CHESAPEAKE
BAY JOURNAL

April 2025 Volume 35 Number 2

Independent environmental news for the Chesapeake region

Inside:

Uncertainty prevails for Chesapeake environmental work

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A line of people waiting to speak with their state representatives forms outside the General Assembly building in Richmond on Jan. 15. Story on page 22. (Lauren Hines-Acosta)

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EDITOR'S NOTE

The sound of silence

I started working for the *Bay Journal* as a staff writer about 22 years ago. I knew immediately that its reporting, led at the time by editor Karl Blankenship, is important. The *Bay Journal* provides insight and context on the region's environmental issues like no other — and it serves people who care deeply about shaping a more sustainable world for communities today and for future generations.

But the last few months have driven that home still harder, from another perspective.

There has, of course, been a dramatic shift in federal policies and practices that impact the environment. Some people defend those moves, while others oppose them. Our job at the *Bay Journal* is to explain what's happened, what's playing out and what the impacts could be specifically in the Chesapeake watershed.

In the process, we've seen another trend I think you should know about. There are roadblocks everywhere to finding solid information. As our team spent countless hours putting together the articles in this issue, one federal agency after another declined to speak with us or only provided the most minimal or bureaucratically opaque statements. Information is fragmented and difficult to verify. Press releases provide no details. Web links go in circles. Many people at organizations and state agencies impacted by federal funding uncertainties are afraid to speak on the record, for fear of reprisals.

As transparency falters, solid fact-checked reporting like that at the *Bay Journal* —and your other media outlets — matters enormously. We are here to do the research, check the facts and present what we find. Are reporters perfect? Of course not. But the best are deeply committed to such service, and the *Bay Journal* team is among them.

This work takes time and resources. And, as I wrote in last month's issue, the *Bay Journal* is impacted by the federal grant freeze (we receive some support from a grant for public awareness about the Bay cleanup effort).

Our spring fundraising campaign is underway, and I hope when you receive our letter that you will consider making a generous gift to keep the news coming in the months ahead.

— Lara Lutz

ON THE COVER

Kayakers enjoy the calm waters at the marshy edges of Mattawoman Bay, off the Potomac River in Maryland's Charles County. (Dave Harp)

Bottom photos: left by Will Parson/ Chesapeake Bay Program, center by Judy Gallagher/CC BY 2.0, right by Aileen Devlin/Virginia Sea Grant.

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BY THE numbers

4,863
The height, in feet, of Spruce Knob in West Virginia, the highest point in the Chesapeake Bay watershed

30
Average number of deer per square mile in Pennsylvania, more than three times the number before European settlements

140,000
Miles of mapped rivers and streams in the Bay watershed

524
In miles, the length of the Bay watershed from its farthest headwaters in Cooperstown, NY, to its mouth at Norfolk, VA

65.91%
Amount of the Bay with toxic impairments in 2006

78.26%
Amount of the Bay with toxic impairments in 2020

Hummingbirds are heading home

Dave Harp

Ruby-throated hummingbirds are finishing their thousand-mile trek from Mexico and Central America. In the early spring, the birds return to the eastern U.S., including the Chesapeake Bay region, to mate and build nests before heading back south in August.

Hummingbirds visit forests, orchards and even backyard gardens. So, you may spot some of these greenish, iridescent birds if you follow these tips.

- Plant flowers and trees. Tubular flowers like columbine and cardinal flower will provide nectar for hummingbirds. The females tend to build their tiny nests in oak, hackberry and birch trees.
- Consider adding a bird bath to your garden to provide drinking water.
- Avoid using insecticides because hummingbirds will also eat bugs and spiders.
- Keep cats inside because they prey on hummingbirds.
- Set up a nectar feeder. Make the nectar by mixing one part of refined (not raw) white sugar with four parts of boiling water until the sugar dissolves. Red dyes are not necessary. Avoid yellow feeders to avoid attracting stingers. Clean the feeder and add new nectar at least every four days.

— Lauren Hines-Acosta

A new Bay Journal film: Chesapeake Rhythms

We're happy to announce another *Bay Journal* documentary from the filmmaking team of Dave Harp, Tom Horton and Sandy-Cannon Brown.

Indulge yourself in the fascinating science and luscious imagery of some of this region's migration marvels: tundra swans, monarch butterflies, eels and shorebirds.

Spread the word! This newly released film is free to view on the Chesapeake Bay Journal YouTube channel or at *bayjournal.com/films*.

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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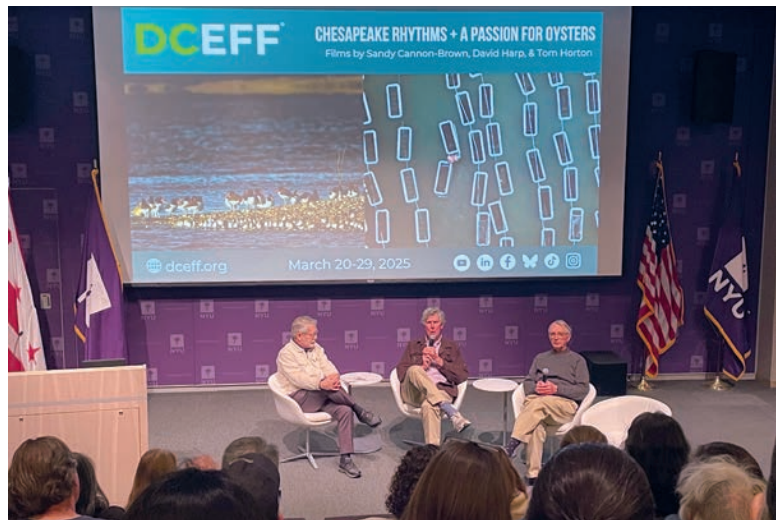

The Bay Journal's Tim Wheeler, Tom Horton and Dave Harp discuss their most recent films, "A Passion for Oysters" and "Chesapeake Rhythms," the latter of which debuted at the DC Environmental Film Festival in March. (Courtesy of DCEFF)

A new film! And some March Madness of a different sort

The new *Bay Journal* film, *Chesapeake Rhythms*, follows glass eels, tundra swans, shorebirds and monarch butterflies on their journeys through the Chesapeake Bay watershed. It debuted during a packed event at the DC Environmental Film Festival in March, followed by a conversation with *Bay Journal* columnist **Tom Horton** and photographer **Dave Harp** (who created the film along with colleague Sandy Cannon-Brown), moderated by staff writer **Tim Wheeler**. You can view all of our films for free on our YouTube channel or at *bayjournal.com/films.*

Tim gave a presentation about Bay ecology to a Maryland Master Naturalist class in Baltimore on March 18. He was told that the class, which included younger faces in the audience, was the first of its kind in the city. One of the attendees he met works for a nonprofit called InDiGo (Inward Discovery Grows Outdoors) that promotes outdoor education for Baltimore youth.

Throughout March, *Bay Journal* staffers have been working feverishly to keep up with ongoing changes to federal programs that affect the Chesapeake Bay. We've written stories for this issue, only to rewrite them after a new court rulings or more proposed cuts. We expect more updates, and you can follow them at *bayjournal.com.* If you have a story to tell, reach us at *news@bayjournal.com.*

Thanks to staff writer **Lauren Hines-Acosta**, we've created a page on the *Bay Journal*s website where readers can find all of the articles to date in our Ag & the Bay series by editor-at-large **Karl Blankenship**. Karl's long-form, investigative articles help us better understand why — despite decades of effort and billions of dollars spent — the cleanup effort will still fall short of its pollution goals in 2025. Find the series at *bayjournal.com/ag-and-the-bay.*

Like many of you, we've had the chance to get outside to enjoy the spring weather, sometimes for work assignments. Photographer **Dave Harp** joined staff writer **Jeremy Cox** to kayak around the Patuxent River off Kings Landing Park in Calvert County, MD, on a 50-something-degrees day for this month's travel article. They drove to the site separately, but Jeremy knew Dave was behind him when he looked in his rearview mirror and saw shark-like teeth painted on the nose of a car-top kayak.

MD oysters on the upswing

Maryland's oyster population remains in pretty good shape, according to the state Department of Natural Resources. Preliminary results from DNR's annual reef survey in fall 2024 found that the state's stock of Chesapeake Bay bivalves experienced above-average reproduction last summer, and the diseases that once devastated them remain at relatively low levels.

The state's oysters had a banner spawn in 2023 with baby oysters or "spat" seen in great abundance throughout the Bay, even in areas that haven't had any reproduction in a generation or two. The 2024 "spatfall intensity index," which measures the density of tiny oysters, declined but remained above the 39-year median for the fifth straight year.

DNR sampled almost 300 oyster bars from Oct. 8 through Nov. 25, taking note of oyster abundance and health, including reproduction, disease intensity and mortality.

The bumper crop of juvenile oysters in 2023 resulted from persistent dry weather elevating salinities that year. That also helps spread and intensify MSX and Dermo, the two diseases that ravaged oysters Baywide from the mid-1980s through the early 2000s.

A dredge full of oysters is hauled to the surface at the mouth of Broad Creek off Maryland's Choptank River. (Dave Harp)

Overall, the 2024 oyster biomass — a combination of size and number of bivalves — was 62% above the long-term average and the third highest annual figure since DNR began tracking it.

Oyster survival in fall 2024 was good, the survey found, even in places like the upper Potomac River, where high freshwater flows in winter and spring had lowered salinities to levels stressful for oysters. Freshwater stunts the growth of young oysters, but the lower salinity also reduces disease levels overall.

Disease and mortality are relatively low now, but they could rebound if the winter's dry weather continues into the spring, officials say.

"We really need to see some rainfall," Chris Judy, DNR's shellfish division director, told the department's Oyster Advisory Commission on March 17.

—T. Wheeler

PA caps 300 abandoned wells a span of 2 years

Pennsylvania Gov. Josh Shapiro in March announced the capping of the 300th abandoned well since he took office in 2023. That's more than were capped in the previous decade.

Pennsylvania has more abandoned wells than any other state. They are a major source of methane emissions, a powerful greenhouse gas, and can leak other contaminants, some of them toxic, into local waterways.

"By plugging orphaned and abandoned wells, we are tackling a significant source of greenhouse gas emissions and creating thousands of good-paying jobs in the process," said Shapiro, a Democrat. "This is a smart, commonsense way to protect public health and create jobs."

Still, it is only a fraction of the more than 27,000 abandoned wells that the state Department of Environmental Protection has identified. Further, the

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briefs

From page 5

number of abandoned wells is poorly documented, and some estimates put the actual number at more than 10 times that figure.

Shapiro has prioritized well-capping since taking office, and the effort has been aided by funding from the federal Infrastructure Investment and Jobs Act. The Trump administration briefly blocked that funding, but it was eventually restored.

Pennsylvania was the site of the first commercial oil well in 1859, and for more than a century those wells were drilled and abandoned with little oversight and no requirements to document their locations.

Although oversight has ramped up in recent years and bonding is now required for new wells to cover the cost of capping, many continue to be abandoned. Last year, DEP issued 860 new or continued violations to owners of abandoned and unplugged oil and gas wells. *—K. Blankenship*

VA menhaden study falters again

The Virginia House of Delegates rules committee for a second straight year failed to move forward a bill to fund a study of Atlantic menhaden abundance in Virginia waters. The legislative session ended February 22, ending consideration of the bill until next year.

Menhaden are a small, fatty fish that are a dietary staple for wildlife throughout the Chesapeake Bay, including osprey and striped bass. Anglers also use them for bait. Omega Protein, a subsidiary of Canada-based Cooke Inc., harvests menhaden to make fish oil and meal.

Conservationists, anglers and scientists have debated whether menhaden are being overharvested in the Bay and if that negatively affects the wildlife that eat them.

The Atlantic States Marine Fisheries Commission reported in 2022 that the species was not being overfished along the Atlantic Coast. But scientists say more data on the Bay's population of menhaden is needed.

The bill would have directed the Virginia Marine Resources Commission and Virginia Institute of Marine Science to conduct a three-year study on the ecology, fishery impacts and economic importance of menhaden in Virginia waters. The state estimated the study would cost more than $3 million. Del. Betsy Carr (D-Richmond) also put the first year of funding for the study in the state budget. But the provision didn't make it past budget negotiations. *—L. Hines-Acosta*

PA hydro plan draws suit

Plans for a huge hydroelectric facility along the lower Susquehanna River in Pennsylvania that would drown hundreds of acres of land are heading to court.

The Muddy Run Pumped Storage Facility along the Susquehanna River is downriver from the site proposed for a similar facility at Cuffs Run. (Constellation Energy)

A coalition of conservation groups on March 14 filed a petition for review in the 3rd U.S. Circuit Court of Appeals challenging a preliminary permit approved by the Federal Energy Regulatory Commission in November for the project on Cuffs Run in York County.

The $2.3 billion "pumped storage" project proposed by York Energy Storage, LLC, would flood 580 acres behind a 1.8-mile-long dam near where Cuffs Run enters the Susquehanna. Water pumped from the river would fill the reservoir which, in times of peak electricity demand, would be released to flow downhill through power generator turbines.

FERC's action gives the company up to four years to complete needed environmental and economic assessments, after which the commission would make a final decision on the project.

The Cuffs Run proposal is controversial because that area of the Susquehanna has been targeted for protection by federal, state and local initiatives. More than $100 million has been invested in the past decade to preserve the area's natural, scenic and cultural value and to promote tourism.

Nearly 200 acres of farmland that would be flooded by the project have been protected by conservation easements.

"This project would leave a permanent scar on our natural and historic Susquehanna River landscape and should be stopped at all costs," said Fritz Schroeder, president of the Lancaster Conservancy, one of the groups filing the petition.

Other parties to the filing include the Chesapeake Bay Foundation, Lower Susquehanna Riverkeeper Association, Farm & Natural Lands Trust of York County and Susquehanna National Heritage Area. *—K. Blankenship*

MD to focus work on five watersheds, but funding is in doubt

Restoration efforts under Whole Watershed Act focus on cost-effective water quality improvements

By Timothy B. Wheeler

Maryland is targeting five of its ailing watersheds for a concentrated push to restore them — but the state's budget crisis has put funding for the effort in doubt.

The Department of Natural Resources announced March 6 that it has selected Antietam Creek in Washington County, Baltimore Harbor, Newport Bay near Ocean City, the Severn River in Anne Arundel County and the upper Choptank River on the Eastern Shore for a "collaborative and science-based approach" to reducing pollution and improving shallow-water habitat.

The watersheds — four connected with the Chesapeake Bay and one that's part of an Atlantic coastal bay — are the first chosen under the state's Whole Watershed Act passed in 2024. The law calls for focusing "cost-effective" water quality improvement measures over a five-year period in areas likely to show a rapid response.

The legislation came in response to a 2023 scientific report that warned existing programs to curb urban and farm runoff polluting the Bay and its rivers were falling short. It recommended shifting efforts to improve habitat for fish, especially in shallow waters.

"These five watersheds, which span the state of Maryland, will usher in the next phase of Chesapeake and Atlantic coastal bays restoration," DNR Secretary Josh Kurtz said in a press release. "By working closely with local partners and focusing on specific areas, we believe we can more quickly attain statewide clean water goals."

DNR chose the watersheds from nine proposals submitted last fall by teams made up of community organizations, local governments, private firms and other groups in each watershed. The winning proposals were selected for most closely meeting the law's requirements that they target a mix of urban, suburban and rural areas, and that at least two be in "an overburdened or underserved community."

The lead organization on the Baltimore harbor proposal, as an example, is the nonprofit South Baltimore Gateway Partnership, which is already engaged in creating wetlands along the Middle Branch of the Patapsco River to reduce flood risk and filter stormwater. The partnership is also working to improve fish habitat, plant trees, increase waterfront access and spur economic growth in South Baltimore neighborhoods like Cherry Hill and Westport.

On the upper Choptank, the nonprofit ShoreRivers and its partners proposed targeting pollution management practices in four predominantly agricultural areas and also working with local governments and disenfranchised communities to address stormwater, wastewater and habitat concerns.

The law calls for financing the work by pooling funding from several existing sources, including the Maryland Cost-Share Program, Maryland Agricultural Land Preservation Foundation, Bay Restoration Fund, Clean Water Commerce Act fund, Chesapeake and Atlantic Coastal Bays Trust Fund and Waterway Improvement Fund.

DNR had planned to award $2 million in the coming year to each of the selected watersheds, using money from the Chesapeake and Atlantic Coastal Bays Trust Fund, Bay Restoration Fund and Clean Water Commerce Act fund. Some farm-related projects are to receive grants through funding controlled by the Maryland Department of Agriculture.

But Maryland lawmakers are struggling to close a projected $3.3 billion state budget gap, and legislative analysts have proposed taking revenue normally earmarked for land preservation and runoff pollution reduction grants, draining at least three of the funding sources DNR had planned to use.

DNR is urging lawmakers to ignore the analysts' recommendation.

"We have emphasized to state legislators, who just passed the Whole Watershed Act last year, that this funding is integral to implementing their vision to achieve watershed-scale environmental improvements and community benefits," DNR spokesman AJ Metcalf said. ■

Dredging plan for new MD ship terminal stirs mixed feelings

Baltimore residents welcome more jobs but worry about contamination and changes in water access

By Timothy B. Wheeler

Plans to develop a new container ship terminal at Sparrows Point on the outskirts of Baltimore's harbor are stirring up mixed feelings in a community that's still living with the toxic legacy of more than a century of steel manufacturing there.

The proposed shipping terminal itself enjoys widespread support. It would bring thousands of jobs back to Sparrows Point, where 30,000 people once worked before the struggling Bethlehem Steel mill went bankrupt more than 20 years ago. Under a new owner, the steel mill closed permanently in 2012.

But some residents worry that the proposal to deepen and widen the shipping channel to accommodate the massive container vessels will dredge up toxic contaminants from steel making, still buried in the bottom of the Patapsco River. Others worry about the developers' plan for disposing of the dredged-up muck and how it could impact recreational boating and waterfront neighborhoods.

For the project, Tradepoint Atlantic, the company that took over the 3,300-acre industrial site, has partnered with the Geneva-based subsidiary of MSC, the world's largest shipping line. They plan to put the terminal at Coke Point, a 330-acre peninsula at the southwest tip of Sparrows Point, where coal was once cooked at high temperatures for steel production.

Aaron Tomarchio, Tradepoint Atlantic's executive vice president, called the project the next step in its decade-long effort to clean up and revitalize Sparrows Point, which has already brought back 13,000 jobs, many in distribution centers. He said the $1 billion "state of the art" terminal would make Baltimore the third biggest East Coast hub for container shipping. That would boost Maryland's economically vital port, which is still recovering from a loss of business when the 2024 Francis Scott Key Bridge collapse temporarily shut down the harbor.

To make room for huge container ships, the developers have applied for federal and state permits to dredge 4.2 million cubic yards of sediment from the old Coke Point shipping channel, which is currently used to unload somewhat smaller vessels carrying bulk cargo and imported vehicles.

That's a lot of muck to get rid of. The partners made a bid in 2024 to put it all on nearby Hart-Miller Island, which had been created out of material dredged from the harbor bottom. But they dropped that amid fierce pushback from local residents and birders.

A new container ship terminal is planned for a 330-acre tract on Sparrows Point on Baltimore's Patapsco River where steel manufacturing took place for more than a century. (Dave Harp)

Now, the partners plan to put the dredged material in four different places. Some would go into an old impoundment on Sparrows Point that used to hold treated wastewater from the steel-making process. Another load would fill in an abandoned channel that ships once used to bring coal to the steel mill.

The rest would go offsite. Some would be placed in one of two diked containment facilities south of Baltimore, maintained by the Maryland Port Administration for disposal of sediment dredged from the harbor. Finally, some would also be shipped down the Chesapeake Bay for disposal in a designated area of the Atlantic Ocean off Virginia Beach.

Neighbors see mixed blessing

A public hearing in late February drew a crowd with supporters touting the project as a needed boost to a community still not fully recovered from the mill's demise, while others expressed a variety of concerns.

"We want the terminal as well, but we want the dredging done cleanly," said Keith Taylor, president of the Sparrows Point North Point Historical Society. Taylor said he worked at Bethlehem Steel for years and knows what's buried along Coke Point. He called it "a toxic grenade."

Linwood Jackson, who lives in Turner Station across Bear Creek from Sparrows Point, said he worked at the mill, too, and recalled that "we threw everything in the water." The creek bottom across from Turner Point is so contaminated that it is a Superfund cleanup site, where the U.S. Environmental Protection Agency plans to dredge some of the bottom and cover some with clean sand. Before the shipping terminal dredging goes forward, Jackson urged, there need to be more studies and consultation with residents of his historic African American community, which he said has suffered from the mill's pollution for decades.

Sampling by Tradepoint Atlantic of the Coke Point shipping channel found that nearly 90% of the sediment to be dredged was clean enough for "beneficial reuse" as fill dirt or some type of building material. Only about 10% is so contaminated that it requires permanent burial in a capped landfill, the consultant reported. None of the spots sampled were so toxic that the sediment needed special treatment as hazardous waste.

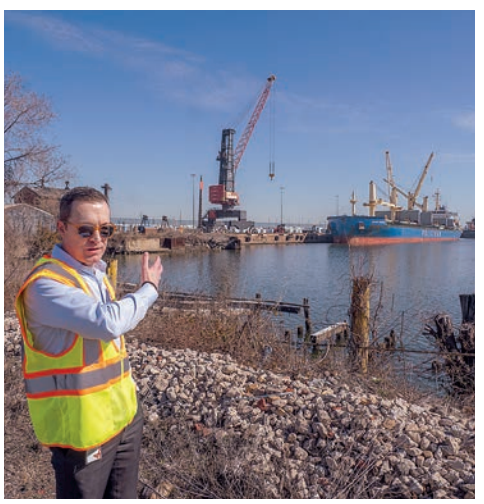
Environmental activists voiced another concern: They worry the dredging will use up limited space for disposal of dredged material from Baltimore's harbor. Instead, they prefer placing the cleaner sediment from the harbor back into the water to cover up contamination in the bottom around Coke Point. That would reduce risks of toxic metals and chemicals in the muck from getting back into the water. There already are longstanding warnings to limit consumption of some fish and crabs from the river because of contamination, they note.

