little local data at the scale needed to help farmers manage their lands or help agencies manage water reserves.

For instance, drier conditions will likely increase the need for irrigation, drawing on aquifers already stressed by demand from both farms and increased development.

But the report said there are critical gaps in basic data about rainfall, groundwater and soil conditions. That information is critical for making better local decisions about irrigation management. It also said investments are likely needed in water storage capacity and equipment to more precisely irrigate crops.

The report said new irrigation approaches should be considered, such as the reuse of treated water from wastewater treatment plants for nonfood crops.

It emphasized that agricultural issues need to be integrated with other statewide climate actions. For example, efforts to promote solar energy could lead to farmland losses, affecting the ability to meet agricultural goals for food production and climate mitigation. The state is counting on farmland to capture and store carbon dioxide to help achieve its net-zero greenhouse gas emission goals by 2045.

Among other recommendations, the report called for an "early warning" system to alert farmers to conditions that may affect production, along with a "one-stop shop" that could provide information on adapting to changing conditions and related financial assistance.

The report focuses on actions, research and adaptations needed in the next 25 years, but the problem won't be resolved at that point. "The reality is that these are generational challenges," Shea said. "This is not going to be solved in three, five or 10 years. These are going to be with us for decades to come."

It will be a long haul, he said, "but we can succeed by working together, and I think that's our takeaway message. This challenge is an opportunity for all of us to come together."

To read the report, go to agnr.umd.edu and search for "Roadmap to Resilience." ■

EPA proposes 'significant' funding cuts to Bay advisors

Critics say the move will undercut independent public and scientific engagement

By Jeremy Cox

The U.S. Environmental Protection Agency is proposing deep spending cuts on the Chesapeake Bay cleanup that critics say will undermine the effort's scientific integrity and public outreach.

The federal agency published a "notice of funding opportunity" on March 10 seeking applicants on a contract providing administrative support to four advisory committees to the Chesapeake Bay Program, the state-federal partnership leading the cleanup effort. The agreement would pay the winning applicant up to $2.45 million over five years.

On an annual basis, that would amount to a one-third cut from the total spent in 2025, according to figures provided by the EPA.

EPA spokeswoman Molly Vaseliou said the new amount "does not signal a reduced commitment" to the committees but rather an "increased commitment to direct implementation." The agency will redirect the savings to grants that support what the spokesperson called "real, on the ground projects" that reduce nutrient and sediment pollution to the Bay.

But some environmental advocates and state policymakers say the reduction is deeper than it looks at first blush. The 2025 funding was reduced for at least some of the committees after the change in presidential administrations. Compared to 2023 and 2024, the contract represents a cut of 50% or more, they say.

Many of the restoration effort's advisors, who mostly consist of scientists, environmental regulators, clean-water advocates and agricultural leaders, were caught off guard by the action. Representatives of some of the program's signatory partners say they weren't asked for input, a breach of the cleanup program's consensus-based, decision-making norms.

And some critics contend that the contract's language gives the EPA unprecedented control over the committees' ability to set their own priorities.

"It's substantially different from previous requests for funding," said Leila Duman, the Chesapeake and Atlantic Coastal Bays restoration officer for the Maryland Department of Natural Resources and a member of the Bay Program's management board. "From a very broad level, this [notice] cuts about half of the funding that provides the coordination staff and potentially changes the way the advisory committees operate in a pretty significant way."

The Chesapeake Bay cleanup is led by the Bay Program, a state-federal partnership with committees that advise on public engagement, local government, science and agriculture. (Dave Harp)

For more than four decades, the driving force behind cleaning up America's largest estuary has been the Chesapeake Bay Program, led by 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 EPA.

The effort has produced mixed results. Priorities such as oyster restoration, land preservation and public access to waterways have reached the partnership's self-imposed goals, and more progress continues to be made on those fronts. But other goals are lagging far behind, including the central aim of reducing nutrient and sediment pollution.

The contract at the center of the controversy deals with the funding and operation of the program's four advisory committees: the Stakeholders' Advisory Committee, Local Government Advisory Committee, Scientific and Technical Advisory Committee and Agricultural Advisory Committee.

The committees bring to bear knowledge and advice on the cleanup from a variety of sources. They provide input directly to the governors, the EPA administrator and other members of the Bay Program's Executive Council.

Several critics said a move to diminish their role would erode the program's overall effectiveness and efficiency at a time when its leadership is trying to accelerate cleanup results.

"Without their independent feedback, we are missing critical information and data from the people who are experiencing the successes of and challenges to the restoration effort in real time, making it harder to adapt to threats to our progress," said Kristin Reilly, director of the Choose Clean Water Coalition.

The committee members are volunteers, appointed from across the 64,000-square-mile watershed, and they often bring years of experience and unique perspectives to the program's toughest policy questions, said Anna Killius, executive director of the Bay Commission, a tri-state body of lawmakers. With the ink still drying on the newly revised Bay Agreement, which is set to guide the effort through 2040, she said the partnership can ill afford to upend its committees.

"We urgently need the fresh, bold ideas and forward thinking that our advisory committees consistently provide," Killius said in a statement.

To understand the importance of the committees, several advocates said, look no further than the hefty report authored in 2023 by the Scientific and Technical committee. The report, called the Comprehensive Evaluation of System Response, is widely credited with steering the partnership to put greater emphasis on reviving shallow waters that support many types of aquatic life.

At a Bay Program meeting in mid-March, several participants spoke out about the proposed changes. Representatives of the state governments of Maryland and Virginia each expressed reservations about the contract. Bill Dennison, a marine scientist at University of Maryland Center for Environmental Science and chair of the Scientific and Technical committee, said his committee faces the steepest cutbacks, reducing its ability to meet the program's scientific needs.

And others have questioned why funding is being reduced at a time when the Bay Program is receiving a historic high of $93 million in funding from Congress.

Dan Coogan, who has headed the EPA's Bay Program office since last October, said at the meeting that the revised budget would result in greater funding parity among the committees.

Verna Harrison, a member of the Stakeholders' Advisory Committee and former assistant secretary of the Maryland Department of Natural Resources, said she worries that the contract's language undermines the committees' independence. She pointed to wording she says gives EPA officials excessive sway in committee decisions, including setting agendas and selecting committee members. The EPA, though, disagrees that it is improperly inserting itself into committee business.

Harrison added that she hopes the EPA withdraws the notice of funding and draws up a new one in consultation with its Bay Program partners.

In her statement to the *Bay Journal*, the EPA's Vaseliou said the agency has no intention of doing that. The agency has set an April 24 deadline for applications to apply for the funding opportunity. ■

VA creek begins to heal after decades of pollution

Blackwater Creek shows improvement after Lynchburg removes dam, fixes sewer system

OUR WATERWAYS

By Lauren Hines-Acosta

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

Last year's removal of a dam on Blackwater Creek allowed the city of Lynchburg, VA, to restore the creek's path along what had been the bottom of Lynchburg's College Lake. (Lauren Hines-Acosta)

Ken Smith, former executive coordinator of Citizens for a Clean Lynchburg, rests on the newly created Blackwater Creek Trail. (Lauren Hines-Acosta)

Wading in Blackwater Creek in Lynchburg, VA, years ago, Ken Smith waited for his turn to cut up a fallen tree with other volunteers from Citizens for a Clean Lynchburg.

"All these little critters [were] swimming by," Smith said. "And I looked at somebody, and I said, 'There's a snake.' They said, 'Believe me, with all the E. coli here, you have more things to worry about than that snake.'"

Years later, that narrative is changing. Because of bacteria problems, Blackwater Creek has been on the state's list of impaired waters since 1996. But scientists say the small stream is beginning to heal due to restoration efforts and city infrastructure projects.

Blackwater Creek flows through Lynchburg, called the "hilly city" by some, coming from the Blue Ridge Mountains to the east and joining the James River at the east edge of the downtown area. The creek's watershed covers about 6,000 acres starting in Campbell and Bedford counties.

Over the last 25 years in Lynchburg, Smith has helped the Robert E. Lee Conservation District plant trees along the creek and led environmental education projects throughout the city.