"Basically, [Tradepoint Atlantic] is planning to use valuable state resources to advance its own interests despite the fact that they could be handling their own dredged material on-site," said Alice Volpitta, the Baltimore Harbor Waterkeeper. The port already faces a dredge disposal "capacity crisis," she added, and "this additional placement would put a huge strain" on the existing disposal facilities.

There is enough room left at the port administration's dredge disposal sites in Masonville Cove and Cox Creek to accommodate perhaps six years' worth of regular maintenance dredging of harbor shipping channels, according to figures supplied by Bob Munroe, the port administration's deputy executive director.

The port administration, which tries to maintain 20 years' worth of disposal capacity, has agreed to take 1.25 million cubic yards from the terminal dredging, which would seem a squeeze. But Munroe noted that both disposal sites are being expanded in the next few years. Also, a facility is planned to recycle some of that dredged material for reuse.

"At this point in time we believe there is capacity available," Munroe said.



Aaron Tomarchio, executive vice president of Tradepoint Atlantic, points to a portion of the Sparrows Point shoreline near Baltimore where large container ships would dock if a new terminal is built. (Dave Harp)

Boat clubs in the crosshairs

The issue generating the most heat at the public hearing, though, had to do with the terminal project's impact on people — specifically, two longtime yacht clubs with historic ties to Sparrows Point and other neighboring boaters and waterfront property owners.

To satisfy federal and state requirements to offset the filling of the coal pier channel, the joint venture plans to excavate 19 acres of land along the Jones Creek side of Sparrows Point, converting it to open water and wetlands. That would evict the North Point and Pleasant yacht clubs, a pair of modest private marinas founded decades ago by Bethlehem Steel workers.

Residents across Jones Creek from Sparrows Point also worry that the excavation would remove some spits of land that jut into the creek and protect their boats and property from winds and waves.

The presence of two yacht clubs side by side is a relic of racial segregation. In the early 1950s, Bethlehem Steel helped a group of white steelworkers with boats build a pier on Jones Creek to replace some docks they had been using. That became the North Point Yacht Club.

Vicki Joyner and Johnnie Mathis, members of Pleasant Yacht Club, talk with Andrew West (right), commodore of the North Point Yacht Club, about the Sparrows Point dredging plan. The project could lead to the clubs' eviction from land they have been allowed to use for many decades. (Dave Harp)

Black steelworkers could not join, though. So, several years later they formed their own club and persuaded the company to lease them a patch of land next door for $1 a year. That became the Pleasant Yacht Club.

Johnnie Mathis, one of its founding members, recalls that the company provided some materials but wouldn't help them build their pier. Instead, club members did it themselves, then moved a damaged bungalow to the site and fixed it up as their clubhouse. Now 97, Mathis still frequents the club.

The two clubs, with about 190 members combined, have grown closer over the years. Each regularly hosts boating and social events for the surrounding community.

Andrew West, the North Point club's commodore, said that he, like almost everyone else, welcomes the terminal. But he questioned the need to replace the water being filled in at the coal pier, noting that sampling there found little life in the contaminated sediment. He suggested other types of mitigation could be performed elsewhere, such as replenishing oyster reefs. With the members' limited resources, he warned, evicting the clubs could spell their demise.

Tradepoint's Tomarchio acknowledged that the company could have proposed another place or way to mitigate. But he said it's cheaper to excavate along Jones Creek because the company owns the property. While acknowledging the yacht clubs' historic ties to the community's steel-making legacy, he noted they have had essentially free use of the land for years, knowing the company could take it back some day.

Asked if the company might help them relocate, he said, "We're thinking about it."

"We understand there's a lot of money to be made," said Vicki Joyner, a Pleasant Yacht Club regular. "I understand we're the little people on the totem pole, but I would like for them to take the time and see if there are other options rather than eliminating both of those clubs."

The public comment period for the dredging and mitigation plan ended in late March. A final decision is expected later this year. ■

Increase in purple marsh crabs undermines carbon storage

Study shows natural sequestration disrupted by tiny crustaceans eating their way inland

By Lauren Hines-Acosta

A purple marsh crab clings to a blade of smooth cordgrass, which is the small crustacean's primary food source, roots and all. (Aileen Devlin/ Virginia Sea Grant)

Serina Wittyngham, then a Virginia Institute of Marine Science researcher, leads a team studying purple marsh crabs near Exmore, VA, on the lower Eastern Shore in 2021. (Aileen Devlin/Virginia Sea Grant)

Serina Wittyngham has spent countless hours in the muddy marshes of Virginia's Eastern Shore studying purple marsh crabs and their favorite meal, smooth cordgrass — aka *Spartina alterniflora*. Early on, she wasn't sure how the growing population of these one-inch-wide critters was influencing the coastal ecosystem, but she would soon have some answers. And it turns out they are more of a threat to the atmosphere than they are to the marshes they inhabit.

In a study published late last year in the journal *Ecology*, a team of Virginia Institute of Marine Science researchers, led by Wittyngham, estimates that by eating the cordgrass and burrowing in the mud to get at its roots, the little crabs can reduce the marsh's ability to sequester carbon dioxide by 40% to 70%. Wittyingham, now with the University of Florida, focused on the small and thriving critters for her doctoral thesis at VIMS. She says the study is part of a growing body of research noting that sea level rise and a decrease in predators could be why this native species is now becoming a climate concern.

Carbon is stored in coastal ecosystems when plants are waterlogged and can't get oxygen. The lack of oxygen means that microbial activity can't happen, and plants can't decompose. And if the plants can't break down, they can't release carbon dioxide.

That might sound like a bad thing but, because marshes are almost always waterlogged, they actually prevent carbon dioxide from entering the atmosphere and contributing to global warming as a greenhouse gas. Marshes also help prevent erosion, lessen the effects of flooding and provide habitat.

These crabs live in the marshes, burrowing and eating cordgrass from the shoots to the roots. They're a native species in the middle and lower Chesapeake Bay and are themselves food for birds and blue crabs.

But too much of a good thing can be a problem. When there are too many crabs in a marsh, they have to keep moving inland to find food, disturbing the muddy soil as they go. Researchers call this movement a "consumer front." As they exhaust the resources and aerate the mud, the remaining plant material begins to decompose and release carbon.

The VIMS study involved visiting 12 consumer fronts in South Carolina, Georgia and Virginia. The research team boosted that sample size to 150 sites by using satellite imagery from 1987 to 2024. Researchers could see the crabs' movements from above.

"When we stumbled on these fronts, and you start really looking at them from the sky, you're like, 'Holy cow, these are huge,'" Wittyngham said.

Virginia's marshes have less stored carbon compared to South Carolina. The study also estimated that, while cordgrass eventually recovered in every state, Virginia's carbon "stocks" within the marsh's first foot of soil will never recover from the crabs' movements.

"It's a warning signal maybe that something's happening," said Steven Pennings, a University of Houston ecology professor who has studied purple marsh crabs for more than 15 years. Pennings, who didn't work on the VIMS study, found Virginia's case surprising and wondered why Virginia's marshes were especially sensitive.

"[It's] still a mystery to us," said David Johnson, one of Wittyngham's coauthors.

Purple marsh crabs ate cordgrass in a marsh on Virginia's Eastern Shore, leaving muddy bare spots behind until the cordgrass recovers. (Aileen Devlin/Virginia Sea Grant)

The VIMS researchers hypothesize that because Virginia's marshes are lower in elevation, they take longer to rebuild and experience faster sea level rise than the other states. Lower elevation and rising water could exacerbate the crabs' effects by pushing them inland. Less stable sediment for their burrows means they move on faster.

"Not only are they moving, but they're moving faster than they've ever moved before," Wittyngham said. "And so that can have a lot of implications for carbon and the landscape."

Pennings said scientists along the eastern seaboard think sea level rise and a decrease in the crabs' predators are making the crabs flourish to the ecosystem's detriment.

"The fact that this is happening now, and people didn't think it was a big deal 20 or 30 years ago does suggest that the conditions in the coastal marshes have changed," Pennings said.

Other coastal areas farther north, like Cape Cod and Polpis Harbor in Massachusetts, have tried to slow the crabs by trapping them, increasing the marsh's elevation or planting more cordgrass. But researchers haven't found a standard way to manage the crabs in Virginia.

"It's something we need to keep paying attention to," Johnson said. "Because what's happening is the marsh is telling us that there's something going on." ■

Report says PA poised to be geothermal energy leader

Drilling workforce seen as key to producing the clean energy

By Karl Blankenship

Using some of the same drilling techniques and technologies that drove Pennsylvania's natural gas boom, the state could unleash a cleaner energy source with the potential of meeting most of its future energy needs: geothermal.

A recent report said the trained workforce that now drills for oil and gas in the state could be used to tap heat from rocks far below the surface — which, in as little as a decade, could provide all of the state's electricity and heating needs, as well as most of the heat needed for industrial processes.

The report, *The Future of Geothermal in Pennsylvania*, was produced by Project InnerSpace, a nonprofit organization that promotes geothermal power globally as a clean energy source, and a team of scientists and policy experts from Penn State and other institutions.

While geothermal energy has been tapped by humans for thousands of years for things like spas and hot baths, its widespread use, especially as a potential way to produce electricity, has been limited.

Typically, geothermal energy has come from places with volcanic activity and an abundance of permeable, heated rocks near the surface, such as Iceland. Hot water from those areas can be used to drive turbines at power plants.

But new technologies developed for the oil and gas industry allow much deeper drilling, to depths of thousands or tens of thousands of feet, to reach areas with heated rock.

Hydraulic fracturing, or fracking, breaks up those rocks to increase the permeable area. That means more water pumped into the fracking wells comes into contact with rock surfaces, efficiently heating large volumes that are then pumped to the surface.

Unlike natural gas production, characterized by the one-way removal of gas, geothermal constantly recirculates water between the surface and the ground.

Alternatively, new technologies allow more enclosed pipes to be laid deep in the Earth's crust, where the rocks warm water inside of them before it is returned to the surface. However, that technique is often more expensive.

"Pennsylvania is an energy leader and an epicenter of oil and gas industry workforce, talent and know-how," said Jamie Beard, executive director of Project InnerSpace. "Pennsylvania led the charge historically with the first oil well and in the shale revolution. Now it can be at the forefront of the next drilling revolution, but this time around for heat."

Underground areas with the hottest temperatures are best suited for producing the hottest water needed to drive power plant turbines. The report said, though, that areas with cooler rocks can be tapped to meet much of the state's heating and industrial needs.

The report touts geothermal energy as a way to preserve jobs in the drilling sector while transitioning to a clean energy source which, unlike solar and wind, is constantly available. In some cases, natural gas wells can be adapted for geothermal use after the gas supplies are exhausted, the report said.

Although geothermal offers the potential for clean, low-cost energy over the long run, the report acknowledges that subsidies would likely be needed initially to propel it forward.

But geothermal energy production has bipartisan support. The Trump administration specifically lists geothermal as an energy source to be "unleashed" by its policies, and oil and gas industry executives have expressed interest in the potential.

Pennsylvania Gov. Josh Shapiro, a Democrat, gave a nod to Project InnerSpace and geothermal energy recently when he promoted his "lightning plan" to accelerate new clean-energy technologies in the state.

"By coming together around commonsense technologies like geothermal, we can support groundbreaking projects, lower costs for consumers, create more jobs and position the commonwealth to continue to be a national energy leader for decades to come," he said. ■

Trump administration upends Chesapeake Bay cleanup work

State-federal restoration effort could be hamstrung by spending cuts, workforce thinning

By Jeremy Cox

Like many federal programs amid Donald Trump's first months back in office, the Chesapeake Bay cleanup is in turmoil.

Federal offices helping to restore the Chesapeake Bay and its watershed are being thinned out, fueling fears that the job losses could derail an effort that has spanned 42 years and seven presidential administrations.

Meanwhile, Trump's orders to pull back on climate work and cancel DEI (diversity, equity and inclusion) initiatives show signs of trickling down into the Bay cleanup's goals.

Bay advocates also wonder whether funding to the Chesapeake Bay Program will be slashed or shut off entirely. The Bay Program is a multigovernmental partnership that sets goals, manages strategies and coordinates scientific work for the restoration effort. It includes the federal government, led by the U.S. Environmental Protection Agency; the states of Maryland, Pennsylvania, Virginia, Delaware, New York and West Virginia; the District of Columbia; and the Chesapeake Bay Commission, an advisory body comprised of state legislators.

Core funding for the program flows through the EPA's Bay Program office with additional support from Bay states and other federal agencies.

During Trump's first term, his administration proposed deep cuts to the Bay Program, but Congress rebuffed them each time. His second administration, though, has shown less interest in dealing with Congress, moving unilaterally, for example, to freeze hundreds of millions of dollars in grants related to the Bay cleanup.

The chaos comes at a critical moment. The effort has fallen short of reaching many of the goals in the 2014 cleanup agreement before its self-imposed 2025 deadline, including critical targets for reducing nutrient pollution. State and federal officials are now working on revising the pact by the end of this year.

The situation has cast a shadow over the work being done to bring the nation's largest estuary back to life.

"You're the second reporter to ask me today how I feel, and I don't even have words for it," Kim Coble, executive director of the Maryland League of Conservation Voters, said in an interview. After a brief pause, she replied, "Disheartened and discouraged."

Workboats and crab shanties are a common sight on Smith Island, MD, in the Chesapeake Bay. (Dave Harp)

In recent interactions with Bay Program staffers, one of the Chesapeake region's top environmental scientists said he has a noticed a subtle but concerning shift in mood.

"When you work in a tight group and you lose people for arbitrary reasons, everyone's on their toes and not saying things," said Larry Sanford, a professor at the University of Maryland Center for Environmental Science and chair of the Bay Program's Scientific and Technical Advisory Committee. "One of the things that has really struck me is that nobody's talking about this. I think they're just scared."

New EPA chief expresses support

During a Feb. 28 visit to Annapolis to discuss the Bay Program, Lee Zeldin, the EPA's new administrator, declared his support for the partnership. Most media, including the *Bay Journal*, weren't given notice of the appearance.

"It's important that we are making sure that Chesapeake Bay Program has the funding that [it] needs to survive and thrive," he told the Baltimore TV affiliate FOX45. "It's an important priority of mine."

Two days earlier, though, Trump suggested that the EPA should cut its spending by 65%. It's unclear whether any of those cuts would be directed at the Bay Program.

Former U.S. Congressman Lee Zeldin, now administrator of the U.S. Environmental Protection Agency, speaks at a Republican Jewish Coalition summit in 2023. (Gage Skidmore /CC BY-SA 2.0)

A *Bay Journal* request for an interview with Zeldin in the wake of his Annapolis trip resulted in this written response from the EPA's press office: "President Trump and EPA Administrator Zeldin are in lockstep in creating a more efficient and effective federal government …

"Compared to 2024, the total amount spent year over year at EPA will deliver significant efficiencies to American taxpayers by cutting wasteful grants, reassessing the agency's real estate footprint, and delivering organizational improvements to the personnel structure. In his first term, President Trump advanced conservation and environmental stewardship while promoting economic growth for families across the country and will continue to do so this term."

Staff loss at federal agencies

The situation has been clouded by the administration's vague statements and shifting guidance as well as by pending court actions. Here is what was known about the Bay Program's affairs as of late March.

Two Bay Program staffers accepted the administration's "fork in the road" buyout, named after the subject line of the email that went out to 2 million federal employees in January. It offered full pay through September in exchange for their resignations.

Those two buyout departures came from the EPA and U.S. Geological Survey, according to a Bay Program spokesperson.

Meanwhile, five staffers who worked at the Bay Program's Annapolis headquarters or were closely involved with it were laid off — and then, at least temporarily, brought back. All five held probationary status, either new to federal government or in new roles. The layoffs affected four USGS employees and one U.S. Forest Service employee, according to a program spokeswoman.

After judicial rulings in March ordered the Trump administration to rehire those and other employees, the Forest Service employee was expected to return to the office during the week of March 24. The USGS staffers had been reinstated — but, as the *Bay Journal* went to press, they had not been given a start date. The administration has appealed the rulings.

The Bay Program has overseen the cleanup of the estuary and its watershed since 1983. Before the layoffs, the program was at one of its highest staffing levels in its history, with more than 100 employees. So, the loss of those seven staff members represented less than a 10% reduction in its workforce.

But those figures don't present a full picture of the federal staffing cuts' impacts to the Bay effort. That's because thousands of additional federal employees are engaged with the cleanup at some level, even though they don't work directly for the Bay Program. Along with the EPA, USGS and U.S. Forest Service, the Bay-related impact reaches other agencies such as the National Oceanic and Atmospheric Administration, U.S. Department of Agriculture, USDA Natural Resources Conservation Service and U.S. Army Corps of Engineers, which are also facing current and future staff reductions.

The loss of federal workers on the environmental front lines in the Bay region, said

U.S. Rep. Sarah Elfreth (D-MD), then a Maryland state senator, speaks at a 2022 Baltimore event announcing Chesapeake Bay initiatives to be funded by the Bipartisan Infrastructure Law. (Will Parson/Chesapeake Bay Program)

U.S. Rep. Sarah Elfreth (D-MD), is "very alarming and threatens to set us back decades in our progress." Many of those cast off in the probationary cuts were younger employees who, in many cases, represented the future of the federal workforce, she added.

"These actions today are going to have lasting impacts on who are going to be the leaders of our civil service in 20, 30 years," Elfreth said.

Opposition and impacts

Opposition has been fierce. Thousands of federal employees have joined protests outside agency buildings. Some lawsuits have begun to gain traction in federal courts. In a rare show of bipartisanship, a handful of Republicans have joined Democrats in pushing a bill that would enable fired employees to retain the time they accrued during their probationary period — if and when they're rehired.

"It's an opportunity for me to reach out across the aisle and talk to my colleagues on the Republican side," Elfreth said. The first-term congresswoman is the lead sponsor of the House version of the bill. But she acknowledged that it faces an uphill battle because her party is in the minority in both chambers.

Greg Allen, the EPA staffer who accepted the resignation offer, was one of the Bay region's top experts in toxic contaminants, such as mercury, polychlorinated biphenyls (PCBs) and per– and polyfluoroalkyl substances (PFAS or "forever chemicals"). Under the circumstances he was facing, Allen said he felt like he had little choice but to take the buyout.

He had been working remotely from Charleston, SC. But that arrangement couldn't continue because, in a separate action, the Trump administration had ordered the 228,000 federal employees who teleworked to return to the office.

Allen was overseeing the recommended revisions to the program's toxic contaminants policy. In a recent poll commissioned by the Chesapeake Bay Foundation, 2,000 watershed residents ranked toxic pollution as the estuary's biggest health threat, surpassed only by plastic waste. Other hazards, such as climate change and polluted stormwater runoff, were classified as slightly lower priorities.

Allen said he has full confidence that his former colleagues will carry the effort across the finish line. "I think the spirit of the partnership and the commitment of the partners is strong," he said. "We know [restoring the Bay] is the right thing to do for all the right reasons, including economic well-being."

NOAA scientist Jake Shaner was let go as a probationary employee in February from the agency's lab in Oxford, MD. Now he finds himself in limbo on paid "administrative leave" amid the appealed court ruling.

NOAA scientist Jake Shaner was initially terminated but then put on administrative leave from his job at the Oxford Cooperative Laboratory in Maryland. (Dave Harp)

Interviewed after he was laid off but before put on leave, Shaner described himself as the Eastern Shore facility's "Swiss Army knife." He was working with the low-lying town of Oxford to make sure a newly installed living shoreline was working as intended and was in the final stages of activating a new monitoring system that would help the surrounding area respond better to tidal flooding emergencies.

He also was working with colleagues on a method of planting oysters that could accelerate the labor-intensive effort and save money by eliminating the need to use recycled oyster shells. Through "direct setting," scientists release the tiny oyster larvae, known as spat, directly onto existing oyster reefs.

In addition, Shaner was part of the team that rescued stranded sea turtles and dolphins, one of the agency's most popular initiatives.

The lab is likely to face some immediate problems in his absence, he said. He was the de facto boat mechanic, for instance. Who will fix the boats now? "There are a couple [of employees] that will try," he said.

"It's one of those things where we were already shorthanded, so some things are going to have to fall off a little bit," Shaner said.

Like all probationary employees, he received an email informing him that he was "not fit for continued employment because your ability, knowledge and/or skills do not fit the agency's current needs." He received the notice at about 3:45 p.m. and had to leave the office by 5 p.m., he recalled.

"Selfishly, it was a dream job. NOAA is well respected in the international science community," Shaner said, adding that he worries about the future of his field. "There's a realistic issue where my industry is in jeopardy. I'm going to be competing with a lot of people for not a lot of jobs."

DEI and climate

As the Bay Program revises its 2014 cleanup agreement, the partnership is facing federal directives to end DEI programs and reduce or end climate-related science and resilience initiatives. The situation is complex because the Bay Program is not solely in federal hands but also includes six states and the District of Columbia.

As part of the yearlong update process, the program's Management Board on March 13 considered a proposal from an internal review team to nix the effort's "diversity" goal. Most board members are representatives of state and federal agencies.

The current agreement calls for "identifying stakeholder groups not currently represented" in the program and working to bring them into the fold. In 2020, the program's leadership had amended the document to outline specific steps, including ensuring that scientific and restoration efforts are fairly distributed across various communities.

The proposed revision would replace the existing language with a "workforce" outcome to recruit and train workers who would help meet Bay cleanup goals.

As the *Bay Journal* went to press, the board's official vote on the revision was slated for March 27. If it passes, the proposal will move further up the review chain. But during the preliminary discussion on March 13, the vast majority of board members agreed with the change.

Anna Killius, a Management Board member and director of the Chesapeake Bay Commission, supported the move. She said in an interview days before the meeting that she stands firmly behind promoting diversity but that there's no reason it can't be accomplished by increasing the region's environmental workforce.

"I don't think that has to be the antithesis of where this administration is going," Killius said.

Meanwhile, the Management Board mostly appeared to be in favor of retaining but updating the climate adaptation goal. But at least twice during the meeting, federal officials requested that the group use the phrase "changing environmental conditions" instead.

A representative from the National Oceanic and Atmospheric Administration said the agency is waiting for guidance from new leadership on whether it can engage in that issue and therefore could not take a position. NOAA has been a leading source of climate science and weather-related data for decades.

Environmental groups are already pushing back against moves to downplay climate impacts, contending that it threatens to undermine the entire cleanup.

"It's hard to separate climate change and restoring the Bay at this point," said Hilary Harp Falk, president and CEO of the Chesapeake Bay Foundation. "It doesn't make sense to separate them." ■

Editor's note: The Bay Journal receives some support through a federal grant from the Chesapeake Bay Program to support public outreach. The grant is currently frozen. The Bay Journal has always maintained complete editorial independence.

Farm conservation work hard hit by federal funding freeze

Advocates worry about setback to efforts that help climate and the Bay

By Karl Blankenship

Amanda Lee-Milner was looking for a way to get her goats something more to eat and help them get a bit of shade.

She didn't think it was part of a radical left-wing agenda.

She was hoping to convert a 10-acre woodlot on her sheep and goat farm in Adams County, PA, into a series of fenced paddocks where the animals could graze among the trees.

Lee-Milner even envisioned it becoming a place where other farmers could learn about "silvopasture" techniques, which are gaining interest as a way to buffer farms against drought and rising temperatures.

In late January, she got the go-ahead from the nonprofit group Pasa Sustainable Agriculture, which helped plan and design the project. Then, she said, "I got another call saying that they were not going to be able to move forward."

Pasa had learned that the U.S. Department of Agriculture had halted funding for the organization's multiyear, $59 million grant to work with farmers from Maine to South Carolina on "climate smart" projects. Suddenly, there was no money.

"It's very frustrating," Lee-Milner said. "The broken promises are the worst — the fact that the federal government isn't following the process and didn't keep their word."

The funding freeze is dramatically impacting Pasa. As the *Bay Journal* went to press, the organization was planning to furlough about 60 staffers by the end of March, leaving it with fewer than 10.

Hannah Smith-Brubaker, Pasa's executive director, called the action "heartbreaking" because so many farmers were interested in participating. "It's disenfranchising these farmers from the ability to improve their situation," she said.

Pasa is hardly alone. The fate of billions of dollars in farm conservation funding that was to be spent over the next several years, including hundreds of millions of dollars in the Chesapeake Bay watershed, is in limbo as the USDA reviews its programs and grants.

Amanda Lee-Milner has been operating a 90-acre sheep and goat farm in Pennsylvania for 11 years, but increasing drought has made her worried about its future. (Courtesy of Amanda Lee-Milner)

In February, newly installed USDA Secretary Brooke Rollins said the department would honor its commitments to farmers but would not support diversity and "far-left climate programs."

It is one of a series of actions that, in a matter of weeks, has upended USDA conservation programs.

Besides freezing grants for dozens of nonprofit groups, businesses and universities, the USDA is not funding much of its own conservation work and has cut back its conservation outreach staff, which was already shorthanded.

Many organizations and farmers are in limbo, with no clear indication of what criteria the USDA is using to make funding decisions — or when they will be made.

Smith-Brubaker said she contacts USDA staff weekly, only to be told, "We don't know anything more than you do." She has no idea whether funding will be restored or terminated.

In frustration, Pasa and several other groups joined a suit March 19 against Trump administration officials, contending that they are illegally holding up money already appropriated by Congress and ignoring signed contracts.

The freeze and potential loss of funding has huge environmental implications. Runoff from farms is the largest source of nutrient and sediment pollution to streams across the nation and to the Chesapeake Bay. And USDA programs are the largest single source of funding to address the problem.

"Anyone that's done work on the Chesapeake Bay knows progress is highly dependent on the agricultural community's partnership and work," said Kim Coble, executive director of the Maryland League of Conservation Voters. "That takes assistance and help. To lose that is devastating."

Dramatic reversal

It's a sharp turnaround from two years ago when the USDA announced it would bolster farm conservation work with nearly $20 billion from the newly passed Inflation Reduction Act (IRA).

That funding, spanning five years, would dramatically increase the agency's core conservation programs that pay farmers for improved land stewardship, help them take actions such as installing stream buffers and stream fencing, and compensate them for retiring environmentally sensitive land.

To handle the influx of work, the department ramped up its technical support staff who work with farmers to get those projects on the ground.

And it tapped other department funding to launch a $3 billion Partnership for Climate-Smart Commodities program that helped universities, businesses and nonprofits like Pasa work directly with farmers on adapting to climate challenges and marketing the products they produce.

The USDA called those initiatives a "once-in-a-generation investment in conservation on working lands." While the influx of money was generally aimed at addressing climate change, many of the measures it supported also reduce nutrient-laden runoff — things like stream fencing, improved pasture management, no-till farming and planting cover crops and stream buffers.

But President Trump put the brakes on that work with a series of executive orders aimed at giving administration officials time to review climate-related initiatives, especially those funded under the IRA. A goal, one of the executive orders stated, was to "terminate the green new deal" — a program that doesn't exist.

The authority of the administration to halt funding was challenged in court in part because the expenditures for this year were already approved by Congress. Several court rulings ordered agencies to resume the funding, but that had largely not happened with agricultural programs as this issue went to press.

USDA Secretary Rollins on Feb. 20 announced the freeing of $20 million in conservation funding, but that's a fraction of the money that has been obligated for its core conservation programs nationwide. In the Chesapeake region, for example, Virginia has $196 million in active USDA conservation projects, Pennsylvania has

$185 million and Maryland has $56 million, according to USDA figures.

Most of the money for the climate-smart program, such as Pasa's grant, remains locked up. The USDA did not reply to a request for comment. Several organizations with those grants contacted by the *Bay Journal* reported that funding was frozen but declined to discuss the matter publicly, fearing it could hurt chances for their grants being restored. Others declined to speak at all.

Many painted a grim picture for accelerating conservation progress, even if the funds come back.

"I am concerned about the future of federal farm conservation, period," said a representative of a national farm organization who requested to be unnamed. "Farmers are not known for their incredible trust of the U.S. government. And having a bunch of farmers sign up for projects and feeling like they were promised something that they don't receive — they're going to be less likely to participate in these programs in the future."

Further, instead of increasing staff to help implement the programs, the USDA is cutting back. In February, it fired nearly 6,000 probationary employees, including around 1,700 in its Natural Resources Conservation Service. Many of those were the recently hired staff needed to work with farmers.

In March, the USDA and other federal agencies were ordered to rehire those employees. Most were placed on paid administrative leave, though the department said it would work on a phased return-to-duty. But it is also developing plans for an even broader "reduction in force," so those employees may be fired again.

The funding uncertainty and sidelined staff come at a critical time when plans were being finalized for 2025 projects. With spring approaching, some won't happen until next year — if at all.

"The current situation has put a bad taste in a number of farmers' mouths who have active contracts that have been delayed or halted," said Kevin Tate, director of conservation with the Alliance for the Shenandoah Valley, which was using several now-frozen USDA grants to work with farmers. "I think there is a very real possibility of projects being abandoned."

Even if money is restored for this year, Tate noted, it is far from certain that it will be available in the following years, making it difficult to do new outreach with farmers for projects that may never be funded. "These relationships take years to develop,"

A forested track on Amanda Lee-Milner's Pennsylvania farm was to be divided into grazing paddocks to give her goats a shaded place to graze in warm months. (American Farmland Trust)

he said. "It's not like we just turn the tap on and turn the tap off."

Climate-smart program hit

Now farmers like Lee-Milner and organizations like Pasa are wondering whether they will ever see promised funding — and pondering what might have been.

While the bulk of the increased USDA conservation funding was fortifying existing programs, the $3 billion Partnerships for Climate-Smart Commodities was new.

It supported many traditional conservation practices such as cover crops and no-till farming, which help sequester carbon into the soil, as well as nutrient and manure management techniques that reduce nitrous oxides, a powerful greenhouse gas.

But it also promoted monitoring efforts to quantify how well those approaches are working, and it supported marketing efforts to inform consumers about the environmental benefits of that work — which could increase the value of those products and expand markets.

Nationwide, the climate-smart initiative made awards to 140 organizations, businesses and institutions, which were supposed to reach more than 60,000 farms and cover more than 25 million acres of farmland. The USDA estimated that, if successful, the work would sequester carbon equivalent to removing more than 12 million gas-powered cars from the road. Hundreds of millions of dollars of that work was to take place in the Chesapeake watershed.

The program was also a way to test new approaches, such as the silvopasture project Lee-Milner hoped to create on her farm.

Warmer temperatures and drier summers in recent years have been making it difficult to grow enough hay on the 90-acre farm to support the sheep and goats through the winter.

And, during the hottest summer months, providing enough shade for pasturing animals is becoming more important. The solution, Lee-Milner thought, was to allow some of the animals to graze in a 10-acre area of forest on her farm that isn't currently in use.

She researched the issue and, working with Pasa, determined that dividing that area into four fenced paddocks would allow goats to be rotated through sections of the woodlot in 5-day increments. That would provide more food and a cooler foraging area for her goats, and the managed grazing would benefit the woods by controlling invasive plants.

Also, soil in the paddocks would retain more moisture during droughts than traditional pastures, all while sequestering climate-warming carbon dioxide from the atmosphere.

It would have a steep upfront cost: about $45,000, which was too much for the small farm to afford without some assistance.

And there was another impediment. Despite growing interest in silvopasture systems, they are not supported by NRCS programs.

That's where Pasa's support was invaluable. The climate-smart funding gave it the flexibility to work with farmers on newer techniques and assess how they perform.

Pasa was using its grant to reach thousands of farmers though its own work and by supporting 13 other organizations from Maine to South Carolina. Those organizations have networks that can often reach farmers who typically don't engage with NRCS programs, and they could provide technical assistance that could relieve burdens on the understaffed federal agency.

Project staff were actively engaged with monitoring the outcomes, such as taking soil samples to determine how well the practices were sequestering carbon. It's data that largely doesn't exist, particularly for smaller farms.

"It's really valuable information about the real impacts of installing these practices on soil health, on farm viability, on the bottom line for farmers," said Sarah Isbell, Pasa research director. "We are now completely missing the opportunity to collect it."

Even if funding is restored, picking up the work would be difficult. Any USDA-funded project that requires significant earth disturbance, such as fencing or tree planting, requires a special certification to ensure that it complies with the Clean Water Act and other regulations.

NRCS normally handles those certifications, but the USDA recognized that projects from the climate-smart program would overwhelm its staff. So, it hired a contractor to conduct that review.

On Valentine's Day, though, the new Department of Government Efficiency terminated the contract without explanation other than a post on X by Elon Musk, who oversees DOGE: "Roses are red, violets are blue, today DOGE and 10 agencies made 586 wasteful contracts bid adieu."

Organizations working on the climate-smart programs now have no mechanism to complete those reviews even if funding were restored, especially as staffing at NRCS has been cut.

"We haven't gotten the green light to go directly to the NRCS office for approval," said Andrew Currie, who oversees Pasa's program. Reflecting the frustration of others, he added, "This is exactly the reason why farmers are reluctant to engage with programs like this, even though they might see the benefit." ■

National parks in Bay region impacted by federal staff cuts

Staff members fired then unfired or put on leave in dizzying month of executive decrees

By Lauren Hines-Acosta

Ashley Ranalli's favorite spot at Fredericksburg & Spotsylvania National Military Park was the cemetery. As a park ranger, she would dig through archives and learn about buried Union soldiers, like William Tinker, whose story she could share with visitors. But then she was laid off.

"My connection with Tinker, my connection with the land, my service to that land was and is my most favorite thing that I've done with my life," Ranalli said.

To reduce federal spending and increase government efficiency, the U.S. Office of Personnel Management (OPM) on Feb. 14 directed federal agencies to terminate all non-critical probationary employees.

Initially, the National Park Service was subject to those cuts and laid off about 1,000 employees. Another 700 took the "fork in the road" buyout offer to resign with temporary pay. Kyle Hart, Mid-Atlantic program manager with the National Parks Conservation Association, said that totals about 9% of the agency's workforce.

But by mid-March, court rulings had authorized the federal agencies to rehire staff.

Impacts and uncertainty for the Park Service continue, though. Staff reductions from the buyout remain in place, some probationary employees are still not back at work, and the Trump administration is planning an even deeper "reduction in force" across all agencies.

In the Chesapeake Bay region, botanists, biologists, maintenance workers and park rangers were among the staff initially laid off. At least 40 employees lost their jobs, according to local news reports, a spreadsheet from an anonymous park ranger and *Bay Journal* interviews with unions and nonprofits.

The February firings came abruptly. Nathaniel Bauder, a maintenance worker at Gettysburg National Military Park, had finished his Friday shift when he got an email saying his position was terminated immediately. Ranalli received a similar email. She knew she was laid off before her supervisors did.

For income, Ranalli went back to her former role as an English teacher. But with school already in session, only temporary positions were available with no health insurance (Ranalli is a cancer survivor). Bauder was still looking for a job when,

Ashley Ranalli (center left) works as a seasonal ranger for the Captain John Smith Chesapeake National Historic Trail in Virginia in 2022. (Courtesy of Ashley Ranalli)

in late March, he got a call telling him that he had been reinstated.

On March 19, Ranalli's supervisor called and read a script written by OPM stating that she had now been placed on administrative leave, or "List B." Those on "List A" could return to work. Two days later, she was switched to List A. OPM's basis for those categories is unknown.

Probationary staff mostly includes employees in their first year but also those with decades of experience who had recent promotions or new positions.

President Trump's Feb. 11 executive order outlining his plan to reduce the federal workforce excludes any positions deemed necessary to meet public safety responsibilities. But many park staff, like Bauder, have received wildfire training to help firefighters and shepherd visitors away from a fire's path.

Parks across the Bay region have been impacted. At Shenandoah National Park in Virginia, 15 of its nearly 100 employees were laid off. The park was already operating with 30% of its positions unfilled. The Chesapeake & Ohio Canal National Historical Park in West Virginia laid off six people, or 7% of its staff. Fort McHenry in Maryland laid off six people as well. Gettysburg National Military Park in Pennsylvania lost four employees, including Bauder. The firing of one person was rescinded due to their veteran status, according to the park's union president, Mark Cochran.

The *Bay Journal* tried to confirm the number of layoffs with the Park Service and

Nathaniel Bauder, maintenance worker, performs preservation work on one of the monuments at the Gettysburg National Military Park in Gettysburg, PA, in 2023. (Courtesy of Nathaniel Bauder)

U.S. Department of the Interior, but the agencies have not provided information about which positions and facilities have been subject to cuts. The reply to a *Bay Journal* inquiry to the Park Service's Chesapeake Bay office said the request was "forwarded to the appropriate party for an answer."

Elizabeth Peace, senior public affairs specialist at the Department of the Interior, responded in an email, "We do not comment on personnel matters … Under President Donald J. Trump's leadership, we are working to right-size the federal workforce, cut bureaucratic waste and ensure taxpayer dollars are spent efficiently."

Many Republican lawmakers are pushing to reduce federal spending and lower the $37 trillion national debt. Defaulting on payments or reaching the debt ceiling could make it difficult to borrow money and pay the country's bills, according to the U.S. Treasury.

"I believe we can find savings while pursuing a compassionate approach that considers the real-life impact on public servants and their families," Congressman Rob Wittman (R-VA) said in a statement to the *Bay Journal*.

The Park Service layoffs have sparked pushback from not only House and Senate Democrats but also lawsuits from the Sierra Club and multiple states.

On March 13, U.S. District Court Judge William Alsup in California ordered the Department of the Interior, including the Park Service, to reinstate probationary staff.

Alsup ruled that OPM has no authority to direct agencies to fire employees, nor was it truthful in claiming the firings were due to poor performance. Ranalli, among other rangers, received a positive performance review from their supervisors.

According to the National Parks Conservation Association, the Park Service is authorized to reinstate all 1,000 probationary employees who were fired on Valentine's Day and offer back pay. Initially, the agency was only authorized to rehire about 400 and place the rest on administrative leave. The service still plans to hire 7,700 seasonal workers.

Visitors spent about $3 billion in and around national parks across all Chesapeake Bay states in 2023, mostly on lodging and at restaurants nearby.

Park visitors have increased every year, as has inflation, but staff decreased by 15% between 2011 and 2022. If more cuts come, visitors could see dirty bathrooms, unmaintained grounds and fewer ranger-led programs.

A memo from OPM and the U.S. Office of Management and Budget to agency heads required the Park Service to submit a plan by March 13 to reduce its workforce. Managers have said the request not detailed in the memo has been to cut staff by 30%. The *Bay Journal* has filed requests under the Freedom of Information Act to view copies of those plans for parks in the Bay region.

Legal observers expect the Trump administration to appeal Alsup's ruling. In the meantime, many national park staffers are returning to work after a month of uncertainty. ■

Deregulatory blitz threatens Chesapeake, advocates say

Federal actions aim to rollback wetland protections, air pollution limits

By Timothy B. Wheeler

When the U.S. Environmental Protection Agency was formed in 1970, President Richard M. Nixon said its mission would be to establish and enforce environmental protection standards, research the adverse effects of pollution and provide grants and technical assistance to help control it.

Now, the Trump administration has laid out a major course correction, calling for the rollback or elimination of dozens of environmental rules to boost the economy. Environmental advocates warn that the move threatens public health and struggling ecosystems like the Chesapeake Bay.

On March 12, EPA Administrator Lee Zeldin announced plans to reconsider, revise or terminate more than 30 different regulations and programs, some of which have been in place for years. In the crosshairs are protections for wetlands; limits on pollution from vehicles, power plants and factories; and the legal basis for taking action to reduce climate-altering emissions.

Zeldin said the move is a needed boost for consumers and industry. "We are driving a dagger straight into the heart of the climate change religion," he said, "to drive down cost of living for American families, unleash energy, bring auto jobs back to the U.S. and more."

Many Republicans welcomed the announcement. West Virginia Sen. Shelley Moore Capito, chair of the Senate Environment and Public Works Committee, called it "exactly what needs to be done to secure American energy dominance" and help communities that she said were "negatively impacted by regulations and overreach from the Biden administration."

Environmental advocates decried it as a betrayal of the EPA's fundamental mission, despite remarks Zeldin reportedly made during a March visit to Annapolis about how "it is imperative we continue to do what we can to protect" the Chesapeake Bay.

"This barrage of deregulatory declarations essentially removes the word protection from the Environmental Protection Agency and undermines the federal-state effort to save the Bay," said Chesapeake Bay Foundation President Hilary Harp Falk.

Among the rules the EPA plans to change is a much debated one providing federal protection for wetlands and streams.

"Delmarva bays" like this one on Maryland's Eastern Shore are unique to the Delmarva Peninsula. Like other wetlands, they stand to lose federal protection because they lack a surface connection to a navigable waterway. (Dave Harp)

Congress, when it passed the Clean Water Act in 1972, declared federal jurisdiction over "navigable waters" and ordered a permitting program set up to regulate discharges of dredged or fill material into "waters of the United States," including wetlands.

Isolated freshwater wetlands and even periodically dry stream beds help keep water-fouling nutrients and sediment from reaching the Bay while also providing vital habitat and soaking up floodwater. But whether those critical parts of the water cycle were intended for protection by the Clean Water Act has been the focus of legal and political wrangling ever since.

The first Trump administration, at the behest of farmers, home builders, and oil and gas companies, repealed an expansive "waters" rule adopted by the Obama administration and replaced it with a much narrower one that limited federal oversight only to continuously wet places.

Courts blocked that rule, but in 2023 the U.S. Supreme Court weighed in with an even narrower interpretation of what the federal law protects. The Biden administration then produced a revised rule meant to follow the high court direction, but critics were unmollified and courts blocked its application in half of the states.

Now, the Trump EPA has vowed to work with the U.S. Army Corps of Engineers to craft yet another version of the rule, one it says "follows the law, reduces red tape, cuts overall permitting costs and lowers the cost of doing business in communities across the country."

At this early stage, it's hard to tell whether the EPA simply wants to clarify the existing rule or make more fundamental changes, said Mark Sabath, a senior attorney with the Southern Environmental Law Center. But the agency has already pulled back federal oversight, he noted, in some cases that were still subject to regulatory scrutiny under the Biden administration rule.

Five of the six Bay watershed states and the District of Columbia have their own laws that offer at least some protection for wetlands and streams, so the impact of a federal rollback would seem limited there. Delaware, meanwhile, is one of 24 states nationwide that rely entirely on the federal Clean Water Act for safeguarding their waters.

But there could be indirect effects even on states with their own protective laws, Sabath pointed out, because some lack the resources to do it all themselves and must collaborate with federal regulators to evaluate permit requests.