Although now retired, Smith was hired as the executive coordinator for the Citizens for a Clean Lynchburg by the late Ed Page. The two became friends — Page working him "like a dog," in Smith's words — in pursuit of Page's vision of a trail along the creek. Page passed away in 2002, but, since then, Smith has seen his friend's idea become a reality.

Blackwater Creek Trail runs three miles along the creek with offshoots offering opportunities to spot deer, beavers and birds. The city named the main trailhead entrance after Page.

Visitors can now get closer to the creek, but it still faces challenges. According to Smith and others, the creek has been facing development pressure. Also, the banks of its headwater streams are eroding, sending sediment into the creek and into the James River.

The creek has a history of high bacteria counts, which come from pet waste, failing septic systems and discharge from the city's combined sewer overflow system. During heavy rains, that system pours a mix of stormwater and untreated wastewater into the creek.

After the state listed the creek as impaired by bacteria in 1996, there was a coordinated restoration effort that resulted in the 2008 Blackwater Creek Watershed Management Plan. While the plan was never formally adopted, it created a baseline for the city to move forward with other restoration projects. But according to the 2024 Integrated Report from the state Department of Environmental Quality, the creek was still listed as impaired for bacteria and PCBs, the latter prompting fish-consumption advisories.

The creek was also fragmented in 1934. The state and University of Lynchburg built a dam on the creek to form a wide section of water called College Lake. The dam also accommodated a key roadway for the city. Over the decades, the lake shrank due to sediment buildup. By 2018, intense flooding spurred the city's decision to remove the already deteriorating dam.

The city first breached the dam in May 2024. Erin Hawkins, Lynchburg's water quality manager, remembers the moment when the two sections of the creek rejoined after 90 years.

"To see the dam gone, it was a pretty surreal moment to be part of that," Hawkins said.

The project, completed last November, required the removal of about 150,000 cubic yards of sediment to create a stable streambed. The stream channel now has wetlands and curves that allow water to move more freely in its floodplain. Hawkins said she has seen deer and snapping turtles move into the area.

The abortive 2008 management plan wasn't entirely for nought — among other things, it identified Lynchburg's combined sewer overflows as a significant source of bacteria. While the city had already closed 115 of the 132 overflow points, it created a plan in 2015 to address the remaining sections. So far, the city has built a tunnel and storage tank that together will hold 4.7 million gallons of combined stormwater and wastewater until it can be treated at a wastewater plant. That project was 50% complete by December 2025.

Data shows that those efforts are working. Sarah Sojka, associate professor of environmental studies at Lynchburg's Randolph College, has been collecting data on the levels of oxygen, sediment, bacteria and benthic macroinvertebrates in the creek for years.

After the city removed the dam, built-up sediment flushed out. Habitats with pebbled bottoms became sandy. In the first few months after removal, Sojka saw sediment levels at 300 milligrams per liter. Recent levels are about one-tenth of that.

Another sign of improvement is the number and diversity of benthic macroinvertebrates, such as insects and snails. Between October 2024 and September 2025, Sojka found a huge increase in these organisms, including mayflies, which need good water quality to survive.

Sojka said she's seeing high levels of oxygen for aquatic species in the creek year-round, but bacteria levels are still high, likely from runoff and urbanization. Still, she expects the creek will be a lot healthier in another five years.

"I think what we're seeing is the sign of a stream that is healing" Sojka said. "The big threats to the stream have been removed, and so now it's kind of a time of letting the stream recover."

The state Department of Environmental Quality will monitor the creek in 2027 and 2028 and then assess the stream every two years. It needs two years of water quality data showing that bacteria levels are acceptable before it can begin the process of removing the stream from its impaired waterways list. ■

Explore the series with an interactive map at bayjournal.com/our-waterways.

Study highlights resistance to 'retreat' in face of rising water

Researchers explore why many people in flood-threatened communities choose to stay put

By Jeremy Cox

After Hurricane Sandy caused widespread flooding on Smith Island in 2012, Maryland housing officials earmarked $2 million in buyouts for homeowners. The deal was simple: Take the money and start a new life somewhere else.

Instead, the community stood its ground. Residents formed a civic group to lobby for flood-protection measures. Over the next decade, they secured more than $20 million in infrastructure investments.

Such efforts have almost certainly bought time for the 200 or so people who call Smith Island home. But scientists say that sea level rise will likely make the low-lying Chesapeake Bay island uninhabitable in a matter of decades.

As more places across the country face permanent inundation amid a rapidly changing climate, new research suggests that getting residents out of harm's way may be complicated.

Two social scientists — David Casagrande of Lehigh University in Pennsylvania and Aaron Lampman of Washington College in Maryland — spent more than two years interviewing more than 60 people at risk of losing their homes to rising waters. Their subjects included homeowners, commercial fishermen, tourism operators, local officials and more. Most hailed from Smith Island, but some were from other flood-plagued places on Maryland's Eastern Shore.

Their study was published in April 2025 in the journal *Frontiers in Climate*. This *Bay Journal* interview with the researchers was edited for length and clarity.

Question: Where did your interest in Smith Island come from?

Casagrande: I guess it was eight years ago. I just came across a news article about Smith Island turning down buyout offers after Hurricane Sandy and, when I read the article, a lot of the issues completely resonated with what I was studying at the time. It seemed to me if there was any place on Earth that would be an ideal candidate for buyouts and managed retreat, it would be Smith Island.

Q: Can you define "managed retreat"?

Casagrande: Managed retreat is an organized, strategic process of helping people relocate out of harm's way. Some countries have very well-developed managed retreat, like obviously someplace like Holland. But in the United States, we have no managed retreat policy. All we have is this FEMA buyout process that's kind of haphazard. It targets individual homeowners versus relocating entire communities.

A visitor to Smith Island, MD, sloshes through high water during a nor'easter. (Dave Harp)

Q: Has managed retreat worked anywhere in the U.S.?

Casagrande: The poster child is Valmeyer, Illinois. In 1993, there was a flood on the Mississippi River that wiped out this town of about 900 people. The mayor was instrumental in convincing the [residents] — rather than rebuilding the levee and hoping the levee didn't fail the next time — to relocate the town to higher ground. So, why does that work in Valmeyer, and it won't work in Smith Island?

Q: What were the initial reactions you got as you started asking about climate change?

Lampman: We made this major mistake … Our first question was, "Tell us everything you think of when we say the phrase 'climate change.'" And it really caused dramatic, angry, defensive answers right away. We were starting off an interview with people we were hoping that we could talk to for an hour with a kind of defensive response. I think after the third or fourth interview, [the researchers] all looked at each other and said, "Oh no, we cannot do this."

Q: Why do people stay on Smith Island?

Casagrande: There are people who want to leave, [but] what's interesting is to see how the conversation at the community level develops in a way that drowns out those voices … We work with [what's called] cultural risk theory, and the essence of it is that the types of risk we pay attention to are a function of our group identity. And so, it's no surprise that more politically conservative people are less likely to believe in climate change.

Marshes and beaches on Maryland's Smith Island have been gradually washing away for centuries, a process that will likely accelerate because of sea level rise. (Dave Harp)

Q: So, what do they see as the risk instead?

Casagrande: People disinvesting in our communities, and our schools slowly dying, and children moving away and not coming back because there are no employment opportunities. We're worried about losing the heritage. We don't like that [people] are coming in as retirees and buying up houses and changing our community.

Q: You have a term "ecomyopia"? Where does it come from? How does it apply here?

Casagrande: Looking across the broad sweep of human experience, we see all of these cases from the collapse of the classic Maya to Easter Island, where people got stuck in these ways of organizing themselves that made them not be able to see the ecological realities.

Lampman: A quick definition is: a tendency to ignore environmental information, particularly if it challenges existing structures of power.

Q: Are you employing the word "myopia" in the pejorative sense?

Casagrande: We are using the root "myopia" in a clinical, medical sense and specifically not pejorative. Similar to a medical diagnosis of myopia, a patient is not assumed to be at fault or somehow deficient.

Q: In these examples you cite from the past, things did not end very well. Is there a different path possible for Smith Island?

Lampman: What we think is happening and is the most likely outcome is involuntary retreat, rather than strategic retreat. It's probably going to be retreat by attrition. And that means that individuals are going to get up and leave, and maybe they're leaving behind whatever [home] equity they had.