The EPA's vow to roll back limits on climate-related air pollution may be even more consequential for Bay water quality, suggested Jon Mueller, director of the environmental law clinic at the University of Maryland law school.

The Biden administration tightened tailpipe emissions standards for cars, SUVs, pickups and other trucks, a move critics have attacked as effectively mandating sales of electric vehicles. But Mueller pointed out that those standards aim to curtail emissions not just of carbon dioxide and soot but also of nitrogen oxides.

Nitrogen is a major pollutant in the Bay and its rivers, triggering algae blooms that lead to "dead zones." About a third of the nitrogen reaching the Bay comes from the air, a combination of nitrogen oxide emissions from fossil fuel combustion and ammonia released from agricultural operations. When that nitrogen falls out of the air, it can be directly deposited into waterways or it can fall onto land and ultimately wash into the water.

Preliminary estimates by Bay Program computer models indicate that the climate mitigation measures called for in the Biden administration's Inflation Reduction Act would reduce the nitrogen landing on the Chesapeake's 64,000-square-mile watershed by about 20% by 2035.

"These rules were definitely going to help protect the Bay and Bay states," said Mueller, a former vice president for litigation for the Bay Foundation and former attorney with the U.S. Department of Justice handling environmental cases.

Despite the barrage of deregulatory announcements, Mueller said the EPA still has to follow the law and provide ample public notice and opportunities for public comment before repealing or replacing any rules. That could well take years, he noted, just as it took years to promulgate the existing rules.

And with the deep budget and staffing reductions the Trump administration has begun to make, Mueller predicted it may have trouble mustering the resources to defend its actions in court against the lawsuits likely to be filed challenging the weakening of environmental protections. ■

Bay Journal editor-at-large Karl Blankenship contributed to this story.

Bay environmental groups struggle amid grant freezes, cuts

Many organizations remain in the dark about current and future federal funding

By Jeremy Cox and Whitney Pipkin

Choose Clean Water Coalition director Kristin Reilly (far left) asked attendees at a luncheon during a lobbying day on March 5, 2025, to raise their hands if their organization had been affected by federal funding cuts or freezes. (Whitney Pipkin)

The director of the Choose Clean Water Coalition began the group's lobbying day luncheon in early March in the bowels of a Capitol Hill office complex by asking how many members had been hit by federal funding freezes and cuts. Almost half of the people in the room raised a hand.

The coalition, representing more than 300 organizations that work on clean water in the Chesapeake Bay region, travels to Washington annually to urge lawmakers to keep funding the Bay's cleanup.

"But this year … is different," Kristin Reilly, the coalition's director, told legislators and their staffs, as well as nearly 100 coalition members. "This year, we're not just here to advocate for future funding. We are, for the first time ever, also here to advocate for current funding — funding that has already been appropriated."

The Trump administration has frozen the release of hundreds of millions of dollars that have been previously appropriated for environmental work in the Chesapeake Bay watershed. Funding for a handful of those programs has since been restored, while others appear to have been permanently defunded.

But many more funding sources remain in limbo, with nonprofits waiting for a memo to update them after being told that their funding was "under review."

Some Bay area organizations have begun fighting back. A federal lawsuit filed March 19 in South Carolina seeks to reinstate the halted funding. Among the entities signing onto the suit from the Chesapeake region are Pasa Sustainable Agriculture, based in Harrisburg, PA; the Alliance for the Shenandoah Valley, based in New Market, VA; and the city of Baltimore.

President Donald Trump's executive orders have expressly directed federal staff to curtail funding and programs supporting certain DEI (diversity, equity and inclusion) and climate initiatives. But the funding cuts are also reaching other areas, including programs that benefit wildlife habitat, reduce flooding and help farmers pay for costly water quality improvements on their land.

One of the president's orders specifically targeted the disbursement of funds appropriated under the Inflation Reduction Act (IRA) in 2022. The act included an additional $19.5 billion to help farmers improve soil health, reduce runoff into waterways and complete energy projects. Nonprofits that assist with these programs report interruptions of longstanding grants they've received from the U.S. Department of Agriculture or other federal agencies, many of which were then supplemented with IRA funds.

Other programs have been terminated, according to memos received by grant recipients. The U.S. Forest Service canceled a $75 million grant to the Arbor Day Foundation to support a Community Roots program focused on planting trees in urban areas. The Rappahannock Tribe and the nonprofit Friends of the Rappahannock were scheduled to receive $300,000 from that grant to pay for forest management and conservation job training on the tribe's ancestral lands on Virginia's Northern Neck.

"We had fully secured contracts, and we had already started doing some work," said Bryan Hofmann, deputy director of the Friends of the Rappahannock. "We are going to get reimbursed for most of what we spent up until Feb. 21, but this was supposed to be a three-year agreement."

Hofmann said the friends group has seen another $1.5 million frozen from the National Fish and Wildlife Foundation, money that was headed to a group of nonprofits helping farmers implement pollution-reduction practices on their land.

Pervasive uncertainty

For some grant recipients, the past several weeks have been a roller coaster of news. For example, grantees receiving funds through the EPA's Environmental Justice Collaborative Problem-Solving grant were told their funds had been frozen, only to learn in late February that their program had been reopened. Then, in mid-March, they were being "refrozen" and terminated.

Many conservation groups in the Bay region have found themselves in the dark about whether promised funds are still available.

"There's a lot of uncertainty," said Alison Pearce, executive director of Nature Forward. "In some cases, we don't even know whether funding is frozen or not, and we certainly haven't been told why."

Now, Pearce said, Nature Forward can't rely on federal grants to cover salaries and project costs for next year's budget, so its staff is planning as if the organization won't receive the money. If they overpromise funds to those they serve, it could risk ruining their relationships with communities.

Several environmental advocates interviewed by the *Bay Journal* characterized the administration's targeting of DEI-themed projects as misguided. Such efforts don't just help some people, they help all people, said Fred Tutman, the Patuxent Riverkeeper and the nation's only Black riverkeeper.

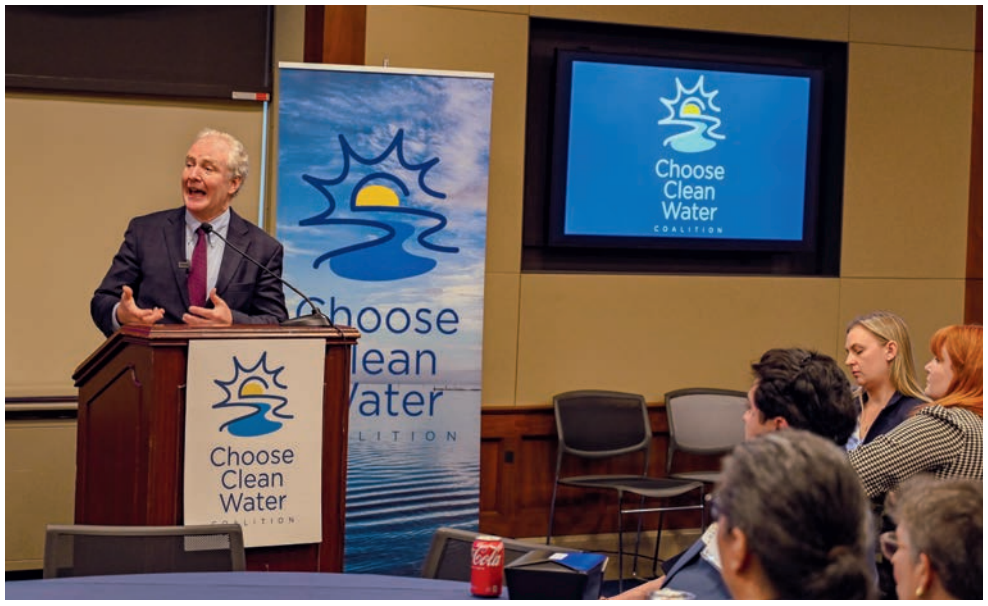
"This is by no means welfare," he said. "It's a part of an orderly society to provide people with self-help. If we don't do these things, we'll pay on the back end."

Patuxent Riverkeeper Fred Tutman calls the interruption of funding misguided and cruel. (Dave Harp)

An initiative supported by Tutman's organization has been swept up in the uncertainty. The Healthy Lothian project seeks to connect people to safe drinking water in the rural Lothian area of Anne Arundel County, about 20 miles southwest of Annapolis.

"It's shocking, and it's mean and it's cruel," Tutman said of the lapse in funding. "It [presupposes that] we have eradicated disparities and racism, and that's just not true."

The effort was funded as a pilot program through last December, but the contract continues through 2027, said Hope Cupit, who heads the nonprofit group SERCAP,



Speaking at a March 5 lobbying event, Sen. Chris Van Hollen (D-MD) addresses clean water advocates' concerns about federal funding cuts to Chesapeake Bay programs. (Whitney Pipkin)

which is going door-to-door to consult with residents. Since the funding ran out, her organization has had little success getting information about how to restart it.

"We're just in a lot of disruption," Cupit said. "So, I guess we just have to find alternative ways to keep things going."

The Chesapeake Foundation, the largest conservation organization devoted to Bay efforts, discovered that several of its federal grants had been paused initially. But they eventually became unfrozen, said Hilary Harp Falk, the group's president and CEO.

Still, she added, "We're preparing for the worst, including losing all federal funding at some point and actively working to weather that position." Federal money accounts for about 12% of the foundation's budget.

Information desert

Claiming it has been working in "partnership" with Elon Musk's Department of Government Efficiency, the U.S. Environmental Protection Agency asserted it had cancelled hundreds of grants through March 10, totaling more than $2 billion in taxpayer savings. The agency said that the cuts were directed toward "unnecessary programs," "wasteful DEI and environmental justice programs" and initiatives deemed to be out of step with the administration's priorities.

The only official window into DOGE's cutting spree across the federal bureaucracy is the team's own website. And reporting by news organizations, including the *New York Times*, quickly found that DOGE's savings claims are often riddled with significant errors, prompting numerous revisions to the site.

The *Bay Journal* requested in mid-March a list of affected grants directly from the EPA. The agency's press office responded by pointing to previous news releases, which don't offer project-level information, and the DOGE website. The website, however, only provided the barest details about terminated grants, such as the name of the administering agency and total money saved from each.

More than a week later, after media reports called out the missing information, DOGE began posting more details about the affected grants on its "wall of receipts."

"Currently, all these freezes and cancellations are winning the PR game for the administration because they get to talk about all the savings to taxpayers, but they're not being transparent about who's losing all the money," said Michelle Roos, executive director of the Environmental Protection Network, an alliance of former EPA staffers created in the wake of Trump's first election.

In the absence of reliable government information, Choose Clean Water and other nonprofits began cobbling together anecdotes and numbers from peers from the field — and some members of Congress seemed to be doing so as well. Speaking at the Choose Clean Water luncheon on March 5, Sen. Chris Van Hollen (D-MD) asked nonprofits and state agencies whose federal funds have been frozen or who have lost contact with agency staff to continue reaching out to his office. He contended that both the grant freezes and the firings were unlawful.

"When Congress on a bipartisan basis passes a law that allocates funding to important funding purposes, presidents … don't get to pick and choose which funds they release and which they don't," Van Hollen said to the group.

The next day, March 6, a federal judge in Rhode Island ruled to extend an existing court's block on the Trump administration's attempt to freeze payments for federal grants and other congressionally approved government programs. It's not clear exactly how or when such efforts would result in the flow of funds being restored.

"It all remains to be seen because the [temporary restraining orders] have not been fully resolved" in the nation's courts, said David Reed, executive director of the Chesapeake Legal Alliance.

Relationships damaged

Even if the majority of frozen funds are eventually disbursed, many advocates say, damage has already been done to organizations' relationships with local farmers, tribal members and private landowners who make the clean water work possible.

"To have this happen is so devastating for those relationships that have taken years to cultivate," said Reilly of the Choose Clean Water Coalition. "I'm extremely concerned about the long-term impacts [of the funding freezes.]"

Rumors swirled that the funding stream known as Chesapeake WILD (Watershed Investments for Landscape Defense) had been shut off, but that so far isn't the case, Reilly said. Advocates are requesting that the program, which focuses on public lands and wildlife, get a boost from $8 million to its originally authorized total of $15 million in the next budget, but that is viewed as unlikely, she added.

U.S. Rep. Rob Wittman's influence could prove pivotal for Bay funding. The Virginia congressman serves as vice chairman on the House Natural Resources Committee, and he's a Republican.

Advocates at the Choose Clean Water luncheon were eager to hear from Wittman, who had booked the room for the event but arrived just minutes before it ended, to see whether the Bay remained a priority amid so many proposed federal spending cuts.

In his remarks, Wittman acknowledged the need to rein in federal spending but seemed to hold the line on Bay funding priorities. He also said level funding for the Bay Program would likely be protected in the short term under a continuing resolution for the federal budget through later this year.

"As we look to try to bend the spending curve down, it's very clear that there is a federal role for the Chesapeake Bay," he said. "There is a constitutional mandate to say we are going to do this as an interstate effort … and the federal government has a statutory obligation in that realm under the Clean Water Act to do those things."

Anna Killius, executive director of the Chesapeake Bay Commission, says uncertainty about grants undermines the Bay restoration effort by eliminating predictability. (Dave Harp)

Wittman also acknowledged the challenges ahead and the fact that the Bay Program's funding has been at stake in the past. During the 119th Congress, he will co-chair a Chesapeake Bay watershed task force in the House with Sarah Elfreth (D-MD), Andy Harris (R-VA) and Bobby Scott (D-VA) to continue pushing for Bay restoration funds. The program received $92 million last year.

"In the past, there've been efforts to say, 'No, we shouldn't fund the Chesapeake Bay Program,'" he said. "And our response is — bzzz — wrong answer."

The bipartisan task force is exploring ways to move forward with the second Trump administration — for the good of the Bay.

"You always want some predictability," said Anna Killius, executive director of the Chesapeake Bay Commission, a panel that represents state legislators of every political stripe from across the Bay region. "When you're negotiating, you want to understand where your partner is. I think we're in the situation where we don't have that predictability. All of us are trying to figure out who's in the room, what brings them there and what motivates them, so we can find that common ground that moves us forward." ■

Staff writer Lauren Hines-Acosta contributed to this report.

Capped landfill in Richmond eyed for a 'solar meadow'

As some communities reject large arrays, these plans would instead repurpose a brownfield

By Lauren Hines-Acosta

About two miles east of the Virginia State Capitol in Richmond is a five-acre, grass-covered hill that some might see as a graveyard for years' worth of trash. But Richmond officials see the former landfill site as an opportunity to bring solar energy to the city — at a time when citizens, towns and counties around the state have been opposing new solar projects.

That opposition often centers around property values, preservation of rural vistas and forest conservation, but this project avoids those downsides by building on an environmentally compromised site, or "brownfield." Proposed by the Richmond Office of Sustainability and pending approval from the Richmond City Council, the solar installation would sit on top of a capped landfill at the eastern edge of the city just beyond the neighborhoods of Church Hill and Oakwood.

And, the Office of Sustainability emphasizes, it could also double as a pollinator meadow with native plants growing between and around the solar panels.

The Virginia Clean Economy Act directs Dominion Energy to propose 16,100 megawatts of onshore wind and solar installations by 2035. But counties throughout Virginia have strict solar ordinances and some outright ban them, according to data compiled by Skyler Zunk, co-founder of Energy Right. The Commission on Electric Utility Regulation also has found that communities are increasingly rejecting solar projects.

Because solar farms need open space and ample sunlight, they can end up sited on leased former farmland or cleared forestland. Rural communities are worried that solar farms will decrease property values, create stormwater runoff and bring unseemly views.

But brownfields like former mines, capped landfills and abandoned industrial sites can provide ideal alternative sites for solar projects. These properties are generally unattractive to commercial and residential developers because they are contaminated to some extent. According to the U.S. Environmental Protection Agency, brownfields can often pose threats to public health and push community investments elsewhere. But there are some opportunities for redevelopment — as golf courses, green spaces and solar farms.

Native flowers surround solar panels in Westmoreland County, VA. The project was part of Virginia's voluntary Pollinator-Smart Program. (Virginia Department of Conservation and Recreation)

Ann Kildahl, a Richmond resident who lives near the proposed project — called the East End Solar Meadow — sometimes communities are hesitant about companies installing solar projects in their neighborhoods. But she conceded that this project could take something that is already undesirable and "turn it into something positive."

The solar panels could generate 5-10 megawatts of energy, enough to power up to 6,000 homes. Laura Thomas, director of the Office of Sustainability, hopes to make a deal with Dominion Energy so that the surrounding community will receive a discount on their utility bills as well.

"This would certainly be the first ever solar farm in the city of Richmond," Thomas said. "So, it's really exciting to see big new projects like this help us reach our goals."

The project includes a Community Benefits Agreement, which means any profits the city receives will go toward resources the community can use. The company that rents the land will pay for everything, such as the solar panels and installation. Then, the developer will sell the energy back to the city. When the office hosted meetings with nearby residents in 2024, people said they wanted programs that encourage youth to engage with art, such as painting the facility's fence.

Community members talk with representatives of the Richmond Office of Sustainability about the solar meadow project in July 2024. (Courtesy of the City of Richmond)

However, placing solar meadows on brownfields has its own set of challenges. The sites might, for example, need to be inspected for lingering harmful pollution — and perhaps continually monitored for that. It can also be difficult to establish native plants and keep out weeds in disturbed or compacted soil, according to Ryan Stewart, an associate professor at Virginia Tech's School of Plant and Environmental Sciences.

Stewart said that if developers use the right seed mix and successfully establish the native plants, the pollinators will come. At other solar meadows, the plethora of insects have led to birds building nests under the panels and helping monarch butterflies (which were recently nominated for addition to the federal Endangered Species List.

It's hard to say exactly how much sites like these could help meet goals in the state's Clean Economy Act. A bill supported by the Southern Environmental Law Center (SELC) would expand the amount of solar energy produced on previously developed sites like retired landfills and abandoned coal mines from 200 to 600 megawatts. The state General Assembly approved the bill, and Republican Gov. Glenn Youngkin will review it by March 24.

According to a recent study by Virginia Commonwealth University, it takes about 7 acres of land to produce 1 megawatt of solar energy. The Clean Economy Act requires 16,100 MW, which would require about 112,000 acres — more than twice the size of the District of Columbia. The Virginia Department of Environmental Quality estimates that there are 100,000 acres of former mine land in the state.

"Solar has to be a big part of our clean energy transition," SELC staff attorney Josephus Allmond said. "So, we're going to have to figure out a way to get more of those projects permitted throughout the commonwealth." ■

MD budget crunch hits Bay cleanup efforts, land preservation

Climate, environmental programs cut, but less severely than initially proposed

By Timothy B. Wheeler

Land preservation, clean energy, climate action and water pollution prevention all stand to take a hit in Maryland as leaders cobble together spending cuts and new taxes and fees to fill a yawning $3.3 billion budget gap.

While the Trump administration has paused or canceled billions in environmental funding nationwide, Maryland faces a fiscal crisis of its own. Lawmakers in Annapolis have been struggling since January to remedy the state's severe fiscal woes, brought on by sagging tax revenues that haven't kept pace with rising costs.

After weeks of back and forth, Gov. Wes Moore and legislative leaders, all Democrats, announced on March 20 that they had reached an agreement on how to balance the budget.

The deal left some environmental advocates relieved, because some agreed-upon cuts to programs that help clean up the Chesapeake Bay weren't as severe as proposed. But others lament what they consider short-sighted reductions in funding needed to combat climate change and to protect farmland and ecologically valuable natural areas.

Funding for projects to reduce stormwater pollution still faces a cut, but not as large as had been proposed. Legislative analysts had recommended diverting $65 million annually over the next four years from the Chesapeake and Atlantic Coastal Bays Trust Fund, which gets its revenues from gasoline and car rental taxes.

The budget deal opted for a $10.5 million reduction instead, which is what Moore included in his initial budget proposal. Projects like the nearly $4 million rehabilitation of Lake Marion, an aging two-acre stormwater pond in Severn, MD, can still go forward. But there will be fewer of those projects, at least for the next year or so.

"While [it's] not everything we'd hope for, we believe the reductions proposed in the budget can be weathered and progress can still be achieved," said Matt Stegman, staff attorney for the Chesapeake Bay Foundation.

Land conservation advocates likewise feel they dodged a bullet but still came out wounded.

"It could have been worse," said Steve Kline, president and CEO of the nonprofit Eastern Shore Land Conservancy. Legislative analysts had recommended zeroing out virtually all spending on land preservation under Program Open Space and using its dedicated tax revenues to help fill the budget hole. The deal now calls for diverting a total of $100 million, about half of the program's yearly income, over the next four years.

In 2024, a Maryland family placed this 45-acre farm in Talbot County and a 137-acre farm in Caroline County under easements that protect the land from development. The deal was supported by the state's Rural Legacy Program, which faces a budget cut in 2025. (Eastern Shore Land Conservancy)

Matt Johnston, director of the Arundel Rivers Federation, and Cynthia Williams, president of the Provinces Civic Association, stand by a stormwater pond in Anne Arundel County, MD, that was rebuilt in 2024 to restore its pollution trapping capacity. (Dave Harp)

Program Open Space uses money raised by a .5% tax on real estate transfers to acquire land for parks and playgrounds. It's also used to pay for conservation easements, under which landowners are compensated for agreeing not to develop their property. Since the program's creation in 1969, more than 394,000 acres have been protected.

The transfer tax brings in more than $200 million a year, with the funds distributed by a complicated formula among a variety of causes. Counties and Baltimore city get some for parkland acquisition and development. Some goes to build up tourism in designated "heritage areas," and a portion helps preserve farmland and natural areas.