Q: I would argue that's already happening, and it's been happening for decades. Am I wrong?

Lampman: No, you're right, yeah.

Casagrande: But there are a lot of things converging. It's not just sea level rise. It's really hard to tease out what is the signal of sea level rise versus just economic change. ■

Women break barriers in hunting, fishing across VA

New state program recruits women to increase participation in outdoor sports

By Lauren Hines-Acosta

Tara Jackson sits on the cold Virginia forest floor scanning the trees for a deer she's tracked for miles. The still, snow-blanketed forest puts her in a meditative state — until a deer appears. Her heart races. To get the shot, she recalls everything she's learned from the Virginia Outdoor Women program.

Fishing and hunting license sales have been declining in the Chesapeake Bay watershed since the 1980s, which means less state funding for conservation. So, some states have created programs to recruit more people, especially women, to take up the sports. Only a year old, the Virginia Outdoor Women program is the latest program to help women find community and become leaders in these male-dominated spaces.

"If [hunting] is something that has been calling to you and that you want to do, there is room for you," Jackson said.

According to data from the U.S. Fish and Wildlife Service, since 1980 the number of hunting license holders has fallen by almost half in Virginia and a third in Maryland. This decline is due to a myriad of issues — the most often cited is the attrition of male Baby Boomers. Once the dominant demographic in hunting, they are now aging out of the sport. Younger generations still enjoy nature, but they focus on other activities, such as hiking.

The nationwide "recruitment, retention and reactivation" movement emerged in the 1980s to address this issue. States built programs to engage more people in hunting, fishing and shooting sports. More people in these sports means more license and equipment sales. Taxes on those sales go toward conservation funds.

Taniya Bethke, director of operations at the Council to Advance Hunting and the Shooting Sports, said it's important for people to have a relationship with wild spaces for their own health and for the health of wildlife. Hunting is important for managing a deer population whose browsing can have a serious impact on forests.

"Unless a whole lot of folks are paying very close attention to how we steward those spaces, there will be irreparable damage done," Bethke said. "That is something that we and those wild spaces cannot afford."

Participants in a Virginia Outdoor Women event took classes on everything from paddleboarding to fishing at the Amelia Wildlife Management Area in Amelia County, VA, in August 2025. (Meghan Marchetti)

Ciera Strickland, Virginia Outdoor Women program manager at the Virginia Department of Wildlife Resources, helped launch the state's program in February 2025. It teaches hunting, fishing and outdoor skills with certification classes in all three areas.

Women can also attend weekend camps, virtual meetings and social events that include activities such as archery before a happy hour at a nearby brewery. Strickland just has three rules for every event: Have fun, learn something new and meet someone new.

The program is open to women of all ages, identities and skill levels. All courses are free, but the weekend-long event will have a fee starting this year. Those interested can check the Virginia Department of Wildlife Resources website for upcoming events. The most recent was a women-only hunter education course in Montross, VA, on March 28.

Maryland has a similar program — Becoming an Outdoors-Woman (BOW) — that has been around for 30 years. It's a weekend-long adult summer camp of classes. BOW also offers advanced classes, called Beyond BOW, which focus on topics such as goose hunting, flyfishing or identifying plants.

One of Strickland's favorite parts of her job with the Virginia program is seeing women gain confidence after trying something new — a 14-year-old girl smiling

Ashley Bailer took archery and other classes with the Becoming an Outdoors Woman program in August 2024 in Swanton, MD. (Courtesy photo)

widely after catching her first fish or fear melting off a woman's face after feeling the kick of a shotgun for the first time.

"Just knowing that I'm providing those opportunities for women to learn and do something that gets them a little bit outside of their comfort zone and helps them grow, that's the best feeling in the world," Strickland said.

Data shows that women are interested in hunting and fishing, though many will buy a license for one year and not renew. A study from Oklahoma State University identified a few of the reasons that women are not inclined to go hunting. They were too busy taking care of their family; they found women's hunting gear inadequate, putting fashion over function; and they saw too few female mentors. Safety is also a concern for many women, whether it's hiking alone in the woods or hunting with strangers.

But the response to women-led programs has been vigorous. Since February 2025, the Virginia program has hosted more than 12 events and reached about 140 women. Maryland's program hosts an annual event when women spend a weekend in the woods learning new skills. It took only eight minutes for all 110 spots to sell out in 2024.

Many women who participated in the program said they enjoyed getting hands-on experience with experts, asking basic questions without judgement and making friends. Some wanted to learn more about hunting to feed their families independently, and others used the classes as free family activities.

Virginia's program is powered by volunteers, with some state staff leading classes. While volunteers don't have to be women, one of Strickland's priorities is to show people that there is a community of women wanting to teach other women in outdoor spaces.

That's why she hopes to add more mentoring events that will have women fishing, hunting and learning outdoor skills with an experienced mentor.

Representation can help women feel more comfortable doing something new and offer unique insights. For example, a female backpacking guide may have more advice regarding personal safety and taking care of a menstrual cycle while outdoors.

Tara Jackson, the newly minted deer hunter, is one of many women who grew up around hunting and fishing or had male partners and family members who took part in those activities. But they were never encouraged to lead or participate. They rediscovered their interest as adults and finally explored them through these programs.

Jackson attended the Virginia Outdoor Women event in January 2025 and set a goal to go on a solo deer hunt by the end of the year. She met that goal last December.

"I'm really excited about [hunting], and I'm really excited to continue to grow my knowledge, and Virginia Outdoor Women has made it so much more accessible for me," Jackson said. ■

Protected grassland showcases rare habitat on Eastern Shore

Photo: Ron Ketter leads a group of bird enthusiasts on a walk in Oxford Conservation Park on Maryland's Eastern Shore. (Dave Harp)

Inset photo: Red-winged blackbirds are frequently seen and heard at Oxford Conservation Park. (Dave Harp)

By Jeremy Cox

About two dozen people garbed in winter clothes massed at the edge of a grassy field alive with the sound of murmuring birds. Pretty soon, the people started murmuring, too.

"There's a house sparrow back there." "In the pine tree. Might pop out. There was a pine warbler." "I've got a cardinal, too." "There's a bunch all over the ground."

Life has few guarantees. That's certainly true if you're hoping to glimpse avian life on Maryland's Eastern Shore during the dregs of late winter. But the sponsors of this bird-spotting event had reason to believe that nature would provide for them here at the 86-acre Oxford Conservation Park.

And that reason is that the park is mainly composed of grassland, a rare habitat within the Shore's landscape of Colonial-era small towns, grain-growing farms, pine plantations, salt marshes and subdivisions. There are several species of birds found in healthy numbers here and rarely anywhere else because the habitats they best thrive in are dwindling.

"It's a huge asset to the area," said Anne Walker, co-leader of the event for the Talbot Bird Club. "It's habitat that we don't have much of. They're often plowed under or allowed to grow up into a forest."

If Oxford Conservation Park is any example, it takes a lot of work to furnish and maintain a sprawling plot of grassland. First, you must save the land from turning into a subdivision. The next step is to transform the existing corn and soybean field into a grassy haven for birds and wildlife. Then, the real work begins: keeping it that way.

"It'll be a never-ending project," said Larisa Prezioso, an enhanced stewardship manager for the Eastern Shore Land Conservancy, which jumped into the effort a few years ago.

Nature lovers may be initially drawn to the area by Oxford Conservation Park's restoration success story. But they may be enticed to stay a little longer to explore the postcard-ready community on the park's western flank. The town of Oxford, one of Maryland's earliest European settlements, has fashioned itself as a place removed from the bustle of Washington, Baltimore and other cities on the other side of the Chesapeake Bay.

Oxford Conservation Park is among the first landmarks that visitors encounter on the lone road into Oxford. There is another entrance into town, but it involves a vehicle ferry across the Tred Avon River, a tributary of the Choptank River.

That's worth noting because the ferry is something of a tourist attraction itself. Established in 1683, the Oxford-Bellevue Ferry is recognized as the oldest privately owned, continuously operating ferry in the United States.

The park functions as a quiet recreation option within easy walking distance for the town of 700 residents. It also serves as a place where stormwater can sink in, helping to reduce flooding in the town's streets. When the parkland was first established, workers bisected it with a freshwater wetland for just that purpose.

A little over a decade ago, the park seemed destined for a different fate. It was on the verge of becoming a housing development. In 2012, the Conservation Fund and a private donor stepped in to purchase the property. They later sold it to

Bird enthusiasts keep rapt attention on the grasslands at Oxford Conservation Park. (Dave Harp)

Cattails and native grasses encircle a small pond on the park grounds. (Dave Harp)

A northern mockingbird roosts at the top of a loblolly pine tree at Oxford Conservation Park. (Dave Harp)

Talbot County on the condition that it be developed into a public park.

The park opened in 2017 as a pocket of wetlands and grassland ringed by a 0.6-mile walking trail. At the time, Ron Ketter couldn't have been happier with the result. But his enthusiasm faded over the next few years as invasive plants moved in, especially phragmites — a tall nonnative reed that grows thickly on the Shore in wet areas ranging from tidal marshes to roadside ditches.

"When they first put it in, it was great," recalled Ketter, one of the walk's leaders on this day. "But it just had a lot of invasive species that took over."

A few years ago, a group called the Friends of Oxford Conservation Park began searching for expertise and funding to restore the land for a second time.

The expertise came from the Eastern Shore Land Conservancy and Washington College's Natural Lands Project, which helps to return marginal cropland on the Shore to a more natural state. The funding came from a $130,000 grant from the Maryland Department of Natural Resource's Chesapeake and Atlantic Coastal Bays Trust Fund.

Dan Small, the Natural Lands Project's coordinator and a field ecologist, began drawing up a plan. Among the bird species that depend on grasslands are sparrows, indigo buntings, meadowlarks and bobwhite quail.

These grasslands, though, are "few and far between, particularly on the Shore," Small said. So it's not surprising that the species that depend on that type of landscape are "some of the fastest declining that we have for birds."

Much of Small's work has centered on rebuilding quail populations. The plump, ground-dwelling bird was once a common sight on the rural Eastern Shore, and its distinctive whistling could be heard ringing across the fencerows and weedy, fallow fields that sheltered them. But modern farming practices all but wiped out those habitats, sending the quail population into a tailspin, Small said.

To attract quail and other grassland birds, the park's open areas would need to be planted with a low canopy of wildflowers to offer young birds protection from predators. Clumps of native shrubs would help shield them from the elements.

Last year, Small's plan started turning into action. About 30 acres at the rear of the park were still being farmed after the 40-acre phase opened. The team transformed 24 acres of that space into a meadow and planted trees on the remaining 6 acres.

Small said the work will now turn to restoring the original tract. Plans call for conducting a controlled burn by mid-April to tamp down the thick groves of Callery pear trees, an invasive species that includes the much-maligned Bradford pear. Small hopes to establish native grasses there instead.

Even in its less-than-pristine state, the park has been a magnet for birds. Observers have documented more than 170 different bird species there dating back to 2017, according to eBird, the online citizen science monitoring project run by the Cornell Lab of Ornithology.

During the nearly two-hour Talbot Bird Club walk, conducted on a foggy Saturday morning, the official tally was 205 individual birds spotted, representing 23 different species. There were 75 Canada geese, by far the most populous. That was followed by 30 American robins, 25 red-winged blackbirds, 15 song sparrows and 14 field sparrows.

None of the other species cracked double digits. But the presence of six different sparrow species, Ketter said, suggested that the restoration effort is on the right track. Well, except for the house sparrows.

"[The house sparrow is] a very beautiful bird, but it belongs in Europe, not here," he said. It's best to visit during the spring and fall migration periods to see the greatest variety of birds, Ketter added.

Master naturalist Anne Walker, the other bird expert on hand, maintained a slow, staccato walking pace near the group's rear. Her binoculars rarely rested around her neck for long.

To keep grasslands and meadows like these in good shape requires a constant effort, she said. Mowing and burning must be performed at regular intervals since the natural cycles of wildfires have disappeared.

"You have to keep it down and allow it to be messy without letting it become a forest," Walker said.

The park is about a 15-minute drive southwest of Easton. If you come this far for the birds, you might as well travel a minute farther for the historic, quaint edifices of Oxford. Bordered on three sides by water, the community has long been shaped by maritime trades.

Life is a bit sleepy there in the colder months, but establishments will start reopening their doors as spring arrives. Unfortunately, one of the town's best-known landmarks, the Robert Morris Inn, which dates to 1710, was recently condemned due to water intrusion. It likely won't be much use to tourists for quite a while, if ever again.

But there are plenty of other places to see, including stately churches, a town museum, relaxing restaurants, quirky shops and a port teeming with recreational vessels and working boats.

And once you're done with all that, the ferry awaits. ■

IF YOU GO

Oxford Conservation Park, at 4890 Boone Creek Road, Oxford, MD, is free and open to the public year-round. Amenities include a portable toilet (disguised within a wooden, outhouse-like shelter), a parking lot and a 0.6-mile circular, asphalt walking trail. Additional grassy trails are available in the newly opened 30-acre addition to the rear of the main loop.

CHESAPEAKE CHALLENGE

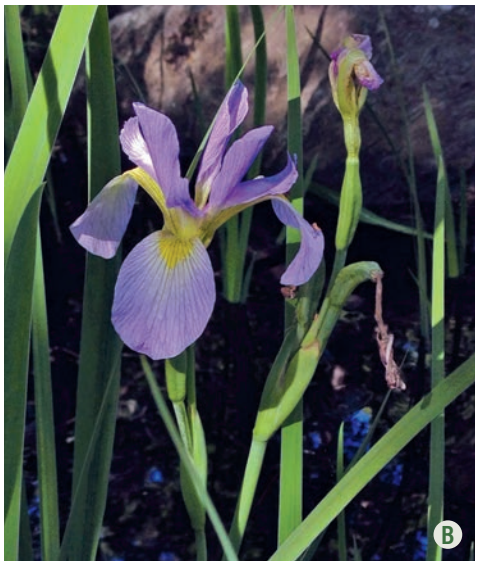
— Kathleen A. Gaskell

Springing the blues

Once in a blue moon indicates something rare. One could also say "once in a blue flower." Fewer than 10% of wildflowers are blue or bluish purple. Not only must a plant contain the right mix of pigments, or anthocyanins, but the soil's pH factor and mineral composition must be just so. Here are three blue wildflowers you might find in the Chesapeake Bay watershed in spring.

Remember my name: The forget-me-not (*Myosotis laxa*), a tiny blue flower with a yellow center, blooms mid-spring through late summer in wet areas. The name is said to go back to the dawn of Creation, when God was assigning names to plants and overlooked one. "Forget me not!" the little flower said. Another source says those were a knight's final words to his sweetheart before he drowned trying to retrieve a little blue flower for her. Its genus, *Myosotis*, is from Greek for "mouse's ear" and refers to the shape of the plant's leaves. There is also lore that the flower can ward off witchcraft.

The next time you're bitten by an alligator … reach for Southern blue flag (*Iris virginica*), used by Seminoles to treat the emotional and physical consequences of this injury. (Or not — all of the plant's parts are toxic to humans!) This iris is found in wet areas and can grow in up to 6 inches of water, making it an ideal species for water gardens. Added bonus: It's deer and rabbit resistant.



If the shape fits … The round-lobed half- to one-inch flowers of the *Hepatica* species are among the first to bloom in spring. But it is the plant's leaves that give it its common name, liverwort, and reputation. Its three-lobed leaves turn reddish brown in winter and looks like a human liver. Under the belief known as the "doctrine of signatures," if any part of an animal or plant resembles a human organ, it must be a remedy for that organ's ailments. Perhaps that has some connection to the term "lily-livered," as *Hepatica* was used to treat cowardice.

Title image: *A cluster of Virginia bluebells. (Cbaile19/CC0 1.0)*

A *Liverwort in full bloom. (Archenzo/CC BY-SA 3.0)*

B *A southern blue flag grows in the C&O Canal National Park along Maryland's Potomac River. (Fritz Flohr Reynolds/CC BY-SA 3.0)*

C *A spray of forget-me-not blossoms. (Anne Burgess/CC BY-SA 2.0)*

D *Virginia bluebells grow on Theodore Roosevelt Island in the District of Columbia. (Fritz Flohr Reynolds/CC BY-SA 3.0)*

Spring's a-pealing bluebells

What could be more glorious than a blanket of Virginia bluebells covering the watershed's warming springtime landscape. But don't be fooled by their name. Not all bluebells (*Mertensia virginica*) are blue; some blooms are pink or white. Test yourself on these other bluebell facts. Answers on page 32.