Kline said the cuts disproportionately affect land preservation because the funds being diverted come from the Rural Legacy program, Maryland Agricultural Land Preservation Foundation and state money earmarked for buying parkland.

"We're talking about a lot of acres that aren't going to get preserved here," Kline said. Each of those programs has more demand than it has funds, he noted, and some landowners have been waiting for years for the state to buy their land or finalize a conservation easement. Less funding means more delay, Kline said. He warned that some landowners could lose patience and sell to someone not interested in preservation.

The Rural Legacy Program has been particularly useful in protecting large contiguous tracts of farmland and forest, advocates say. Last year, for instance, the Eastern Shore Land Conservancy acquired easements on 182 acres in two separate farms along Tuckahoe Creek owned by the same family. They had been waiting 11 years for the deal to come together.

The real estate transfer tax is a rich revenue stream that previous administrations and legislatures dipped into when budgets were tight. Despite politicians' pledges to put back what they took, advocates point out that more than $600 million diverted since 2012 has never been restored.

"Obviously, these are dire times, and we know the legislators want to continue to use conservation as a tool to improve their communities [and] enhance their natural resources," said Josh Hastings with the nonprofit Chesapeake Conservancy. Still, he said, "It is distressing that even dedicated funds are this vulnerable."

Facing the biggest cut of all is the state's Strategic Energy Investment Fund, which helps low-income households pay their energy bills and helps homeowners, businesses and local governments transition to renewable energy.

The fund draws from two big revenue sources: payments made to Maryland by utilities for their fossil fuel plants' carbon dioxide emissions (through the Regional Greenhouse Gas Initiative) and payments by utilities for not meeting state requirements to produce electricity from renewable sources. The fund has been receiving more revenue than gets spent annually and has more than $600 million on hand.

The budget deal plans to repurpose a little more than half the fund balance, or about $330 million, according to Kim Coble, executive director of the Maryland League of Conservation Voters.

Such a large pot of money is hard to leave untouched in tough budget times. But Coble noted that these funds are helping the state fulfill the goals set by the legislature in 2022 to reduce greenhouse gas emissions 60% by 2031 and get to net zero emissions by 2045.

"It's hard enough as it is, and then to take over 50% of the money that's used to get us to those goals is going to have a negative impact," she said.

The revised budget had not been finalized as this issue of the *Bay Journal* went to press. ■

Funding concerns, energy disputes at end of VA session

Out of dozens of bills for oversight and regulation of data centers, only three become law

By Lauren Hines-Acosta

Virginia saw a busy 45-day session with lines of residents stretching out the door ready to speak with legislators at the General Assembly building. As this issue went to press, the lawmakers were preparing to return April 4 to review vetoes and amendments from Republican Gov. Glenn Youngkin, which his office submitted in late March.

Lawmakers hotly debated how to meet the state's increasing energy demand while achieving state clean energy goals. Meanwhile, many natural resource efforts, including state funds for environmental issues, found bipartisan support. The Trump administration's order to freeze federal funds, though, left uncertainty lingering around the state budget.

The legislature will also likely have to reconvene soon to address any federal funding cuts that affect the state budget.

An aerial view of a data center in Loudoun County, VA, a hotspot for new data center construction in the state. (Hugh Kenny/Piedmont Environmental Council)

Data centers

Data centers, which enable the world's internet use, have been at the forefront of energy conversations. A study on data centers by the Joint Legislative Audit and Review Commission (JLARC) found that energy demand in Virginia will increase 183% by 2040 if data center growth continues unconstrained.

Lawmakers introduced 30 bills to regulate data centers by demanding transparency, adding state oversight and protecting ratepayers. Three of the bills passed.

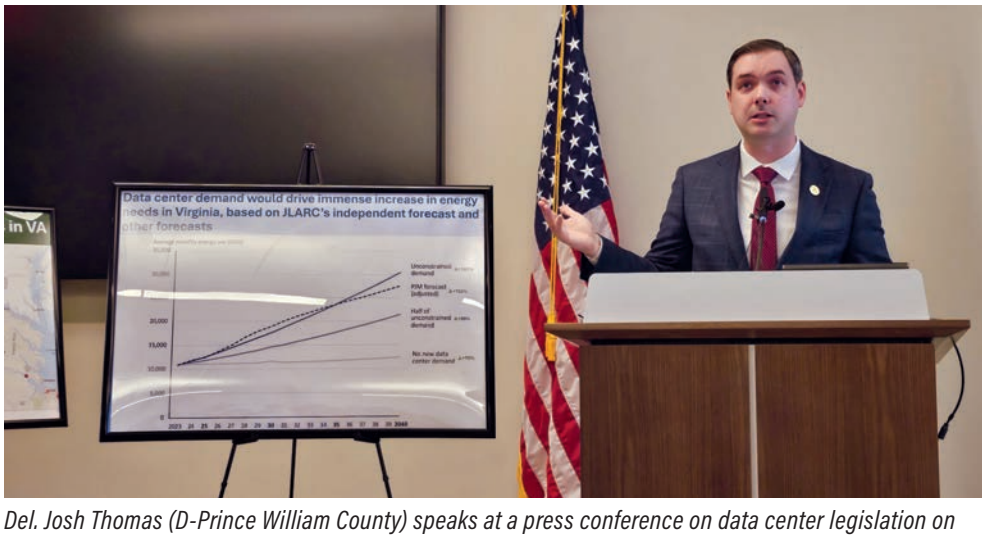
HB 2084 originally directed the State Corporation Commission to ensure that public utilities use reasonable classifications of utility customers, including a separate classification for data centers, to better protect other ratepayers from subsidizing the industry. By the end of the session, said Julie Bolthouse, director of land use with the Piedmont Environmental Council, the bill was watered down to remove all mention of data centers and to essentially reiterate what the commission can already do.

Another bill made it explicitly clear that localities can ask new energy facilities requiring 100 megawatts or more of power, namely data centers, for studies and other information on how the project will affect the environment and local residents.

Sen. Danica Roem (D-Manassas) sponsored SB 1047, which directs the Virginia Department of Energy to study the possibility of data centers participating in "demand response" programs, meaning that they could provide the grid with energy during peak times.

But Bolthouse is disappointed more bills didn't go through that would put the extra infrastructure costs on data center operators rather than ratepayers.

"All eyes are on the [State Corporation Commission] now," Bolthouse said. "Because now we have to look to them to stand up and use the authority that they have and push the envelope."



Del. Josh Thomas (D-Prince William County) speaks at a press conference on data center legislation on Jan. 14 in the General Assembly building in Richmond. (Lauren Hines-Acosta)

Renewable energy

The Virginia Clean Economy Act requires Dominion Energy to source 100% of its energy from renewables by 2045 and install about 16 gigawatts of solar and onshore wind energy by 2035.

Solar power received a lot of attention this session. The bills passed by the General Assembly prioritized solar panels on schools, established apprenticeships to train people in the renewables industry, created a shared solar program and encouraged solar panels on parking lots. But Youngkin vetoed these bills to avoid passing costs to ratepayers or because the existing state code made these initiatives "unnecessary."

Four bills supported by the Southern Environmental Law Center also passed. One pair of bills increased the amount of solar capacity that could be built on previously disturbed sites, like former landfills, from 200 to 600 megawatts. The other two established a "virtual power plant," which is a pilot program that allows ratepayers to return energy to the grid during peak demand times and receive utility credits. The governor amended the measure to say the SCC must evaluate the impact of the virtual power plant.

On average, localities approve 80% of solar project proposals, according to the Weldon Cooper Center. But project rejection rates have increased in recent years. Solar arrays need open space and sun, so they are often proposed for farmland or cleared forestland, drawing opposition from rural communities.

Del. Rip Sullivan (D-Fairfax) sponsored a bill that would create the Virginia Clean Energy Technical Assistance Center to help localities better understand renewable energy issues. It also establishes a review board that would give input on solar proposals in light of regional targets developed by the state for each planning district.

The districts would then have to adopt an energy plan and a model local ordinance for solar projects. The locality would have the final say over a project if it responded within 180 days after receiving the review board's opinion.

Joe Lerch, director of local government policy for the Virginia Association of Counties, said their members would support technical and financial assistance for energy planning, but that it is "premature" for the state to conclude there's a problem with local utility-scale solar. He said the association supports a bottom-up approach instead, with localities determining how they can meet their energy needs.

The bill did not make it out of the House. But Sullivan started the effort last year and said that persistence is key.

"Issues like this are hard, and they take patience," he said.

Faith Harris, executive director of Virginia Interfaith Power & Light, speaks at the Day for All People lobbying event in Richmond on Jan. 15. (Lauren Hines-Acosta)

Some lawmakers, including the Youngkin administration, believe the state's Clean Economy Act sets unrealistic goals that could increase energy bills. A slew of bills trying to repeal or change the act failed to pass.

Glenn Davis, director of the Virginia Department of Energy, said his main concern with the act is that ratepayers could end up paying $6.5 billion over the next 10 years. Dominion Energy could pass the cost of "renewable energy credits" to customers. To prevent that, the governor amended the act by removing requirements for utilities to sell or acquire the credits.

Flood resilience

While flooding is a regular problem in Hampton Roads due to sea level rise, other parts of the state also experienced damage from flooding recently, most notably southwest Virginia during Hurricane Helene. Norfolk's Coastal Storm Risk Management Plan aims to design new infrastructure in the city that would prevent damage from a similar 100-year storm. The federal government has paid for 65% of the project, but the remaining $931 million must come from the city. Norfolk officials are hoping the state will pitch in.

To better navigate how Virginia will pay for these larger projects, one bill directs an assessment of how localities and other non-federal groups will fund flood-mitigation studies. The study will also evaluate whether a separate fund should be established to support cost-share requests.

Living shorelines, like wetlands, are a natural solution that can help prevent erosion and lessen flooding. But neither of the state bills that tried to establish a Living Shoreline Fund passed. Instead, committees in both chambers unanimously passed a measure to create a taskforce to protect Virginia's existing tidal and nontidal wetlands.

Regulating natural resources

Environmentalists once again tried to curb the damage done by invasive species — both plants and fish. Two bills took aim at blue catfish.

"If you would like to have soft crabs and perch and all of the other native fish we have, then we've got to move these catfish out of there," said Michael Lightfoot, a member of the Twin Rivers Waterman's Association.

Del. Shelly Simonds (D-Newport News) sponsored a bill that would remove the one-fish daily harvest limit for blue catfish longer than 32 inches for all Virginia waters. Lightfoot said the larger fish eat and reproduce the most.

Lawmakers changed the bill to exclude lakes and the James River west of the fall line to protect the trophy fish economy. But Sen. Richard Stuart (R-Westmoreland County) changed the bill back at the last minute. The governor vetoed it to protect recreational fishermen and maintain the authority of the Virginia Department of Wildlife Resources. The state budget also includes another $250,000 for the Blue Catfish Infrastructure Grant Fund.

PFAS, or toxic "forever chemicals," received less attention this year. But one bill regulating PFAS monitoring passed. The bill requires industrial facilities that discharge wastewater to public water treatment plants to report their use of PFAS within 90 days of being asked to do so by a water treatment plant. The governor vetoed the bill saying it was "premature" and that similar legislation for PFAS monitoring was passed last year.

Bills bolstering tree plantings fared well again this year. One passed bill would establish a tree fund for developers to pay into if they can't replace the trees they remove during construction. Another bill would have allowed localities statewide to raise tree canopy replacement requirements. The governor vetoed both of these bills, saying the current tree canopy law is sufficient and these are "unncessary."

State impacts from federal funds

Democrats wanted to require data centers to meet energy efficiency standards in the state budget, but that language did not survive budget negotiations. But many environmental funds, listed below, did pass with Youngkin's approval.

- $100 million for the Community Flood Preparedness Fund
- $40 million for Stormwater Local Assistance Fund

Virginians attend a rally hosted by the Sierra Club to support the Virginia Clean Economy Act on Feb. 3 in front of the Capitol in Richmond. (Lauren Hines-Acosta)

- $31 million to fully fund wastewater treatment plant upgrades
- $26 million for the Virginia Agricultural Cost-Share program
- $585,000 for the Virginia Sea Grant program and to address Chesapeake Bay restoration goals and other educational needs

All of this money comes from the general fund, which is fueled by state, sales and corporate taxes. It's far from federal jurisdiction. But almost 22% of all spending from state natural and historic agencies is supported by federal funds, according to a presentation from the House Appropriations Committee. The U.S. Department of Agriculture alone provided Virginia farmers $1.6 billion last year.

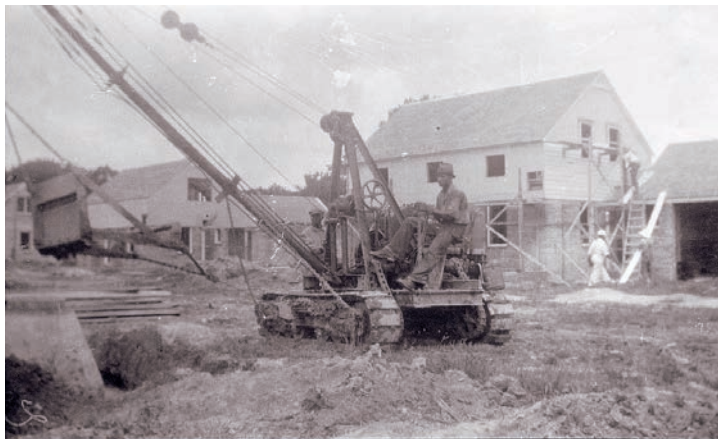
In response to federal budget cuts and layoffs from President Trump's freeze on federal funding, Virginia's House Speaker Don Scott formed a House Emergency Committee on the Impacts of Federal Workforce and Funding Reductions. The committee plans to travel around the state in the coming months to assess the impact of the executive order and provide possible solutions.

"My major concern is that they're taking a sledgehammer to programs and not thinking strategically about how this is ultimately going to affect services delivered or very important projects or governmental functions," said Del. David Bulova (D-Fairfax), who is also the emergency committee's chair.

Environmental justice

For the second time, the General Assembly passed a bill supported by Virginia Interfaith Power & Light that requires localities to include environmental justice considerations in their comprehensive plans. The governor again found the measure "unnecessary" and vetoed it.

Del. Paul Krizek (D-Fairfax) sponsored a bill to allow state- and federally recognized tribal governments to access the Community Flood Preparedness Fund. The fund helps localities mitigate and prevent flooding. The bill passed almost unanimously and was signed by the governor. ■



New Deal era community fights flooding, funding freeze

Future of federal grant awarded to help historic Hampton Roads community is in question

By Lauren Hines-Acosta

Shelton Tucker spent his childhood in the community of Aberdeen Gardens in Hampton, VA, helping his father manage a garden on the family's property. Fifty years later, Tucker's hands rarely touch dirt, and flooding is encroaching on his neighbors' backyards.

But Tucker and other community members plan to change that by revitalizing both the community's landscape and its culture.

Aberdeen Gardens was created as one of President Franklin D. Roosevelt's New Deal projects. In response to the Great Depression, he created the Resettlement Administration in 1933 to build subsistence homesteads for low-income rural workers. Aberdeen Gardens was the first such community built by and for African Americans.

But, like much of the Hampton Roads area, the neighborhood today experiences regular flooding. According to data from the Virginia Coastal Resilience Master Plan, Aberdeen Gardens will be permanently underwater by 2050 due to sea level rise. Outdated infrastructure in the historic neighborhood, such as a lack of gutters, exacerbates stormwater overflows.

In December, the U.S. Environmental Protection Agency awarded $20 million to the local nonprofit Wetlands Watch and the city of Hampton to address flooding in Aberdeen Gardens. While plans to mitigate flooding had been in the works for some time, the grant was the final piece needed to make them a reality.

But under a federal funding freeze issued by President Donald Trump on Jan. 27, it's unclear whether the project will go forward. The administration rescinded the "pause" less than two days later, unfreezing some but not all of the grants. A suit by 22 states and the District of Columbia is challenging the administration's hold on federal funds, but the outcomes are not yet clear.

The grant stems from the EPA's Environmental and Climate Justice Community Change Grants Program. It aims to provide funds for climate projects that benefit disadvantaged communities. Trump's memo announcing the freeze said that it specifically targets diversity, equity and inclusion programs.

"Aberdeen Gardens is like many communities across our country that haven't seen investment in infrastructure that is commensurate with risk, and this project is a way to kind of address some of those challenges," said Mary-Carson Stiff, executive director of Wetlands Watch.

The neighborhood was designed by Hillyard R. Robertson, a Black architect from Howard University, and construction began in 1934. Its 158 brick homes had hardwood floors, electricity, indoor heat and plumbing — rare for African Americans at that time. Many families were already subsistence farmers, so each one-acre lot came with a chicken coop and a "victory" garden. The neighborhood is bounded by two creeks that feed the Back River, which flows into the Chesapeake Bay.

Flooding from the creeks has regularly inundated backyards and a cemetery, causing mold to grow inside some of the original brick homes. One church floods every time it rains, but the congregation has decided to stay.

Hampton University and Old Dominion University created the Coastal Community Design Collaborative in 2015 to address flooding in Hampton Roads. Researchers from the two universities created the design collaborative in 2010 to come up with flooding solutions for Hampton Roads communities. Wetlands Watch started working with the design collaborative to help Aberdeen Gardens in 2021.

With the help of the city, the organizations created the Aberdeen Gardens Neighborhood Resilience Action Plan. The Hampton City Council formally accepted the $20 million EPA grant on Jan. 8 to enact the plan.

The project's start date was March 1, but as of that date the project team had not yet received the federal funds.

"We are deeply concerned about the potential delays this action could cause to our ongoing projects, which are critical for safeguarding residents and ensuring the continued growth and stability of Aberdeen Gardens," Wetlands Watch said in a statement.

"[Aberdeen Gardens] has survived ups and downs," U.S. Congressman Bobby Scott (D-VA) said, "and right now it's vulnerable, like many parts of Hampton Roads, to flooding and sea level rise. And investments are necessary to make sure that the community can survive."

The community's action plan lists rain barrels, costly drainage infrastructure and other water management improvements. Jelani Sparrow, Wetlands Watch collaboratory program manager, said the funds could pay for any flood resiliency project residents wanted on their property. The plan also includes improvements to the community's small stream, Aberdeen Creek — building a trail along the water, adding native plant buffers, widening the creek and installing a trash collection device.

Students from Old Dominion University and Hampton University designed flooding solutions as part of an assignment within the design collaborative in 2022. Many designs made it into the final action plan.

Even though these solutions can't prevent sea level rise, they can improve the daily lives of people in the community.

"[Aberdeen Gardens residents] don't want to think about 50 years, 100 years [from now] when their car is flooding in front of their house," said Mujde Erten-Unal, professor of civil and environmental engineering at Old Dominion University. "So, they just say, find me a solution that I can live with now."

Residents also asked for a community garden to reconnect with the neighborhood's roots as subsistence farmers. The community is home to many retirees, most of whom worked in fields other than agriculture.

"That part of our culture has been lost over the years," said Tucker, who is also president of the Greater Aberdeen Community Coalition. "And I'm excited because now we can infuse this back into the community in a more intentional way."

With food getting more expensive, Tucker sees homegrown produce as a way for his community to get healthier, reconnect with nature and gain independence. ■

Photos: Left, a 1938 photo shows the construction of Aberdeen Gardens in Hampton, VA, built by and for African Americans (Robert McNeill/ Library of Congress). Center, a 1938 photo shows construction workers gathered near a row of recently completed homes at Aberdeen Gardens (Robert McNeill/Library of Congress). Right, Shekinah Meza, alumnus architecture student at Virginia Tech, designed a project plan rendering around 2022, featuring a community garden, a creekside trail and more (Courtesy of Shekinah Meza).

Potomac Riverkeeper gets up-close look at crash aftermath

River watchdog joins recovery efforts after passenger jet and helicopter collide

By Whitney Pipkin

When Dean Naujoks first heard that a commercial passenger plane had crashed into the waters he frequents as the Potomac Riverkeeper, he wasn't sure what to do.

If he rushed to the scene of the crash, would he get in the way of first responders? Or could he actually help, given his familiarity with the contours of the river?

On the evening of Jan. 29, an American Airlines passenger plane and a U.S. Army Black Hawk helicopter collided midair before falling into the Potomac River near Reagan National Airport in Alexandria, VA. Sixty-seven people were killed in what has since been declared the deadliest plane crash in the U.S. in nearly 25 years.

Along with the tragic loss of life, local officials are still grappling with what the long-term impacts of a plane crash into such a widely used river might be.

Just south of where the airplane fell short of Reagan's runway is a marina on Daingerfield Island, where the Potomac Riverkeeper Network keeps a patrol boat. When Naujoks arrived at the marina the morning after the crash, he learned that the first responders had asked around 1:30 a.m. if a riverkeeper vessel, piloted by someone familiar with the river, could help with search and recovery.

"I felt very obligated, like there's probably a lot of material in this area, and the search crews were not [there]," Naujoks said of the waters just south of the crash site, where the Potomac's quick currents would push debris.

Naujoks's work as a pollution watchdog makes him familiar with the river bottom and the places where debris might collect after such a collision — debris he thought might help federal investigators trying to determine a cause.

The winds had been blowing to the southeast in the hours surrounding the crash. That, along with the river's downstream flow, meant a good bit of debris could be collecting in coves a couple miles south of the crash site on the Maryland side of the river. But both of those, Oxon Cove and Smoots Cove, are almost impossible to navigate by boat.

"You have to know how to get in there. Only bass fishermen really go into that area," Naujoks said. So he volunteered to look through the coves himself that morning. Fully intact bags of chips, sugar packets, a sweater and the scattered pages of a landing gear manual were floating on the surface there. Larger pieces of the wreckage, including a passenger seat and a window from the plane, bobbed in the water along with chunks of yellow foam.

Pictured in 2019, Potomac Riverkeeper Dean Naujoks stands in the boat that serves as the Potomac Riverkeeper Network's mobile lab for water quality testing. (Dave Harp)

"Everything was covered in jet fuel," Naujoks said. "It was just pretty intense being out there, really terrified you might come across something you don't want to see."

Naujoks said the fuel and other chemicals present in the water even two miles downstream from the crash site were enough to leave his face feeling burned. Being on the water that morning gave him just a taste of what the first responders faced in an operation that quickly changed from rescue to recovery. By the morning after the crash, it was clear there would be no survivors.

A representative for the DC Firefighters Union Local 36 told WTOP news that rescue crews battling icy waters and windchills were also exposed to "an enormous amount of jet fuel." Some developed rashes and lost their sense of taste or smell temporarily due to their exposure, the news report said.

A dead fish is pictured next to debris likely from an aircraft crash on Jan. 29 in the Potomac River near Alexandria, VA. (Potomac Riverkeeper Network)

Naujoks was still on the water the morning after the crash when he started getting calls from the media, some asking what he knew about the potential for contaminants in the water long-term. That's when he called Tyler Frankel, a professor of environmental sciences at the University of Mary Washington in Fredericksburg, VA. Frankel said he was initially so struck by the loss of life that he could hardly think about environmental consequences.

But, he noted, Naujoks's observations "of items covered in fuel two miles downstream clearly show that the contamination release was not limited exclusively to the immediate crash site."

Naujoks was also told that the National Oceanic and Atmospheric Association advised against trying to contain the jet fuel in the water, as would typically be done for an oil spill, because of the fuel's potential to combust. That volatility also means that much of the jet fuel was likely to evaporate.

In addition to fuel, Frankel said, contaminants like cadmium, lead and mercury are often identified at crash sites and can persist in the environment afterward. The hydraulic lubricant Skydrol that is commonly used on aircraft machinery can be particularly toxic to humans and aquatic life.

In the weeks after the crash, none of the agencies that might test the water for pollutants appeared to have plans to do so. After fielding questions about that, Naujoks reached out to the District of Columbia's Department of Energy and Environment to ask if the agency intended to test water quality near the site.

The DOEE told Naujoks on Feb. 5 that the agency had not yet done testing but was "actively monitoring and investigating all sheen reports" from the shore. A U.S. Coast Guard spokesman said that agency had no immediate plans to test the river water, citing previous analyses showing that jet fuel spills naturally dissipate within 18 hours.

The river surrounding the crash site was closed to boat traffic for about two weeks while crews worked to remove the wreckage. The U.S. Army Corps of Engineers said on Feb. 11 that removal of wreckage and debris from the crash site was complete and that the area was safe for navigation. Boaters who come across any remaining debris are advised not to touch or disturb it and contact authorities. ■

PA program to boost innovation and conservation on farms

Ag grants aim to improve bottom line while controlling nutrient pollution

By Karl Blankenship

Drones, robotics and solar power are just a few of the new technologies used by farmers as they try to remain profitable while increasing production and reducing pollution.

But getting widespread adoption of those new methods can be challenging and, at first, costly.

In February, Pennsylvania agriculture officials announced $10 million in Agricultural Innovation Grants, which they say is the first program of its type in the country, to help promote new techniques.

"As our farmers face increasing demands to feed a growing population while continuing their legacy of environmental stewardship, this fund will help power our farm and food businesses to meet those challenges," said Pennsylvania Secretary of Agriculture Russell Redding.

The grants support 88 projects in 45 counties and help farmers improve efficiency, generate electricity, control nutrients that can harm local streams and the Chesapeake Bay, and promote crop production methods that help control greenhouse gases.

The grants were announced at Brubaker Farms near Mount Joy in Lancaster County. Brubaker Farms, winner of the 2021 Pennsylvania Leopold Conservation Award recognizing outstanding conservation achievements, will be getting $400,000 to expand and update the technology on its anaerobic digester.

Pennsylvania Secretary of Agriculture Russell Redding speaks at a February 2025 event in Mount Joy, PA, to announce the state's Agricultural Innovation Grants program. (PA Dept. of Agriculture)

The digester, installed in 2007, collects and processes manure produced on the 1,800-acre farm, which raises 1,300 dairy cows and 52,000 broiler chickens. Anaerobic digestion also eliminates odors and captures methane, a greenhouse gas, which is used to generate electricity for the farm. Excess electricity is exported to the power grid.

The Brubakers share the lessons learned from their operation with other farmers who are interested in new approaches to managing manure while improving their bottom line.

"We're really committed to making sure that the things that we do as a business have a positive environmental impact," said Tony Brubaker, one of the farms' operators. "We want to leave things better than we've gotten them.

"But we also want to run a profitable, modern business, and that's where the interface with these technologies can help us grow," he added. "It really excites us when we find things that can help our business both be profitable and sustainable into the future while protecting and improving the environmental resources."

Farmers across the country are often challenged to produce more on ever-thinner margins as operating costs go up, resulting in many people leaving farming. Between 2017 and 2022, Pennsylvania lost 4% of its farms and more than 220,000 acres of farmland, according to the U.S. Department of Agriculture.

In other parts of the country, farms can remain profitable by getting bigger. That's often less of an option in the Chesapeake Bay region, where land costs more and farms are typically smaller.

"In Pennsylvania, our farm communities don't necessarily have the luxuries of other areas in the country, where you can get bigger to do better," said Mike Roth, director of innovation with the Pennsylvania Department of Agriculture. "So our farms need to innovate. They need to be more efficient, they need to reduce cost, and that's the purpose of this program, to advance Pennsylvania agricultural operations into the future."

The 88 projects that were awarded grants for the initial year of the program were selected from 159 applications requesting nearly $70 million worth of support.

Redding said the number of applicants "was both sort of daunting in terms of the overwhelming response, but reassuring at the same time that the farm community is actively engaged" in thinking about innovation for the future of their operations.

"The need for innovation has never been more urgent," he said.

This year's grants will advance an array of new techniques for things like composting, invasive species control and harvesting. They will also fund technologies such as remote sensing, artificial intelligence and the use of unmanned aircraft to plant cover crops.

Next year, the program might be able to offer more support. Democratic Gov. Josh Shapiro's proposed 2025-2026 budget calls for boosting the program's funds to $13 million. ■

Brubaker Farms, a dairy and poultry operation in Mount Joy, PA, has been awarded a state innovation grant to update its anaerobic digester, which extracts methane from animal waste. (PA Dept. of Agriculture)

Bay region's growth woes embodied at Solomons Island

Water quality in and around Southern MD town declines amid population growth

By Jeremy Cox

OUR WATERWAYS

Editor's note: This article is the first in a Bay Journal 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.

When Walter Boynton arrived as a summer intern at the Chesapeake Biological Laboratory on Solomons Island, MD, in 1969, the scientist recalls, Calvert County had only one traffic signal. That was it for a county 35 miles long and 9 miles across at its widest point.

Since then, the population has multiplied nearly five-fold to about 100,000 residents — growth that can be traced, in part, to the conversion of about 30 miles of once-sleepy Solomons Island Road into a major divided highway. That greatly reduced the commute to the DC metro area, accelerating the county's shift from a farming outpost to a bedroom community.

Down at the tip of the peninsula, near where the Patuxent River sloshes into the Chesapeake Bay, those changes have had consequences. In recent years, water-monitoring indicators show that the health of Solomons Harbor and its network of creeks has been slowly deteriorating.

The data suggests that the "water moving from the land into the harbor is more enriched, probably with nitrogen," said Boynton, who initiated the harbor's water-quality survey program in the late 1980s. "That's no surprise. There's a lot of stuff being built around the Solomon's area. It's a place people love."

The story of Solomons Harbor is a familiar one in the Bay watershed, which as a whole has experienced a roughly 60% increase in population over the same 55-year period.

Growth has brought more roads, buildings and parking lots, whose hard surfaces block the infiltration of rainwater into the ground. That additional stormwater pollution has flushed higher amounts of nutrients and grit into waterways, triggering harmful algae blooms.

Jeremy Testa and Lora Harris, researchers at the Chesapeake Biological Laboratory, walk the docks at Solomons Harbor in Southern Maryland. (Dave Harp)

Retired scientist Walter Boynton stands along Mill Creek, one of three beleaguered waterways that feed Solomons Harbor. (Dave Harp)

What distinguishes the Solomons area from similar places is that it has been the focus of one of the most comprehensive and longest-running water quality monitoring efforts in the Bay region.

Boynton, an environmental engineer and professor who retired from the University of Maryland Center for Environmental Science's Chesapeake Biological Lab (CBL) in 2017, said the program grew from his frustration with the monitoring data that was available — or not available.

For example, he was tasked in the late 1970s with summarizing water quality trends for the Patuxent. He found 42 papers that matched his criteria dating back to the early 1930s. But the short duration of each study and the varying methods they employed made their conclusions all but useless.

He loathed the idea of future researchers encountering the same problem with Solomons Harbor. "We didn't want to be sitting around 30 years later, scratching our heads," Boynton recalled.

With funding from the Calvert County government, CBL scientists collect data from 10 monitoring stations in the harbor's waterway network. That includes Back, Mill and St. John creeks, which feed the harbor. (The effort has expanded beyond the harbor area since its inception, amassing 32 additional stations in other Patuxent tributaries and along the county's Bay shoreline.)

Water quality tends to vary each year based on how much precipitation occurs, with wetter years sending more pollution downstream. Restricting analysis to the 10 "dry" years in the Solomons data — for a more apples-to-apples comparison — shows that dissolved oxygen levels have declined and chlorophyll concentrations have gone up, Boynton said.

Low amounts of oxygen indicate "dead zones," where any living thing that can't flee fast enough eventually suffocates. Warming water temperatures have likely exacerbated the issue, according to CBL's reporting. Chlorophyll, meanwhile, is a proxy for algae blooms; there were 13 outbreaks documented in the harbor and its creeks in 2023, the most recent year for which data was available.

"Even when you don't have those big flushes off the watershed, you're still getting that algae growth," said Lora Harris, a CBL researcher who took over the monitoring effort more than a decade ago, along with her colleague Jeremy Testa. Cynthia Ross, a faculty research assistant, attends to the day-to-day work at the lab.

Most of the efforts to remediate the damage have been focused on recruiting homeowners living near the shoreline to upgrade their septic systems with enhanced nitrogen-removal capabilities. But there are many more aging systems to be addressed.

Many studies, in the Bay region and elsewhere, suggest that 10% impervious land cover represents a critical juncture for a watershed — the point at which the aquatic ecosystem falls into distress. Solomons Harbor is at 20%, said Ted Haynie, president of the Friends of Mill Creek.

"We're already passed that tipping point, considerably," Haynie said.

He and other environmental advocates strongly oppose a proposed development that would replace about 30 acres of mostly forested land in Lusby, an unincorporated area north of the harbor, with a 276-unit apartment complex to be known as Lusby Villas. A citizens group, called Save Lusby Inc., sprang up last year to appeal the county's approval of the project. The case remains open.

County attorney John Mattingly declined to comment for this report. Neither the landowner, John Gott Jr., nor a representative of the developer, Quality Built Homes, returned messages.

Megan Farringer, secretary of the Save Lusby group, said she moved to the county in 2013 to be closer to nature. She loves to spot bald eagles and ospreys around her neighborhood.

"The more we build this up, that's going to go away," she said. "It would be great to have nothing ever be touched" at the Lusby Villas property, Farringer added. But "at some point, something is going to be developed in there. What we want to see is responsible growth." ■

A paddling experience fit for a 'king' in Southern Maryland

Top photo: Dave Linthicum paddles along Cocktown Creek, a tributary of the Patuxent River, at Kings Landing Park in Calvert County, MD. A mapmaker by profession, Linthicum spent nearly 20 years making a detailed waterproof map of the lower 62 miles of the Patuxent. (Dave Harp)

Right photo: On a warm last day of winter, two park visitors enjoy a hike along one of the trails at Kings Landing Park. (Dave Harp)

By Jeremy Cox

It wasn't until I got home that the full measure of what I had experienced came into focus.

I was unstrapping the kayak from the top of my car when I noticed hues of brown, beige and gold standing out against its white hull. It was sand scoured up from the Patuxent River's shoreline. More than likely, it had gotten slathered there when I ran the plastic vessel aground upon my return to the launch site.

I wiped some off with my fingertips. And for a few moments, I had some deep thoughts about grit.

This was more than a mess to be washed away with a garden hose. This was a metaphor for what happens to us when we travel, especially outdoors: We end up carrying back things we don't expect.

Sure, it can be sand. But it's often something ineffable.

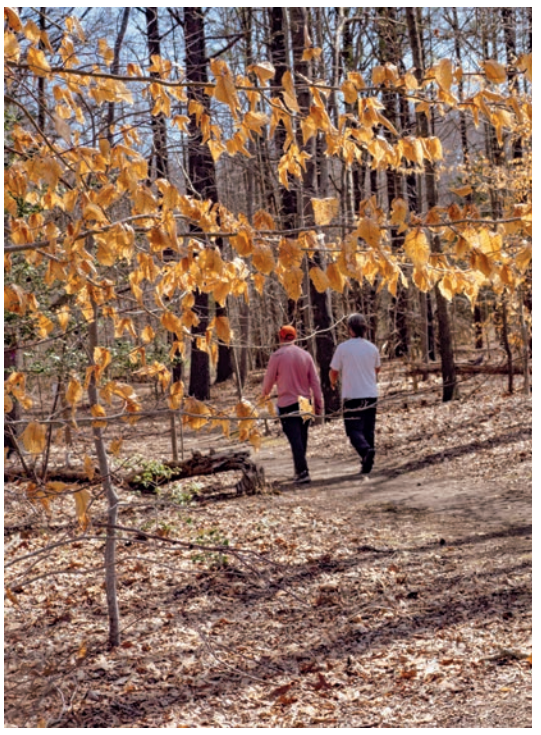
The day took us — *Bay Journal* photographer Dave Harp, paddling enthusiast Dave Linthicum and I — to Kings Landing Park in Southern Maryland. The Calvert County Department of Parks & Recreation manages the 260-acre suburban getaway in partnership with the Calvert Nature Society.

Our expedition took place on the last day of winter, but hints of spring were in the air. Temperatures had climbed from the 30s in the predawn hours to 70 degrees by the afternoon. Most of the deciduous trees were bereft of leaves, but buds on the red maples were flashing their trademark color.

"It's my favorite month of the year," Linthicum said, gazing into the distance. "You can just see so far out into the woods."

There was certainly no lack of nature to behold. This stretch of the river, he pointed out — including Kings Landing on the Calvert side and the Black Swamp Creek area on the Prince George's County side — is the second-largest swath of contiguous protected land along the tidal portion of the Patuxent.

Linthicum would know. He makes a living as a mapmaker, updating international boundary lines for the U.S. State Department. He spends much of his time squinting at old maps and reading treaties. His efforts eventually find their way to Google Earth and other Google map products.



Linthicum has made it his life's mission to get to know the Patuxent. The river begins in Maryland's Piedmont country, flowing 115 miles in a generally southeasterly direction before depositing into the Chesapeake Bay at Drum Point. Linthicum knows almost every inch of it.

He takes on freelance projects. And his passion project was a waterproof map for the lower 62 miles of the Patuxent. It was nearly two decades

A park visitor walks his dog up stairs that lead from the Kings Landing Park pier on the Patuxent River to the nearby upland forest. (Dave Harp)

in the making. Aerial photographs and digital maps were the foundation. Then, he hiked and paddled across the white spaces between those lines to fill in the details.

"I find it good therapy to get out there. You get to know the backwoods off-trail and find some old colonial road and old ruins from the 1800s. You get to know the area even better when you're mapping it," he said.

Linthicum often relied on what he called "old school" methods: counting his steps and using a compass. He also combed over historical documents to augment modern-day features with highlights from the past, including suspected locations of Indigenous villages recorded by Capt. John Smith during his 1608 trip up the river.

Soon, the map was ablaze with details far surpassing other maps, especially for the popular paddling area between miles 40 and 50. There, every power line, fence, slope and trickle of water gets its due. (The map is available for $7 at paxrivereeper.org; proceeds benefit the Patuxent Riverkeeper.)

That precision extends to descriptions of points of interest along the water trail. For instance, the map notes that the distance from the vehicle gate to the kayak launch at Kings Landing is 175 yards. That's important. You can drive your car to the water's edge to unload, but you must head back up the road to park near the gate.

Kings Landing was once part of a plantation known as "Kingslanding," where a family with the surname King enslaved African Americans, according to the Southern Maryland Equity in History Coalition.

The Baltimore YMCA assumed control of the property in 1946 and, a few years later, opened Camp Mohawk, a summer camp for Black youths. Some cabins are still standing. In the mid-1980s, the YMCA sold the property to the state, which leased it to Calvert County to operate as a park.

The park's amenities include a community pool, an equestrian ring and hiking trails. But our party was bent on gliding across the water.

One of the park's distinguishing features, Linthicum said, is that it's within a half-mile of three picturesque Patuxent tributaries: Black Swamp, Chew and Cocktown creeks. Each offers 2-3 miles of relatively easy, flat water.

We aimed for Cocktown Creek, which forms the northern boundary of the park. To get there, we had to paddle about a quarter-mile upstream. That can be difficult on windy days or when the tide is strong, Linthicum warned us. On such days, he recommends hauling your watercraft a few hundred yards down a trail that leads directly to the creek.

But luck was on our side. The surface of the river was like a mirror.

From a distance, the mouth of Cocktown Creek appeared to be little more than a small gap in the yellow reeds. Harp, with his ever-keen eye, identified the stalks as *Spartina cynosuroides*, among the taller native cordgrasses in the Chesapeake Bay region. As we paddled onward, the vegetation became interspersed with cattails.

Both sides of the creek are free from visible development. The north side is protected as a haven for hunting and hiking. In fact, the Huntingtown Natural Resources Management Area sprawls across about 1,000 acres, making it nearly four times the size of Kings Landing. It's an ideal destination for those looking to avoid crowds, Linthicum said.

The little creek is basically a series of oxbows, surrounded by marshes. As the ground increases in elevation, the landscape gives over to oaks, loblolly pines, beech trees and maples.

This part of Maryland is classified as a coastal plain, so the elevation here might surprise you. One of the promontories overlooking the Patuxent, for example, looks down 95 feet to the water.

Getting to that overlook, though, is a slog. It requires hiking about 45 minutes south from the pool area's parking lot at Kings Landing. Most of that hike offers no trail and requires crossing a formidable swatch of marsh, Linthicum said.

Kayakers explore tranquil Cocktown Creek, a Patuxent River tributary that forms the northern boundary of Kings Landing Park. (Dave Harp)

Along Cocktown Creek, the occasional bluffs rise 20-40 feet from the water's edge. Their faces are peppered with gnarled tree roots, stray rocks and alluvial fissures.

Within a few paddle strokes up the creek, it felt like nature had taken control. Red-winged blackbirds called to each other. An osprey nest awaited the return of its tenants. Wood ducks splashed. A great blue heron swooped over the scene.

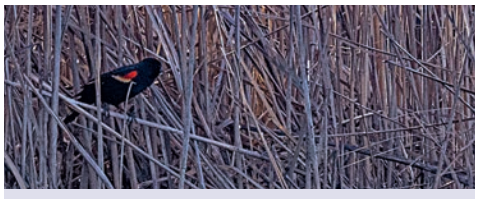
"I think if you popped in here from the Midwest or New England and you had no idea about this area at all, you would be most blown away by the fact that there is a tidal river 24 miles from [the nation's capital], where you can paddle for hours and you could hike for hours and not see a soul," Linthicum said.

We returned to Kings Landing, brimming with a feeling of renewal that only nature can provide. It stuck with me the rest of the day, even after a long drive home that included rush-hour traffic on the Bay Bridge.

My thoughts turned to what Linthicum told me when I asked what makes the middle section of the Patuxent so special.

"You come up the river. You've got the lower river with a lot of powerboats and power lines. You've got the big Chalk Point power plant. And then you get here. And all of a sudden, it all disappears, and you can just melt into the tributaries."

And there it was: the word I had been searching for to describe the experience. I had "melted" into the place, and it was everything I needed. ■



IF YOU GO

Kings Landing Park is at 3255 Kings Landing Road in Huntingtown, MD. Admission is free.

Several miles of trails are available within the park and at the Huntingtown Natural Resources Management Area off Smoky Road. Water access is available for kayaks and canoes only via a soft launch adjacent to the Patuxent River pier.

Other amenities include a public pool (open Memorial Day to Labor Day), a picnic pavilion, primitive camping for youth groups and rental of its event facility for up to 160 guests. An equestrian facility features a 150-by-300 riding ring.

On the question of legal standing, who speaks for the trees?

By Carl R. Gold

"I think that I shall never see a poem as lovely as a tree."

That's the opening line of 20th-century poet Joyce Kilmer's *Trees*, an homage to the magnificent creatures among us that we take for granted. It should give all of us pause. After centuries of deforestation, advocates nationwide are trying to restore urban tree canopies. Trees produce oxygen, add biodiversity, cool off heat islands, capture carbon, ameliorate pollution and create community. Trees are the largest land-based living things on the planet.

Nevertheless, like immigrants, trans people and other besieged groups under the current executive branch, trees have no rights. Biologists say that trees do not have brains or a central nervous system. "We the people" does not include trees. To bring a lawsuit, a party needs to have "standing," a legal existence that affords the right to sue. As it now stands, trees have no standing (pun intended) to sue when they are threatened with destruction.