1. No matter what color they become, all Virginia bluebells don't start out blue. What is their initial color? (They may even revert to this color after pollination.)
   A. Pink B. Teal C. White
2. What is the first color change thought to signify?
   A. The amount of copper in the soil
   B. The flower's readiness for pollination
   C. The amount of rainfall the plant has received
3. Where are you most likely to see bluebells?
   A. Dry sunny areas
   B. South-facing rocky outcrops
   C. Moist forest floors, especially floodplains
4. How tall, in inches, do bluebells grow?
   A. 6–18 B. 8–24 C. 10–30
5. Which animal pollinates bluebells?
   A. Bumblebees
   B. Butterflies
   C. Hummingbirds
   D. All of the above
6. Which of these is not another name for Virginia bluebells?
   A. Gentlemen's breeches
   B. Old ladies' bonnets
   C. Maidens' petticoats
7. Bluebells are a spring ephemeral. What does that mean?
   A. They bloom, seed and die back in the very short time before the leafing tree canopy blocks their sun.
   B. Their petals are translucent in the sun.
   C. They are heavily scented.

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

If AI is so smart, why can't it clean up its own mess?

By Tom Horton

"What's going on now is a huge wealth transfer from consumers to some of the richest companies on earth …"

That's David Lapp, whose Office of People's Counsel in Maryland works to rein in the burgeoning costs of electricity driven by AI data centers.

It's a power demand that in the Chesapeake Bay region and beyond has tripled in the last decade and appears set to double or triple again in just the next few years.

And that's not counting the need to transmit all that power, with the potential to slice and dice our open spaces. The proposed 70-mile high-voltage line that would cross Maryland's Baltimore, Carroll and Frederick counties may be just the tip of the AI iceberg.

Artificial intelligence, we're constantly reminded, is scary smart, already able in its infancy to surpass the human brain in limited ways. It's the future, we're told, though many wonder whether it's a future they need or want — at least not in the rush to profit that has once again allowed technology's adverse impacts to leap ahead of our ability to foresee and forestall them.

And if I, writing this with floppy discs and 1984 software, could ask AI a question, I'd start with this: If you're so smart, why can't you be energy efficient?

Real intelligence should include doing more with less, making the most of scarce resources, including energy. It's how birds have evolved to migrate thousands of miles on the energy in a few ounces of fat.

It's why my brain is producing these words on about 20 steady watts of brain-power, according to the National Institutes of Health — scarcely enough to run a dim bulb (also 20 watts for Einstein solving physics problems and for you deciding whether to have a second cup of coffee).

A new data center goes up in Frederick County, MD. (Dave Harp)

AI, when it comes even close to emulating human thought, requires a small power plant's worth of electricity to run its computer banks, not to mention the millions of gallons of water used per day to cool servers in just one large data center.

The human brain evolved in a world of scarce resources, and it had to become energy efficient to survive and progress. Indeed, that's how it's worked for most of nature. It's a lesson we're only beginning to relearn after a flirtation with cheap and abundant fossil fuels that let us feel like gods for a time, a binge that has fouled our air and our bays and is melting Greenland and Antarctica.

It's a lesson AI has yet to learn, at least in the U.S., as venture capitalists and tech titans shovel out hundreds of billions to make it bigger, faster and quickly profitable, with scarcely a nod to energy efficiency.

On virtually unlimited energy, AI may get more powerful but not necessarily smarter, argues Carl Benedikt Frey, a University of Oxford economist who writes on technology. He notes that the Chinese DeepSeek AI, forced by lower-tech chips to be more efficient, competes well against its higher-powered rivals. "Remembering, learning as it runs … innovating, actually approximating how the human brain works, would be enhanced if a 'deflation of the AI bubble' forced the technology on a diet," Frey wrote recently in the *New York Times*.

His argument for limits that force better technology reminded me how the advanced sewage treatment essential to restoring the Chesapeake came into being. It developed in South Africa, which was so short of water that it needed to recycle sewage for drinking water.

In the here and now with AI and the Chesapeake, it seems the most influence we can have is to make sure AI pays the full freight — for data centers and all related infrastructure and power needs, including the full cost of new transmission lines. (How to compensate for trashing rural scenery and fragmenting natural habitat is, sadly, not possible.)

Lapp of the Office of People's Counsel in Maryland is doing yeoman work, challenging the pass-through of data center power costs to consumers. And his goal, making AI pay its full way, will result in more energy efficiency, he says.

Nature Forward, a Bethesda-based environmental group, has founded Marylanders for Data Center Reform, a coalition of more than 40 organizations. States in the Bay region are all "playing catchup" to the AI explosion, says Lydia Lawrence, Nature Forward's conservation director.

She says most states have passed some form of legislation attempting to rein in the costs to consumers, though Maryland and Virginia still offer financial incentives encouraging data centers to locate here.

One issue that needs to be brought under control, Lawrence and Lapp agree, is that AI companies may currently go to multiple locations — "shopping around" for new data center sites. That leads to duplicative counting, overestimating electrical needs. As a result, operators of the power grid can be overcharging consumers to ensure there will be enough electricity.

Another idea, Lawrence says, is "bring your own power," meaning AI should build its own generating plants — which, she adds, should be wind and solar.

Prior to AI, electricity use in much of the Chesapeake region had leveled off as more energy efficient homes came online. That fit well with what Lapp says was a model "for spreading costs [of new energy] equitably across the grid."

"Data centers have broken that model," Lapp said. "Gradual, dispersed growth has been replaced by rapid, concentrated growth."

We paid a price in evolving our big brains: less muscle, less speed and endurance, lower reproduction. Efficient as it is, the human brain still requires some 20% of the adult body's energy (more than twice that for children) to support just 2% of its mass.

The tradeoff for cleverness and longevity was worth it, most would argue. But what about our ability to harness AI for the greater good? I think it's safe to say the jury is still out. ■

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.

A clutch of goose eggs lies in a nest on a tiny island on Maryland's Choptank River. (Dave Harp)

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Charles Ward
North Cape May, NJ

Dr. Stanley & Gail Watkins
Annapolis, MD

Bob Wawer
Mount Wolf, PA

C. Waybright
Roanoke, VA

Maura Burke Weiner
Fairfax, VA

Diann Weller
Fayetteville, PA

Anne Welsh
Salisbury, MD

Kevin Wilhite
Christiansburg, VA

John Scott Williams
Fairfax Station, VA

Roger Williams
Montross, VA

Thomas Wilson
Cambridge, MD

Louis Witt
Lutherville, MD

Evonne Woolford
Joppa, MD

Greg Woolley
Baltimore, MD

Ray Yoder
Lebanon, PA

Carolyn & Richard Young
Reedville, VA

Frances & Richard Younger
Lusby, MD

G. Zahn
Gloucester, VA

Patricia Zahn
Severna Park, MD

Gerard Zeller
Westminster, MD

Peter Zitta
Finksburg, MD

BULLETIN BOARD

EVENTS / PROGRAMS

PENNSYLVANIA

Spring Ephemeral Wildflowers Hike
1–3 pm, April 15 and 18; 9–11 am, April 18; Shenks Ferry Wildflower Preserve, Conestoga. Shenks Ferry Preserve contains 70 species of wildflowers. Learn to identify common spring ephemerals and explore their fascinating ecology on this two-mile hike. Ages 8+, under 18 w/adult. $12.51/person. Registration: lancasterconservancy.org/events.

Phenology Hike
9–11:30 am, April 25; Old Trolley Line Park, Elizabethtown. This workshop will teach you the science of seasonal change in nature and how you can collect and contribute your own observations as a volunteer scientist. The data collected is useful to hundreds of phenology projects around the region and nation! Ages 13+, under 18 w/adult. $7.18/person. Registration: lancasterconservancy.org/events.