In his forward-thinking 1972 book, *Should Trees Have Standing? Law, Morality, and the Environment*, the late Christopher Stone argued that, if non-person entities like corporations can sue, trees should be able to as well. Trees daily suffer indignities, the University of Southern California law professor pointed out. They are destroyed by the thousands to make room for homes and warehouses. They are damaged by lawnmowers, trimmers, disease, root compaction, insect attacks and herbivores with itchy heads.

Close observation of trees makes me wonder if scientists are wrong. Look at the injuries suffered by trees in your yard, neighborhood or the nearest park. If the tree has a triangle-shaped hollow wound at its base, it was likely damaged by fire. If it has a long vertical crack, its cambium (the living tissue just below the bark) may have been frozen. Wounds near the base are likely caused by careless lawn maintenance. Waist-high wounds are likely from deer marking territory and rubbing to get rid of scratchy velvet on antlers.

A variety of hardwoods leaf out in early spring at Virginia's Pocahontas State Park. It is now widely accepted that trees in a forest community communicate with each other through underground fungal networks. (Virginia State Parks)

When a tree is hit by lightning, it is not the fiery bolt of light that does damage like Thor's hammer thrown from the sky. The flash we see — whether white, gold or blue — is superheated electricity that can reach 50,000 degrees Fahrenheit and generate up to a billion volts. It instantly boils the tree's sap, creating steam, which has nowhere to go. So the whole tree (or just a limb if it's lucky) explodes.

If you examine the edges of any wound or scar on a tree, you will see a slowly growing circular barrier around the damage. The tree is not healing itself so much as it is separating its healthy tissue from the wound by a process known as compartmentalization. This process takes years, depending on the size of the exposed heartwood, so diseases and insects seize the opportunity to invade the inner tree. It is then a race between infestation and the tissue barrier surrounding it. Sometimes these conflicts create burls, which are highly prized by woodworkers and collectors.

This process proves, even if you concede that the tree does not feel pain, that something is causing it to protect itself and prolong its life. Casting more doubt on the claim that trees are not sentient is the widely acknowledged view that trees communicate when under attack. Not only do they release chemicals that create an initial barrier around wounds to inhibit infection, they warn nearby trees to do the same. Trees have benevolent communication systems known as mycorrhizal networks. These fungal pathways transmit nutrients, carbon, water and warnings about threats. Trees also use pheromones as scent signals to warn other trees of peril. Ecologists using DNA testing have proven that this symbiotic relationship exists, and many refer to it as the "wood-wide web."

Unfortunately, trees are not good clients for lawyers. They cannot pay, and, since scientists claim that trees do not feel pain when injured or cut down, there can be no compensation for pain and suffering or emotional damages. Trees cannot marry so there can be no claim for loss of consortium. Monoecious trees with both male and female parts are especially at risk today. On the other hand, trees have many admirable qualities. They do not call or text with Friday afternoon emergencies, for instance, or refuse to take advice, or behave like divorcing parents who hate each other more than they love their children.

Maybe courts can be convinced to appoint someone to speak for trees — like a guardian *ad litem*, a person the court appoints to advocate on behalf of people who cannot do so themselves like the children in that bitter divorce. Trees, at least to us puny, evanescent humans, are the ultimate stoics. To my knowledge no tree has ever intentionally harmed another living creature. Maybe we can learn from them? ■

Carl R. Gold is an attorney in Towson, MD. He is a Maryland Master Naturalist and a certified treekeeper in Baltimore City. He can be reached at cgold@carlgoldlaw.com.

Taking a knee: It served me well, but it's time for titanium

By Tom Horton

Bay Journal columnist Tom Horton, with a brand-new knee, tools around on his bike near his home in Salisbury, MD. (Dave Harp)

My mom, for the gift of words. My dad, for the gift of outdoors. My high school teacher, for keyboard skills (she was so pretty, half the boys in my class took her typing class).

These I've ever credited for abetting a career writing about the Chesapeake Bay, spiced with assignments adventuring in nature across half the world.

But looking back, post-surgery, I never gave enough credit to the knee.

The knee stood with me always: slogging mucky marshes, pounding through rough chop in skiffs, hauling loaded kayaks across tidal flats, balancing in rushing slickrock streams, trekking deserts to report on famine and bushwhacking into unexplored cloud forests. The knee never failed me.

This despite a hard hit early on, a freak accident. He usually operated on football players, never a 12-year-old, the surgeon told me.

The knee rebounded eagerly. Well before my release from crutches, I was hauling bags of corn across half a mile of marsh to bait Dad's duck blinds. (Was that illegal? Dad didn't say, but we only hunted after dark.)

Karmic justice for all those dead ducks: I was counting on the knee to get me out of the Vietnam draft. Entering the surgeon's office, exemption papers in hand, I noticed a plaque prominent on the wall, attesting to his distinguished military service during World War II.

"Squat down, boy! Jump up … hell, you're good to go." (And the knee agreed.)

Four years later the knee and I marched into the offices of the Baltimore *Sun* to launch more than half a century of environmental reporting.

Within three months the knee was negotiating floodwaters, dodging debris as large as chicken houses up the Potomac and Susquehanna rivers, reporting on Tropical Storm Agnes (June 1972) — the greatest deluge in Bay history.

So many adventures the knee could tell you: the time we waded under barbed wire fences and up a toxic waste ditch to cover Greenpeace activists trying to put a nasty chemical company in south Baltimore out of business. As I typed my story in the *Sun* newsroom, someone noticed my soaked sneakers were beginning to dissolve.

Down on Smith Island, 10 miles offshore, having committed to take 21 seventh graders paddling, an unforecasted wind came up. I had to rope their seven canoes together and wade the shallows for some two miles, hauling the whole bunch behind me to virtual exhaustion. But nary a peep from the knee.

By my 50s, the knee was looking tired, even deformed. An orthopedist X-rayed it and asked, "Do you mind if I show this to the younger docs? They won't believe you're still walking on it."

I must have a high pain threshold, the doc said. Not at all, it just doesn't hurt. Well, some knees are like that.

So off I went in the service of *National Geographic,* on one of the great expeditions of my life — a mountain range in Panama's remote and dangerous Darien Gap. Even the local Emberá tribe had no ancestral memory of anyone venturing into those cloud-forested mountains.

We waded up fast-moving streams as far as we could before having to literally hack our way along with machetes. It took two weeks to reach the peaks, with no maps to guide us through a splintered labyrinth of gorges and chasms.

Our feet, softened from two days of stream walking, were ill suited to such hard hiking, and we spent many hours nursing open wounds on our feet and ankles. The knee, meanwhile, seemed to be enjoying itself.

Looking back now, nearing 80, I can see how the knee and I gradually adapted — less hiking, more paddling and bicycling.

So it was that in my early 70s the knee and I biked from the western Continental Divide to the Eastern Shore in about 40 days, aided by little more than a jar of ibuprofen.

I trace the beginning of the end back to the day I celebrated with my university students the completion of a glorious and demanding monthlong kayak course that spanned the Chesapeake from the Susquehanna River to the Virginia capes.

It was my 77th birthday and my ninth such summer class. My head and heart envisioned more, but the old reliable knee was saying differently — a few of my kayak exits toward the journey's end had resembled a dying seal flopping about.

The total knee replacement nine months ago was unexpectedly memorable. Awaiting the void of anesthesia, I had a powerful flashback — to a time in the Ethiopian highlands when I interviewed a missionary surgeon who was fusing the knees of people who'd been deliberately crippled as youngsters so they could beg.

With all my strength, I held the gurney while the missionary doc of my dream hammered chisel into bone, snow white chips flying across the operating room.

I awakened and went home, and a mere three months later, the new knee and I were pedaling up the steep, gravelly roads of Isle au Haut in Maine. It was reminiscent of ditching my crutches early when I was 12 — except I wasn't 12 and the knee swelled to cantaloupe proportions.

Nine months out and the knee seems the best part of me. The other knee, jealous perhaps, sometimes speaks sharply. Still, I'm planning to bicycle to California and kayak around the Delmarva Peninsula. And I anticipate another decade of keeping up with agile, septuagenarian photographer Dave Harp in pursuit of *Bay Journal* columns.

If that doesn't happen, it won't be the knee's fault. ■

Tom Horton has written about the Chesapeake Bay for more than 40 years, including eight books. He lives in Salisbury, where he is also a professor of Environmental Studies at Salisbury University.

Our charge is clear: Focus on what people and nature need

By Hilary Harp Falk

A seine net, pulled by two people wading along the water's edge, can tell you a lot about a place. The net might come out wriggling with translucent grass shrimp, a tiny skilletfish or a lined seahorse clinging to a blade of eelgrass.

I often used this simple survey method with students when I worked as an environmental educator on Port Isobel Island. It was invaluable for providing insight into what was really going on in the water.

A recent survey of 2,000 watershed residents commissioned by the Chesapeake Bay Foundation provides a similar gut check for Chesapeake Bay restoration at this increasingly critical moment. It found that 52% of survey participants believe the challenges facing the Bay will become more serious over the next five years.

At the very time we need to do more, the latest actions by the Trump administration have created a crisis for the decades-long Bay restoration effort. Budget cuts — including at least a 65% cut proposed for the U.S. Environmental Protection Agency — coupled with mass layoffs and suspended grant programs will wreak havoc far beyond the federal government.

As the *Bay Journal* has reported, states will face major budget shortfalls, critical scientific research will stop, farmers will be stuck with out-of-pocket expenses that the federal government promised to pay, and many local nonprofits may simply cease to exist. The prospect of losing decades of progress, institutional knowledge, science and effective partnership is heartbreaking.

None of this changes the fact that we have important work to do. When it comes to the Chesapeake Bay, the public's charge is clear: We must work on all fronts possible for clean water and a healthy environment.

Our opinion poll showed strong support for an all-hands approach to solving the Bay's challenges. It found that 84% of survey participants think it is important to reduce pollution. Large majorities also see a need to tackle toxic contamination (86%), increase environmental education (79%), increase climate resiliency (76%), and protect fisheries, wildlife and habitats (84%).

A row of loblolly pines at Blackwater National Wildlife Refuge cast a perfect, undistorted reflection in the glassy-calm water of the Blackwater River. (Dave Harp)

The health and wellbeing of more than 18 million people and thousands of species of plants and animals depend on finding a way to address these challenges collectively.

What needs to happen next is crafting a strong update for the Chesapeake Bay Agreement, the driving force of the restoration partnership. As this issue of the *Bay Journal* went to press, state and federal leaders were days away from a scheduled meeting where they will work out the first steps toward refining the agreement's 10 goals and 31 outcomes — which span issues from sustainable fisheries to environmental education to reducing pollution.

It is more important than ever for leaders to ensure the agreement remains robust and comprehensive, not focused mostly on reducing nitrogen, phosphorus and sediment. While water quality goals will always be foundational to success, we know it will take much more to accelerate progress.

If we really want to create a healthy ecosystem where people and nature thrive for the long term, we need to take a holistic approach that addresses mounting pressures from climate change, population growth, and growing sources of pollution. This isn't just what the public expects. It is also a major finding of the *Comprehensive Evaluation of System Response* (CESR) report, a landmark 2023 report prepared by the dozens of Bay scientists who make up the Bay Program's Science and Technical Advisory Committee.

Keeping these issues front and center in the Chesapeake Bay Agreement allows us to make progress that reaches across state lines, across administrations and across generations. If there is one clear message from the first 40 years of Bay restoration, it's that we can accomplish much more together than we can alone.

State and local actions have enormous power to protect and revitalize our waters. It is more critical than ever to advance legislation and local regulations that safeguard forests and wetlands, strengthen science and make communities more resilient. It is also vital that we stand together to advocate for our federal partners, ensuring they have the full funding and staff they need to continue performing their critical role in the partnership.

The hollowing out of federal agencies and grant programs makes it paramount to continue the long, proud tradition of bipartisan support for the Chesapeake across our region.

We cannot and will not stop doing the work that matters. We must continue speaking up for our waters and our communities, putting oysters in the Bay and trees in the ground. We must continue holding polluters accountable and inspiring the next generation of environmental leaders.

The effort to save the Bay has always been fueled by the people who love this place. Now, it will take all of us to stand up for it. Having the cleanest water in the world means little if we don't also have thriving, life-giving wetlands, marshes and streams, if we don't have sustainable fisheries and flourishing communities with strong local economies. To get there, restoration goals must reflect all that people and nature need. ■

Hilary Harp Falk is president and CEO of the Chesapeake Bay Foundation.

SHARE YOUR THOUGHTS

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

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

Opinion columns are typically a maximum of 900 words and must be arranged in advance. Deadlines and space availability vary. Text may be edited for clarity or length.

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

CHESAPEAKE CHALLENGE

— Kathleen A. Gaskell

Buckle up, butterfly, for April Fools' facts

"It's not nice to fool Mother Nature!"

That was the punchline of a margarine-pretending-to-be-butter TV ad decades ago. When it comes to butterflies, though, nature has the last laugh with a few tricks up its sleeve to help these insects outwit predators.

Nettlesome nest: The red admiral butterfly lays her eggs on stinging nettles, which have burning hairs that provide a disincentive to would-be predators of the eggs — and later, of the larvae, which eat the plant.

Dress for success: The viceroy, a very tasty butterfly, is avoided by many predators because it closely resembles the monarch butterfly — which, because of its milkweed (high in cardiac glycosides diet), not only tastes bad but can be toxic. An animal that survives a monarch meal is not likely to try it again and will also avoid the lookalike viceroy.

What big eyes you have! A very young spicebush swallowtail caterpillar, which is dark brown with white streaks, looks like an unappetizing pile of bird poop. But its final stage is even more repelling. Large yellow and black rings on its back look like snake eyes. An inflatable Y-shaped appendage on the front of its body enhances the "I'm a snake — think twice!" disguise.

Butt face: Predators usually attack a butterfly's head to more easily immobilize it. The banded hairstreak butterfly gets around this using orange, black and white false "eye spots" on its hind wings. When at rest, it tucks its head and legs under its body and rubs two hairlike tails together in an antennae-like fashion. This tricks predators into biting the wrong end, often allowing the hairstreak to fly away.

Bye-Bye Butterfly: Sometimes the butterfly is played for the fool. Passionflowers are popular for egg-laying butterflies. Because fritillary butterflies avoid plants that already have eggs (in case there is not enough food when their eggs hatch), passionflower plants have evolved to produce egg-mimicking growths on their leaves.

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

Take this tiger swallowtail quiz to earn your stripes

The eastern tiger swallowtail was the subject of the first known drawing of a North American butterfly. English explorer John White created the image during Sir Walter Raleigh's third expedition to Virginia in 1587. Will you fly or just wing it in this quiz? Answers: page 36.

1. The eastern tiger swallowtail is the state butterfly of one Chesapeake Bay drainage state and the state insect of another. Which two?

2. Of the 560+ swallowtail species in the world, the eastern tiger swallowtail is considered the most polyphagous. What is polyphagy?
   A. Ability to mate with other species
   B. Ability to adjust color to match habitat
   C. Ability to eat a wide spectrum of food

3. The male swallowtail is yellow with black stripes. Some females look the same — except for a band of blue spots on the hind wing — but others are mostly dark gray or black. What advantage do these "dark morph" females have?
   A. They lay more eggs.
   B. They look like the poisonous pipevine swallowtail and are shunned by many predators.
   C. They are more desirable to mating males.

4. Tiger swallowtail larvae spin a silken mat on their host leaf, causing it to curl. What is this for?
   A. A resting place between feedings
   B. An early start on a cocoon
   C. Both A & B

Title image: *A banded hairstreak butterfly. (Judy Gallagher/CC BY 2.0)*

A *The viceroy butterfly benefits from its close resemblance to the bad-tasting and sometimes toxic monarch butterfly, which predators have learned to avoid. (Iwolfartist/CC BY 2.0)*

B *The admiral butterfly protects its eggs by laying them among stinging nettles. (Andrew Curtis/CC BY-SA 2.0)*

C *Because fritillary butterflies avoid laying eggs on already occupied leaves, some passionflower leaves have egg-mimicking growths to discourage fritillaries. (David J. Stang/CC BY-SA 4.0)*

D *Like other banded hairstreak butterflies, this red-colored variety fools predators with faux antennae at the lower corners of its hind wings. (Andrew Cannizzaro/CC BY 2.0)*

E *The final caterpillar stage of the spicebush swallowtail butterfly discourages predators with "eyes" that make it look like a snake. (Judy Gallagher/CC BY 2.0)*

F *An eastern tiger swallowtail butterfly feeds on the flowers of native liatris, also known as gayfeather or blazing star. (Michele Danoff)*

A canoeist enjoys a spectacular sunrise off Bishops Head near the southern tip of Dorchester County, MD. (Dave Harp)

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The showy blooms of a deciduous magnolia tree are one of the earliest signs of spring in the Chesapeake Bay region, usually appearing in late March. (Michele Danoff)

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BULLETIN BOARD

BULLETIN BOARD GETS NEW ADDRESS

The new address for submitting items to Bulletin Board is: bboard@bayjournal.com

EVENTS / PROGRAMS

WATERSHEDWIDE

Introduction to Pollinator Gardens (online)
7 pm, April 22. Learn what it takes to grow and manage a pollinator garden and get answers to your questions about supporting plants and pollinators at home. Free. Info: friendsofmasonneckstateparkinc.wildapricot.org.

Potomac River Earth Day Cleanups
9–11 am, April 19; Winding Creek Park, MD; Anacostia Park, DC; and Gravelly Point Park, VA. Join Potomac Conservancy for their annual Earth Day trash cleanup. Sign up to make a difference for your hometown river. Once registered, you will receive details about the event. Info: potomac.org/events.

PENNSYLVANIA

Women in the Wild
9 am–3 pm, May 3; Little Buffalo State Park, Newport. Step out of your comfort zone and learn new outdoor skills. Activities include a mix of art, wellness, outdoor recreation, wildlife education, nature photography, campfire cooking, kayaking, map reading and more. $40.Info:events.dcnr.pa.gov/event/women-in-the-wild.

Birding Festival
10 am–3 pm, May 10; Kettle Creek State Park, Renovo. Celebrate the spring migration with pontoon boat rides, live raptors, guided bird walks, building bluebird boxes and scope and binocular use. Free. Info: events.dcnr.pa.gov/event/9th-annual-birding-festival.

Earth Day Volunteer Workday
5–8 pm, April 22; Clark Nature Preserve, Pequea. Help the Lancaster Conservancy care for the Earth by working on invasive plant removal as part of an eco-restoration program. Learn more and register: lancasterconservancy.org/events.

VIRGINIA

Wetlands Awareness Day
12–4 pm, May 4; Huntley Meadows, Alexandria. Bring the whole family for an afternoon celebrating Huntley Meadows' wetlands. Get up close with raptors, reptiles and amphibians, and collect stamps for a prize as you explore interactive exhibits. No registration needed. Info: fairfaxcounty.gov/parks/huntley-meadows/wetlands-awaress-day/050425.

Shenandoah NP Wildflower Weekend
9 am–5 pm, May 10 and 9 am–4 pm, May 11; various locations throughout the national park. Guided hikes and programs will focus on the diversity of flowering plants and seasonal changes. Learn to use the Flora of Virginia App, wildflower photography basics, botanical art. Enjoy guided hikes featuring wildflowers, amphibians and spring birds. Free programs, open to all ages, no registration required. Park admission required. Info: nps.gov/shen/planyourvisit/wildflower_weekend.htm.

Senior Rangers: Let's Go Hiking
10 am–12 pm, April 16, 23, 30 and May 7, 21; Caledon State Park, King George. Seniors age 55+ can join peers to learn about plants, animals, conservation, history, stewardship and more. Enjoy exercise, fellowship, expert-led talks, crafts, wagon rides, hikes. Call 540-663-3861 to register. Parking $5; extra fee $5/session or $20/all. Info: dcr.virginia.gov/state-parks/caledon (Events and Programs).

National Kids to Parks Day
10 am–2 pm, May 17; Sky Meadows State Park, Delaplane. Celebrate Kids to Parks Day with an exciting day of nature programs. Explore the .3-mile nature trail that has adaptations for the blind and visually impaired. Explore billion-year-old geology, experience bird songs in the forest, learn about vernal pools and more. Take the Pollinator Plot Tour to learn how to start a pollinator garden at home. Free programs; standard parking fee. Registration encouraged: dcr.virginia.gov/state-parks/sky-meadows (Events and Programs).

Tree Rescue Volunteer Workday
8:30 am and 1 pm sessions, April 19; Leopold's Preserve, Broad Run. Help remove invasive, tree-choking vines. Volunteers aged 13+; minors w/parent or guardian. Free. Registration required: leopoldspreserve.com/calendar.

Leopold's Preserve BioBlitz
10 am–12 pm, April 26; Leopold's Preserve, Broad Run. Help document biodiversity at Leopold's Preserve while contributing to the DC City Nature Challenge. Free. Info: leopoldspreserve.com/calendar.

Trash Free Shenandoah Cleanup
10 am–2 pm, May 3; White House Farm, Luray. Remove trash and other debris from the banks of the North Fork of the Shenandoah River to support the Trash Free Shenandoah initiative. Lunch provided. Free. Registration required: whfarmfoundation.org/event-info/trash-free-shenandoah-cleanup.

Earth Day Service Project at Sky Meadows
10 am–1 pm, April 26; Sky Meadows State Park Carriage Barn, Delaplane. View What's the Rush and learn about the Homegrown National Park Initiative — where we all make a difference by removing invasive species and planting natives. Info: dcr.virginia.gov/state-parks/sky-meadows (Events and Programs).