Earth Day at Black Moshannon
9 am–1 pm, April 18; Black Moshannon State Park, Philipsburg. Help beautify the park doing winter debris removal, painting, gardening, litter pickup, trail maintenance. Lunch provided. Free camping is available for that weekend for event volunteers. Pre-registration required: events.dcnr.pa.gov/event/earth-day-4640.

Helping Wildlife Orphans
11 am–3 pm, April 18; Gifford Pinchot State Park, Lewisberry. The busiest time of year for wildlife rehab is "baby season." During this time the park receives large influxes of orphaned animals and needs help. Join the "Born to Be Wild" Baby Shower to help raise awareness about wild babies. Info: events.dcnr.pa.gov (search under April 18).

Women in The Wilds
9 am–3 pm; May 9; Black Moshannon State Park, Philipsburg. Learn how to shoot a bow, paddle a kayak, make stain glass and more. Entry fee includes doughnuts and coffee, lunch, four classes, equipment and T-shirt. Open to women 14+, ages 14 to 17 w/adult. Pre-registration required: events.dcnr.pa.gov (search under May 9).

VIRGINIA

Virginia Osprey Festival
9 am–4 pm, April 11; Town Hill, Colonial Beach. Celebrate the return of our osprey from their wintering grounds. Enjoy a live raptor talk, presentations, trolley tours, conservation exhibitors, children's activities and more. Info: virginiaospreyfoundation.org/2026-festival.

Wetlands Awareness Day
12 pm, May 3; Huntley Meadows Park, Alexandria. Stroll forested paths and immersive boardwalk trails. See live raptors, reptiles and amphibians up close. Enjoy interactive displays and activities. Free. Registration recommended: fairfaxcounty.gov/parks/huntley-meadows/events.

Butterfly and Dragonfly Survey
8–11:30 am, April 24; Occoquan Regional Park, Lorton. Join the Northern Virginia Bird Alliance in this survey that will provide valuable data for the North American Butterfly Assn., the Northern Virginia Regional Park Authority and the U.S. Department of the Interior. Info: nvbirdalliance.org/calendar.

Save the Bluebells: Garlic Mustard Pull
10 am–12 pm, April 2, 9, 16; Ball's Bluff Regional Park, Leesburg. By mid-April, Ball's Bluff is home to trillium, sessile bellwort, wild ginger, star chickweed, blue cohosh, squirrel corn, yellow corydalis, Virginia bluebells, trout-lillies. Join the battle to protect these wonderful ephemerals. Registration: loudounwildlife.org/events.

Dendrology 101: A Walk in the Woods
10–11:30 am, May 16; Cedar Mountain Battlefield, Rapidan. Friends of the Rappahannock is offering an educational walk in the woods where you'll learn tree identification skills and deepen your appreciation for the trees. Free, donations welcomed. Registration: riverfriends.org/product/walk-in-the-woods.

Family Farm Tour and Marketing Discussion
4 pm, April 28; Lovettsville. Long Stone Farm produces pasture-raised beef, pork, lamb, chicken and eggs sold through shares/subscriptions, bulk buys, a seasonal retail store and wholesale. Learn what systems work best for their sales, discuss farming harmoniously within the ecosystem, tour the farm and store. Free, RSVP req'd: futureharvest.org/event/longstonefarm.

Naturalist Walk: Treat It or Eat It
10 am–12 pm, May 10; Leopold's Preserve, Broad Run. Learn which flowers are edible, which tree provides a toothbrush and which plant is a grocery store/hardware store/pharmacy. Free. Registration: leopoldspreserve.com (select "Calendar").

Homeschool Outings
10 am–12 pm, April 7 (ages 15+), April 25 (all ages), May 12 (ages 15+), May 20 (all ages); Leopold's Preserve, Broad Run. You and your child are invited to spend an adventurous outing interacting with and learning about nature. April theme: Birds & Wildflowers. May theme: Treat It or Eat It. $5 pp (incl. adults). Registration: brmconservancy.org (select "Events").

MARYLAND

Earth Day
10 am–2 pm, April 26; Brookside Gardens, Wheaton. Celebrate Earth Day with activities geared toward families. Explore the science of sustainability through child-driven projects, plantings, crafts. Free. Registration encouraged: montgomeryparks.org/events/earth-day.

Environmental Center Open House
10 am–3 pm, April 25; Havre de Grace Maritime Museum, Havre de Grace. Experience science in action with exhibits on cloud ID, decomposition, soil runoff, rock ID, life cycles of organisms and water and boating safety. Open to all ages, children w/adult. Free with admission. Info: 410-939-4800 or ecmanager@hdgmaritimemuseum.org.

Butterfly Gardening Made Easy
10 am–12 pm, May 14; Brookside Gardens, Wheaton. This lecture introduces strategies for supporting Mid-Atlantic species, including understanding butterfly life cycles, recognizing species, choosing appropriate host and nectar plants, integrating natives into existing gardens and using design elements that create effective habitat. $25. Registration: montgomeryparks.org/events.

Mountain Maryland Native Plant Festival
10 am–3 pm, May 9; New Germany State Park, Garrett County. Discover the connections between native plants, people and wildlife. The Maryland Native Plant Society and Friends of New Germany State Park will offer a large variety of native plants and nature-themed artisan items for sale, as well as programs and activities highlighting native plants and biodiversity. Local experts available to answer questions. Free. Info: mdflora.org/event-6529824.

Flotilla for the Gunpowder River
10:00 am-12:00 pm, May 2; Mariner State Park, Joppatowne. Gather with fellow water enthusiasts to celebrate and show your support for Mad About Mud's efforts to keep the Gunpowder clean for all to enjoy. Bring your own vessel, motorboat, kayak, paddleboard, jet ski, or rent one at the park. Free. All ages welcome. Registration: madaboutmud.org/events.

Patuxent Research Refuge, National Wildlife Visitor Center
Patuxent Research Refuge offers free public programs and activities. Register (if required) online: fws.gov/refuge/patuxent-research/events (note special accommodation needs). South Tract, Visitor Center: Wed.-Sat., 10 am-4 pm, (301) 497-5772. Nature store (Friends of Patuxent). Grounds open daily. Seasonal, licensed fishing. North Tract: Sundays 8 am-4 pm, except special events.

■ *Hollingsworth Wildlife Art Gallery Reception:* 1–3 pm, April 4: "Art quilts" featuring wildlife and nature themes by Maryland quilter and instructor Barbara Dahlberg.

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.
May issue: April 11
June/July issue: May 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 26

1. A
2. B
3. C
4. B
5. D
6. C
7. A

BULLETIN BOARD

■ *"Wingspan" Game Days:* 10 am–1 pm, April 25 and May 8. Ages 12+. No experience needed. Play the award-winning board game; learn more about birds! Use Refuge game or bring yours. Sign in at front desk.
■ *Family Fun:* Staffed: 10 am-1 pm, Apr 17/18, May 29/30. On own: 10 am-4 pm, Wed.-Sat. All ages. April/May: Reduce/Reuse/Recycle. Come explore alternatives to throwing away trash. Drop-in or on own.
■ *Wild Bird Meet and Greet:* 2-2:30 pm, Apr 25; May 30. All ages. Drop in at the visitor center lobby for a "meet-and-greet" with live birds, Eastern screech owls! Bring your camera and questions.
■ *Three Nature Workshops and activities for children:* Time TBA, May 9, 16, 23. Indoor and outdoor, National Wildlife Visitor Center. Special activities in conjunction with Professor Sunny's Hollingsworth Gallery exhibit in May, "Nature's Wonders - Let's Preserve Them." Details TBA on refuge events calendar.

ShoreRivers' State of the Rivers
Each year ShoreRivers' riverkeepers conduct sampling for dissolved oxygen, nutrient pollution, chlorophyll, clarity. These indicators reveal the health of waterways and progress being made protecting them. This year's results presentations: (all 5:30–7:00 pm) *Chester River*, April 22, Rock Hall Fire Department; *Choptank River*, April 28, Oxford Community Center; *Sassafras River and Bayside Creeks*, May 7, Betterton Fire Hall; *Miles River, Wye River, Eastern Bay*, May 12, Chesapeake Bay Maritime Museum. Registration: shorerivers.org/events.