MARYLAND

Earth Day Celebration
10 am–2 pm, April 27; Quiet Waters Visitor Center, Annapolis. Featuring vendors, a sustainability fair, fun activities, guided woodland walk, guided birding walk, forest bathing and new self-guided interpretive walks. Free. More info and registration (for some of the walks): fqwp.org (Programs and Events, Calendar).

Native Plant Walk and Presentation
5–8 pm, April 30; C&O Canal towpath, Potomac. The presentation will discuss efforts to support native plantings and the support of rare, threatened and endangered plant species. Learn about growing native plants in your own landscape to benefit native birds, insects and animals. Then enjoy a walk along the towpath and receive native Maryland plant seeds. $35. Registration: canaltrust.org/nativeplantwalk.

Science Saturday Camp
10 am–3 pm, May 10; Environmental Education Center at Horn Point Laboratory, Cambridge. Join the Society for Women in Marine Science and spend a day in the life of a scientist. Get to know tools scientists use to make discoveries and solve mysteries. Free. Email hplswms@umces.edu or go to science. umces.edu/swms-hpl/science-saturday.

Fossil Egg Hunt
10 am–12 pm, April 19; Calvert Marine Museum, Solomons. Look for eggs with real fossils inside that have been hidden around the museum. Container for egg collection and fossil identification guides provided. Ages 3 to 10. More info and registration (required): calvertmarinemuseum.com/Calendar.aspx, choose April.

Composting Demonstrations
12–1 pm, April 26 and 10–11 am, May 7, 17; Quiet Waters Park, Annapolis. Learn to make a soil amendment for normal, sandy, or clay soil and cut down on the bags of mulch and compost you purchase. You can even compost certain kitchen scraps along with garden materials. Attendees receive a free compost bin and other useful items. This project is run by Anne Arundel County Master Gardeners and Quiet Waters Park. County provides free compost bins and other giveaways. Info: fqwp.org/composting-demonstrations.

Native Plant Sale
Order online by April 27 and pick up May 2, 3. Browse Lower Shore Land Trust's diverse selection of native plants, perfect for enhancing your garden just in time for spring blooms. Call 443-234-5587 with questions. Info: lowershorelandtrust.square.site.

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 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 33

1. Delaware's state butterfly, Virginia's state insect
2. C
3. B
4. A

BULLETIN BOARD

Patuxent Research Refuge, National Wildlife Visitor Center

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

■ *Kids' Discovery Center:* 10 am–12 pm (35-minute time slots, on-hour) Wed. through Sat. Ages 3-10, w/adult. Crafts, puzzles, games, nature exploration. April: *Grasshoppers, Preying Mantises & Walking Sticks*. May: *Bees & Wasps*. Registration strongly urged.

■ *Free Film & Speakers – My Garden of a Thousand Bees:* 5–7 pm, with special exhibits tour at 4:15 pm, April 4; National Wildlife Visitor Center. Explore just how special all the different bees are. After the film enjoy a special presentation by USGS Native Bee Inventory and Monitoring Lab scientists and apiologists. All ages.

■ *"Wingspan" Game Days:* 10 am–1 pm, Apr. 11 and 26; May 9 and 24. Ages 12+. No experience needed. Come play the award-winning board game. Sign in at Front Desk or register online.

■ *Family Fun:* Staffed 10 am–1 pm, Apr. 18/19 and May 16/17; independent 10 am–4 pm, Wed.-Sat. All ages. Drop-in program. Theme: *Birds!* Learn more about our feathered friends, with hands-on learning activities, games, crafts.

■ *Cash Lake Trail Walk/Hike:* 6 pm, May 4. Rain or shine. All ages (under 18 w/adult). Appropriate footwear for easy/possibly muddy 1.8 mile walk/hike on mostly level ground; binoculars (if you have). Meet at the wolf statue in front of the National Wildlife Visitor Center. Registration preferred.

State of the Eastern Shore Rivers

Each year ShoreRivers' professional riverkeepers conduct weekly tidal sampling of more than 60 sites from Cecilton to Cambridge, then test for dissolved oxygen, nutrient pollution, chlorophyll and clarity. The public is invited to learn more about the results at the following presentations: 5:30–7 pm, April 22 in Betterton, Sassafras and Bayside Creeks; 5:30–7 pm, April 24 in Cambridge, Choptank River; 5:30–7 pm, May 1 in Stevensville, Chester River; 5:30–7 pm, May 8 in St. Michaels, Chester, Miles and Wye Rivers, and Eastern Bay. Light refreshments and local oysters will be provided. Free. Registration requested but not required. Info: shorerivers.org/events.

VOLUNTEER OPPORTUNITIES

WATERSHEDWIDE

Become a water quality monitor

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

Potomac River watershed cleanups

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

PENNSYLVANIA

Middle Susquehanna volunteers

The Middle Susquehanna Riverkeeper needs volunteers in these areas: *Monitor local waterways* and provide monthly online updates: web search "Susquehanna sentinels." *Water sampling:* search "Susquehanna Riverkeeper survey." New people are needed for stream restoration, litter cleanups, individuals, families. Scouts, church groups welcome: 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. NixonCountyPark@YorkCountyPA.gov, 717-428-1961 or supportyourparks.org (Volunteer).

PA Parks & Forests Foundation

The Pennsylvania Parks and Forests Foundation, a Department of Conservation and Natural Resources partner, helps citizens get involved in parks, forests. Learn about needs, then join or start a friends group. Info: PAparksandforests.org.

VIRGINIA

Virginia Living Museum

Virginia Living Museum in Newport News needs volunteers ages 11+ (11–14 w/adult) to work alongside staff. Educate guests, propagate native plants, install exhibits. Some positions have age requirements. Adults must complete background check ($12.50). Financial aid applications available. 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.

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.

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 (Volunteer).

Smithsonian Environmental Research Center

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

National Wildlife Refuge at Patuxent

Opportunities include: Kids' Discovery Center help, volunteering at the Bookstore & Nature Shop, help with events, hospitality, public conservation-education programs. Call 301-497-5772 during staffed hours (10 am–4 pm, Wed.-Sat.).

C&O Canal National Historical Park stewardship

Become a C&O Canal steward. "Adopt" a section of the park and throughout the year help ensure it remains clean and beautiful. You can participate individually, with your family or as part of a larger group: canaltrust.org/programs/volunteer-programs.

Eastern Neck Wildlife Refuge

Volunteer with Friends of Eastern Neck Wildlife Refuge in Rock Hall: Answer questions, handle sales at visitor contact station & gift shop/bookstore. Plant, weed butterfly garden. Staff information booth at community events. Visit the contact page at friendsofeasternneck.org.

Maryland State Parks

Search for volunteer opportunities in state parks at ec.samaritan.com/custom/1528. Click on "search opportunities."

Lower Shore Land Trust

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

Annapolis Maritime Museum

Volunteer at the Annapolis Maritime Museum & Park. Info: Ryan Linthicum at museum@amaritime.org.

RESOURCES

MARYLAND

Bird Flu Reporting & Resources

Anyone who sees sick or dead birds in the wild should not handle or move the birds but report them by calling 1-877-463-6497. More info and the latest updates are on the Department of Natural Resources website (Google "MDDNR, bird flu"). Anyone who owns poultry or has access to a backyard flock should register with the Department of Agriculture and follow important biosecurity measures to prevent the spread of HPAI. Info: mda.maryland.gov/Pages/AvianFlu.aspx.

University of Maryland Extension Home & Garden Info

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

VIRGINIA

Living Shoreline Cost Share

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

Virginia DWR public lands recreation search

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

Apply for runoff assistance

The Virginia Conservation Assistance Program helps HOAs, homeowners, schools, places of worship with urban soil erosion and water runoff. Go to pwswcd.org to fill out a request form or contact the district at 571-379-7514, pwswcd.org/vcap or Nicole Slazinski at nicoleethier@pwswcd.org.

What a trip to Key West taught me about Bay conservation

By Jake Solyst

Mummichogs swim through sago pondweed in the Severn River in Anne Arundel County, MD. (Will Parson/Chesapeake Bay Program)

With an estimated flood protection value of $50 billion, Florida's mangroves also provide wildlife habitat, help mitigate climate change and reduce coastal erosion. (Ralph Pace)

A few weeks back, I found myself among a handful of tourists sitting on a sailboat off the coast of Key West in Florida, cheerfully listening to the captain give a spiel about mangroves.

It had been a splendid trip so far — sunny skies and temperatures never far from 75 degrees, quirky restaurants serving fresh flounder and swordfish, and sunset parties where tourists gathered to watch the last sliver of sun slip past the horizon. But as someone who works in communications, where my job can be boiled down to making people care more about the Chesapeake Bay, this little lesson on marine ecology, delivered by a weather-beaten boat captain no less, was the highlight of my trip.

As the captain explained, mangroves — tropical trees that grow not just along the water but in it — provide a variety of benefits to wildlife and humans. In the Keys, mangroves serve as nursery grounds for fish that we end up eating or as food for larger species that anglers dream of catching. Because mangroves grow in dense clusters out in the water, they also slow down wave energy during storms, which reduces flooding on the land and the erosion of shoreline. Mangroves absorb nutrient runoff through their roots, which can keep low-oxygen "dead zones" from forming. In the words of the sailboat captain, mangroves are also "giant lungs" that soak up carbon, thereby slowing climate change.

If the captain had stopped there, I would've gone home happy. But he took things to another level by sharing a story about how President Theodore Roosevelt in 1908 came to Key West to announce that 375 square miles of islands and mangroves would be conserved as the Key West National Wildlife Refuge. This act of conservation meant that more than 100 years later, the mangroves we sailed around were still federally protected. Without them, the fish population around Key West would almost certainly be lower, erosion would be more severe and the water quality would be worse.

The sailboat captain's spiel, in one form or another, was repeated during the many outings I had in the Keys (my wife and I are suckers for touristy things), including a guided kayak tour, a sunset cruise and a boat trip to spot dolphins and manatees. Naturally, this got me thinking about how educational moments such as these occur on the Chesapeake Bay. While the Bay doesn't have mangroves, it does have wetlands, underwater grasses and oyster reefs, which provide the same kinds of benefits to water quality, erosion protection and wildlife as mangroves. The Bay also has sailboat cruises, kayak tours and paddleboarding led by guides who are ideal emissaries for messages around conservation.

Bay advocates have long championed the idea that tourism and conservation go hand-in-hand.

In the 1987 Chesapeake Bay Agreement, signatories agreed to improve and maintain access to the Bay, improve opportunities for recreational and commercial fishing, and secure shoreline acreage to maintain open space, among other commitments related to public access. In the most recent Chesapeake Bay Watershed Agreement, partners set a goal of opening up 300 new public access sites, including boat ramps, soft launches and fishing areas by 2025. So far, 285 new sites have been opened, putting the partnership 15 sites away from its goal!

A survey conducted by the Chesapeake Bay Program's Public Access Workgroup in 2022 showed that increasing public access can inspire people to support Bay conservation. According to the survey responses, 45% of residents who visit a public access site at least once a week strongly agreed with the statement, "I want to do more to help make local creeks, rivers and lakes healthier," and 21% somewhat agreed. For those who visit a public access site only a few times a year, it was the other way around — 20% strongly agreed with the statement and 45% somewhat agreed. In addition, 61% of respondents agreed that "being near or on the water makes me want to do more things to protect it."

So, if we want public buy-in for Bay conservation, we should continue to make the Bay a place people want to visit and enjoy. But we should also look for ways to remind people who are fishing, boating or having a crab feast that all this wouldn't be possible without the conservation and ongoing restoration of wetlands, oyster reefs and underwater grass.

I dream of a world where charter boat captains promote oyster reef restoration and where menus at seafood restaurants have a little note at the bottom about the importance of wetlands, right next to the asterisk regarding gluten.

It's easy to get people to care about blue crabs, brook trout and bald eagles. My hope is that people can also find compassion for the habitats that sustain them. ■

Jake Solyst is the Chesapeake Bay Program web content manager with the Alliance for the Chesapeake Bay.

Wetlands border the Karen Noonan Center in Dorchester County on Maryland's Eastern Shore in August 2017. (Will Parson/Chesapeake Bay Program)

A great blue heron visits an oyster reef exposed at low tide on Virginia's Lynnhaven River. (Leslie Boorhem-Stephenson/Chesapeake Bay Program)

Forget the prank you fell for at camp — the snipe is a real bird

By Alonso Abugattas

The Wilson's snipe has a long, flexible beak that allows it to feel around for prey in the sand or mud. (Iwolfartist/CC BY 2.0)

The streaky, stripey pattern of the Wilson's snipe's feathers make it hard to spot in marshes and beach grasses. (Andy Reago and Chrissy McClaren/CC BY 2.0)

Some people associate the term "snipe hunt" with a summer camp practical joke. First-time campers are taken into the woods at night in search of a nocturnal bird that, for the purposes of the prank, is fictional. The jokers arm the trusting campers with trash bags and flashlights and then, after poking around in the woods and just as the seekers seem to be closing in on the nonexistent prey, a practical joker bursts out of the bushes to startle the daylights out of the new campers.

I pulled the stunt once myself, as a camp counselor for a group of city teenagers. I made it all the more convincing by showing the kids a picture of an actual snipe in a bird book — because it *is* a real bird.

There are 18 species in the genus *Galinago.* Ours, in the Chesapeake Bay region, is *G. delicata,* the Wilson's snipe. Once thought to be a subspecies of Europe's common snipe, the Wilson's snipe in 2003 was classified as a species of its own, mostly on the basis of the number of tailfeathers and the "winnowing" sound it makes when diving toward the ground in a mating display. The Latin genus name, *Galinago,* translates as "hen-like." Our native species is named for the famous Scottish American ornithologist Alexander Wilson, considered by some as the father of American ornithology.

The Wilson's snipe is a fairly large, pudgy freshwater shorebird, about 11 inches from the tip of its disproportionately long bill to the end of its stubby tail — but easy to overlook because of its very effective camouflage. It has short, sturdy legs and a generously striped head, with another three or four prominent white stripes down its back.

The bird's reaction to human presence is unpredictable. It might wait until you are almost on top of it, then explode suddenly into the air, zigzagging and letting loose with a loud call, phonetically described as *scaipe*. Other times, the bird may not let you get within 100 feet before it takes off noisily. It might also be remarkably trusting or at least unbothered by your presence. I once led two classes of young students right up to one that was feeding on the edge of a pond, and the bird didn't even seem to notice all the kids gawking at it.

I've flushed them out along a stream and watched them zigzag downstream — then alight and then bolt off again when I got close again. When the stream entered the woods, they circled back upstream to start the process all over again.

This bird has an impressive mass of breast muscles, making up a 25% of its weight, the highest percentage of all shorebirds. This not only gives them a stocky appearance but also a speed of up to 60 miles per hour. This great speed, tied in with their erratic flights, makes all snipes difficult targets, and they are considered challenging game birds. In fact, the word "sniper" comes from hunting them, dating back to the 1700s when British soldiers in India pursued the elusive birds.

The word "snipe" itself comes from the Old English words "snite" and "snout," referring to the bird's long bill. The bill is very flexible, especially in the front, allowing the bird to insert it into the mud and essentially feel around for food — mostly invertebrates such as cranefly larvae, worms, insects, crayfish, mollusks and frogs, along with the occasional seeds. The only differences between the sexes are the female's overall greater body mass and significantly longer bill.

Snipes are crepuscular (dusk and dawn) feeders and, much like owls, they regurgitate pellets of indigestible material. Their eyes are set well back on their heads, allowing them to feed while keeping an eye out for danger. They will stay around for as long as they can find unfrozen ground to probe with their bills. They do this in a very rhythmic, methodical fashion, like an old sewing machine at slow speed.

While normally solitary, snipes do form small groups, especially during migration. A group is called a walk or whisp. They have

A Wilson's snipe perches on a fence post, uncharacteristically visible to the world. (Sean Breazeal/CC BY-SA 3.0)

an interesting aerial breeding display, normally done by the male, though the female may sometimes do it too. They rise up 300-400 feet and then dive down. The air vibrates through their outer tail feathers, making a sound that is called winnowing or bleating.

Snipes can be found in the Chesapeake region mostly in winter, with their summer breeding grounds far north. But some breed in Pennsylvania and have been seen trying to nest in Maryland as well.

The female scratches out her nest in the marsh or on a hummock in a wet meadow, lining it amply with grasses, leaves and moss. Sometimes, she covers it with grass and leaves for concealment. Overall it's a much more elaborate affair than the nests of other shorebirds in April or May.

She normally lays four olive or buff-colored eggs with darker spots and blotches. During incubation, the eggs are usually neatly arranged with the narrow ends pointing inwards. Incubation typically takes 18–20 days, and fledging occurs two to three weeks later. A day or so after hatching, the parents divide the precocial brood in half, with the parents taking their portion separate ways. Both perform distraction displays if the young are in danger, attempting to lead the predator away from them.

Despite loss of their marshy habitat, snipe numbers remain stable with about 2 million breeding pairs from 1966 to 2019, according to the North American Breeding Bird Survey. ■

Spring has sprung! Cue the vernal pools and amphibians

By Kathy Reshetiloff

Vernal pools have the advantage, from the amphibian's perspective, of not being connected to a waterway and therefore have no fish that might prey on them or their eggs. (Liz West/CC BY 2.0)

The wood frog arrives early at the vernal pool breeding community, often before the snow and ice have completely melted away. (Wildreturn/ CC BY 2.0)

Each year throughout the Northeast, melting snow and spring rains create a very specialized wetland habitat. Small depressions in forests and meadows temporarily fill with water. Known as vernal pools, these often small and inconspicuous areas spring to life as amphibians like frogs, toads and salamanders converge at them to breed.

The Greek word *amphibios* literally means "double life" — in this case referring to the animals' aquatic and terrestrial life stages. Most amphibians start out aquatic, as soft eggs laid in water. The eggs hatch into larvae, which don't look or act much like the mostly terrestrial adults they become. For instance, toad and frog eggs hatch into tadpoles, which can only survive in water. As the larvae grow, they experience radical physiological changes, a process known as metamorphosis, transforming them into adults.

Vernal pools provide the temporary aquatic environment that supports both the eggs and larvae of amphibians. Because vernal pools are not connected to streams, creeks or rivers, they do not support fish that would otherwise prey on amphibian eggs and larvae.

Despite their name, which refers to spring, some vernal pools also fill with water during autumn. And, following suit, some salamanders — like the marbled salamander (*Amystoma opacum*) — actually begin their breeding cycle in fall, migrating to pools and depositing eggs. The larvae overwinter in the pool. Other salamanders, like the spotted salamander (*Amystoma maculatum*), will wait until spring to visit pools and lay their eggs. Many salamanders return to the same pool where they were born to breed.

Unlike quiet salamanders, toads and frogs make a good bit of noise when they arrive at vernal pools, calling incessantly to attract mates. Frogs produce their calls by moving air back and forth, passing it over the vocal cords, making them vibrate and produce sounds. So, although you may not see them, you can identify which species are breeding by listening to their calls.

The marbled salamander breaks salamander tradition and breeds in ephemeral ponds in the fall, not the spring. (Greg Schechter/CC BY 2.0)

Wood frogs (*Rana sylvatica*) are the earliest frogs to arrive at vernal pools, often before snow and ice have completely melted. Their call is a hoarse clacking sound, reminiscent of a quack. Wood frogs are explosive breeders, usually laying a large mass of eggs in a few days and leaving soon after.

The spring peeper (*Pseudacris crucifer*), now classified as a chorus frog, follows the wood frog by a week or two. From February to March, spring peepers leave the trees to mate in open water. Their unmistakable mating call, the *peep*, and large geographic range makes the peepers one of the most familiar frogs in North America. Large numbers often sound like jingle bells, and their mating call can sometimes be heard up to a half a mile away from the pool.

Another familiar amphibian is the American toad (*Bufo americanus*). Their habitat ranges from mountains to suburban backyards. You're likely to find them almost anywhere as long as there are moist places, plenty of insects to eat and shallow waters where they can breed from March to July. Despite its warty appearance, this toad's mating call is quite musical.

Across the world, amphibian populations are declining. Loss of forest and wetland habitat is a major threat. Many amphibians return to the same pools in which they were born to breed. If these natal areas are disturbed or lost, those amphibians will not breed. Deforestation reduces the woodland habitat that many amphibians require as adults. Forest fragmentation is also a problem. As wooded tracts shrink in size, the remaining amphibians become isolated and inbreeding may occur, weakening the species.

Why should we care? Amphibians help us to measure the health of our environment. Like a canary in a coal mine, declining local populations may indicate a contaminant problem. Amphibians exchange water and air primarily through their skin. In addition, they can absorb pollutants that are in the soil and water. Many amphibians have foul-tasting chemicals in their skin and glands to protect them from predators. Some of these chemicals may hold clues for medicinal uses. Companies are researching these compounds for heart medications, organ glues and painkillers. Last but certainly not least, frogs, toads and salamanders provide connections between humans and nature. They are often among the first types of wildlife that children hear and see.

Protecting forested wetlands and woodlands is a first step to preserving amphibians. Adults need wooded tracts but also need access to shallow aquatic habitats for breeding. Vegetated buffer strips along waterways are equally important. Amphibians use these as corridors to move between small pockets of woodlands and vernal pools, helping to ensure healthy and diverse populations.

Humans benefit in other ways, too. These same areas provide homes to a multitude of wildlife, including invertebrates, fish, birds and mammals. Forests, wetlands and vegetated river corridors reduce the amount of nutrients and sediment entering rivers and the Chesapeake Bay. And in this increasingly concrete world, we all need a place where we can retreat. The forests and wetlands offer such a retreat, where we can enjoy the serenades from the woods. ■

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