Patapsco Senior Rangers
10 am and 1 pm sessions, April 29 to June 10. Maryland seniors 55+, get active and make friends in the outdoors! Hiking, art, history, nature, community. $20 for 7 sessions. Sign up at bit.ly/3wusZ23 on April 1 or call 410-561-5005. Info: facebook.com/MDStateParks.

VOLUNTEER OPPORTUNITIES

WATERSHEDWIDE

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

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.

PENNSYLVANIA

Middle Susquehanna Volunteers
Monitor local waterways and provide monthly online updates: web search "Susquehanna sentinels." Water sampling: web 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

Friends of the Rivers of Virginia
FORVA is statewide coalition dedicated to the protection and preservation of Virginia's rivers. Volunteer projects include river access, dam removals, water quality work, blueways, fisheries, river-related legislative issues. Info: riverdancer1943@gmail.com or Bill Tanger at 540-266-0237.

Virginia Living Museum
VLM 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.

Friday Volunteer Days
8:30–11:30 am, every Friday; Leopold's Preserve, Broad Run. Volunteer activities are outdoors and involve basic physical labor. Suitable for ages 13+, under 18 w/adult. Free. Info: leopoldspreserve.com (select "Calendar").

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").

National Wildlife Refuge at Patuxent
To ask about helping: in the Kids Discovery Center, Monarch Magic Center, pollinator gardens and general refuge volunteer training: call 301-497-5772, Wed.-Sat. 10 am-4 pm. To help in the Friends' Wildlife Images bookstore and nature shop, email Ann: wibookstore@friendsofpatuxent.org. To help with Friends of Patuxent's programs/events, other volunteer needs, email: friendsprr@friendsofpatuxent.org.

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

Creating a Backyard Buffet
Your yard can be an oasis — a rest area for birds, bees and butterflies to fuel up and raise their young. This Chesapeake Bay Foundation webinar takes you through the practical steps of assessing your yard, prioritizing changes and planting with a purpose. Webinar: cbf.org/resources/creating-a-backyard-buffet-for-birds-bees-and-butterflies-2.

MARYLAND

Yards for Creation Meadow Program
The Yards for Creation initiative aims to turn some lawns back into vibrant, connected habitat for pollinators and wildlife, while also offering opportunities for communities to engage with the natural world. Organizations in Wicomico, Somerset and Worcester counties such as congregations, municipalities, schools and nonprofits are encouraged to apply. Learn more and apply: lowershorelandtrust.org/yards-for-creation or borr@lslt.org, 443-234-5587.

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

Maryland Outdoors App
The Maryland DNR's free "MD Outdoors" app includes maps, amenities of state parks, trails, wildlife management areas, boat launches, water access sites; location sunrise/sunset times; tide time tables; fish and shellfish identifier; 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, 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 navigational hazards; 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 available to homeowners whose property is within the James River watershed. Info and links to programs elsewhere: jamesrivershorelines.org/apply.html.

With windows and lights, do your part to help migrating birds

By John Montgomery

Adhesive stripes or rows of dots on window exteriors drastically reduce bird fatalities from window collisions. (Courtesy of CollidEscape.org)

A stunned female Baltimore oriole sits on a windowsill after colliding with the window. (Marilylle Soveran/CC BY-NC 2.0)

After a ferocious winter, the ice is finally gone. The redbuds and dogwoods have bloomed, and it's time to welcome avian visitors and passers-through from the south.

From February to May, the Atlantic Flyway — the migration superhighway that runs from Florida to northern Quebec (and other way around in the fall) — turns the Chesapeake Bay region into one of the busiest routes used by migratory birds in North America.

The routes of many species converge along the Bay and on the Delmarva Peninsula. Situated between breeding grounds in Canada and wintering areas in Central and South America, the land and waters of the Bay are the perfect pit stop for these travelers to rest their wings. The Bay provides food, shelter and nesting sites for hundreds of migrating species. Its marshes, forests and waterways are ideal places for birds to rest and refuel. Wetlands and forests offer nesting areas and protection from predators, and beaches and flats give shorebirds a much-needed source of food, whether it's horseshoe crab eggs, invertebrates or underwater grasses.

This time of year, waterfowl like tundra swans and snow geese, having spent the winter on the Bay, return to the far north. But songbirds, perching birds and many shorebirds, which winter in the tropics, are now coming to the Chesapeake region or at least passing through on their way farther north. Most of the ospreys have already returned from South America. Songbirds and other perching birds will return to us in droves from April to May. Baltimore orioles, scarlet tanagers, indigo buntings and up to 35 species of warblers travel the Atlantic Flyway.

Many bird species hesitate to fly over the open waters of the Bay itself, so they end up funneled through the Delmarva Peninsula. The sheer number of migratory birds passing through this Chesapeake bottleneck makes the Bay an important habitat, and we can help.

Unfortunately, hundreds of millions of birds are killed or injured worldwide due to window collisions. Glass can easily confuse birds, especially migratory ones flying through unfamiliar surroundings. Birds either perceive reflections of trees and sky as open habitat, or they see what looks like an open corridor through a building. Luckily, bird-safe windows are an affordable, effective solution that we can even use at home.

Exterior windowpanes marked with stripes, rows of dots or even artsy patterns help the birds see them as barriers. The rule of thumb for bird-friendly windows is the "2x4 rule." The pattern or design on your window should be no more than 2 inches apart horizontally and no more than 4 inches apart vertically — though 2 vertical inches is even safer for smaller species. Other solutions like ultraviolet coatings, etched glass or external screens can make glass visible to birds. The most important aspect, though, is having these installations on the window's exterior, so reflections don't hide the patterns.

The good news is that large buildings are also incorporating these designs, with some cities even adopting guidelines or laws that address new construction. Green building certifications that incorporate wildlife protection can incentivize more bird-safe architecture as well.

In addition to the dangers of windows, we must consider how nighttime lighting can attract birds from as far away as three miles, according to the U.S. Fish and Wildlife Service. And the closer they get to a brightly lit area, the more likely they will be disoriented — increasing the danger of building collisions and interfering with their navigation senses, often wasting their precious energy flying in circles all night. Even turning off your lights briefly can help; studies have shown that when lights are turned out, these "trapped" birds will continue their journeys within minutes.

Explore the Audubon's Lights Out Program for lighting strategies that help migrating birds. Another great resource is the Cornell Lab of Ornithology's website, *BirdCast.info*. It has "near-real-time" and predictive nighttime migration maps, as well as migration alerts for some areas.

If you don't want complete darkness in your yard, there is evidence showing that "warm" spectrum outdoor lights are less problematic for birds — and the lower the wattage the better. So, for outdoor lighting, try to use bulbs with the lowest practical brightness (measured in wattage or lumens) and a warm (yellow-orange) kelvin rating of 2700K or lower. Most bulbs come with those values advertised. No matter what lighting choice you make, point the lights downward. Upward-facing lights scatter light waves into the air and can disorient nighttime flyers.

Large-scale approaches to these solutions will make the greatest difference, of course, but we can all contribute. We can decorate our windows for a festive migration season look — just remember the 2x4 rule or, better still, the 2x2 rule. The simple act of making glass visible to birds can substantially reduce bird deaths. We can use inexpensive lighting choices to help birds navigate uncharted territory. We can convert some of our land into a native food source or install a bird house. Consider offering help this spring for our feathered friends on their arduous journeys.

While we may think of the Chesapeake Bay region as a scenic place to live and recreate, it's more than that to migratory birds. It's an essential pathway they rely on for survival. If we lose the birds, we lose those breathtaking migrations, the picturesque V formations of geese and, most importantly, all the ecological benefits they bring to our watershed. ■

John Montgomery is the communications and social media coordinator for the Alliance for the Chesapeake Bay.

The eastern screech owl, more often heard than seen

By Alonso Abugattas

A gray "morph" eastern screech owl. (Vicki DeLoach/CC BY-NC-ND 2.0)

New York falconer Bryan Bradley exhibits a domesticated eastern screech owl at the 2015 Waterfowl Festival in Easton, MD. (Will Parson/Chesapeake Bay Program)

Though the eastern screech howl is the most common owl species in North America east of the Rocky Mountains, you are more likely to hear one than see one, given its camouflage — or, as ornithologists say, "cryptic" coloration. And its "screech" is just one sound in a wide repertoire of vocalizations, including hoots, squeals, rasps, barks and what Cornell University's Birds of the World describes as a "chuckle-rattle." Much more common is a trill of steady or slightly descending pitch, ending in a horse-like whinny.

The eastern screech owl *(Megascops asio)* is also quite small as owls go. It's a bit bigger in length and wingspan than an American robin, though easily twice the weight. These owls come in two main color varieties or "morphs" — gray or reddish (rufous). Occasionally, less than 10% of the time, they can have chocolate-brown coloring. In any variation, the plumage allows them to blend in quite well with their surroundings. They also usually roost in the daytime, in tree cavities and human-made nest boxes, which means they can live unseen right in your backyard. They are the most common, widespread raptor in suburbia.

Eastern screech owls have a proportionally large head with yellow eyes. They have ear tufts, though those are sometimes held low and hard to see. These owls have almost no necks and short square tails, giving them a stocky appearance. As with many raptors, or birds of prey, the males are smaller than the females. This is believed to allow a division of labor: In the same territory, the smaller, more nimble males focus on small prey while the females go after larger animals. The larger females may also be able to produce more eggs and better defend the nest and young.

While they may be hard to see in the day, once you discover them, you'll see that they can be creatures of habit. I have spotted many of them huddled in tree crevices or wood duck boxes. They love to bask in the sun, so look for them in sunny spots in the trees or peering from the sunlit opening of a wood duck box. After discovering a roost, I've been able to get within a few feet of it without spooking them.

A rufous "morph" eastern screech owl perches on a tree branch. (Laura M./CC BY-SA 4.0)

Though they live primarily in trees, screech owls are quite adaptable, and they aren't averse to human infrastructure that offers a similar hidey-hole. They feed on many types of prey, the most varied on any North American owl: large insects, rodents, songbirds, amphibians, lizards, worms and crayfish. They've been observed snagging fish and tadpoles from the surface of water, catching bats and even on occasion feeding on other small owls.

While breeding, more than half of their diet consists of insects. In winter months when insects are scarce, they switch to mice, shrews and other small mammals. They also prey on small birds and are mobbed by these birds when they are discovered roosting during the day. Like most owls, they have excellent hearing, using their asymmetrical ears — higher on one side than the other — to zero in on prey even if it's hiding under leaves or snow. They also have serrated flight feathers, giving them silent flight when hunting.

Screech owls are for the most part monogamous and may mate for life, though occasionally a male may pair up with an additional female. They also show great nest fidelity, raising broods in the same nest for more than 7 years. These nest sites are usually natural cavities or holes made by certain woodpeckers (flickers and pileated woodpeckers make openings of ideal size). They have been known to also use wood piles, wood duck boxes, mailboxes and even the occasional utility pole.

Courtship activity often starts with the male bowing on a tree branch with wings raised. He may click his bill and offer food to the female. This is often followed by dueting (calling to each other) and sometimes mutual preening. By March and through April, the female lays 3-5 white eggs and does most of the incubation while the male brings her food.

Occasionally live "blind snakes," which resemble earthworms, are deposited in the nest, where it is believed the snake may feed on parasites and improve the survival rate of nestlings. The eggs hatch after roughly a month of incubation, and the young fledge roughly a month later. After fledging, the young venture outside the cavity and climb along the branches (often called branching), and both parents will continue to feed them for 8 to 10 weeks.

Screech owls are permanent residents and do not normally migrate. Being small, they have many predators, from raptors like great horned owls to snakes, weasels, possums and raccoons. As with most bird species, their numbers have declined since the mid-1900s, largely from habitat loss but also, it is suspected, from pesticides that bio-accumulate in their prey. The North American Breeding Bird Survey reports a 37% population decline from 1966 to 2019. Partners in Flight estimates a breeding population of 560,000, so they are still considered a species of least concern. ■

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.

We must build our mussels for stronger rivers and streams

By Kathy Reshetiloff

At the bottom of our streams and rivers lives an incredible yet often unnoticed animal. The freshwater mussel, a bivalve — a soft-bodied animal with a two-part hinged shell. No head, eyes or ears. Its only appendage is a "foot," which it uses to burrow into mud or sand. Internal gills filter food and oxygen from water.

Hmm. Not too interesting? Well, actually freshwater mussels, as the name suggests, lend muscle to entire aquatic ecosystems, strengthening and stabilizing them just by doing what comes naturally. Like oysters, freshwater mussels filter water for oxygen and microscopic food particles. They also filter out algae, nutrients and other pollutants. This filtering improves water quality for fish and other aquatic life, earning mussels the title of "livers of our rivers." In addition, raccoons, otters, herons, egrets and other animals rely on freshwater mussels as food.

Mussel beds create habitat for other aquatic invertebrates that, in turn, are eaten by fish. Empty mussel shells are a refuge for crayfish, snails and fish. Decaying shells provide a slow-release source of calcium, phosphorus and nitrogen.

Although relatively sedentary, their reproduction and colonization of new areas is quite complex and requires a host fish. The male mussel disperses sperm, carried by currents to a female, where fertilization occurs. Fertilized eggs mature into a larval state inside the female. She then packages the larvae into an enticing lure that catches the eye of certain species of fish. When the target fish approaches, the larvae are expelled at the fish. The larvae attach to the fish's gills or fins and hitch a ride for a few weeks as they continue their transformation into a juvenile mussel.

When the transformation is complete, juvenile mussels drop off of the unharmed fish and begin their lives as young adult mussels. It's a truly symbiotic relationship.

The eastern elliptio mussel is named for its roughly elliptical shape. It is one the most common freshwater mussels in the Chesapeake watershed. (U.S. Fish and Wildlife Service)

Mussels maintain water quality for fish. In return, mussels rely upon fish to produce the next generation and colonize new areas.

North America has the highest diversity of freshwater mussels in the world. But no other group of animals on our continent is so gravely imperiled. Over 70% of the 300 mussel species in North America have been in decline for decades. They can close their shells to avoid short-term exposure to toxins or other unfavorable environmental conditions, but their shells can't protect them indefinitely against significant, long-term pollution and habitat changes in our streams and rivers.

Because of mussels' reliance on host fish, the same physical barriers that inhibit fish migration — chiefly dams and restrictive culverts under road crossings — prevent them from colonizing new areas. And widely fluctuating water levels near dams do not mimic natural conditions. Low water conditions in particular are hostile to mussels (and most other kinds of wildlife in the river).

The shellfish also face threats from siltation and pollutants. Many species of mussels need river bottoms composed of rock, gravel or firm sand. Sediment running off developed or farmed land can bury gravel bottoms and smother mussels. Sediment often carries pesticides and chemicals that pollute the water. Industrial plants may discharge toxic substances such as polychlorinated biphenyls (PCBs), mercury, lead and other pollutants into rivers and streams. Also, many septic systems eventually empty into our waterways.

To conserve these freshwater bivalves, unneeded dams and other blockages are being removed from streams and rivers so that migratory fish can move upstream and downstream — many of them bringing mussels along for the ride. Fish hatcheries

This photo from a seven-hour time lapse video shows the water-filtering ability of freshwater mussels. The tanks initially contained equal amounts of sediment and algae, but only the tank on the left had mussels in it. (Pennsylvania Fish and Boat Commission)

The brook floater mussel, shown here in a gravelly stream bed, is being evaluated for protection under the Endangered Species Act. (Michael Perkins/North Carolina Wildlife Resources Commission)

are experimenting with producing certain freshwater mussel species to stock in rivers that have suitable habitat. Many agencies and conservation groups are banding together to restore degraded rivers and streams to support freshwater mussels, fish and other aquatic organisms.

What can you do?

- Conserve energy to limit the need for new hydroelectric power plants.
- Plant native species that do not require pesticides or fertilizers to survive.
- Limit your use of pesticides or, if possible, stop using them altogether. Integrated pest management (IPM) strategies can reduce or replace pesticide use. To learn more, visit the U.S. Environmental Protection Agency's IPM web page.
- Control soil erosion by planting native trees and plants near waterways.
- Thoroughly clean boat bottoms, motors and trailers between outings to prevent the spread of invasive species such as zebra mussels.

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